City Research Online

City St George's, University of London

Citation: Pangallo, A. (2014). An exploration of the measurement of resilience in palliative care workers. (Unpublished Doctoral thesis, City University London)

This is the accepted version of the paper.

This version of the publication may differ from the final published version. To cite this item please consult the publisher's version.

Permanent repository link: https://openaccess.city.ac.uk/id/eprint/13710/

Copyright and Reuse: Copyright and Moral Rights remain with the author(s) and/or copyright holders. Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge, unless otherwise indicated, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way. For full details of reuse please refer to City Research Online policy.

City Research Online: http://openaccess.city.ac.uk/ publications@citystgeorges.ac.uk

An exploration of the measurement of resilience in palliative care workers

Antonio Pangallo
Supervisor: Dr Lara Zibarras

Submitted for PhD

Department of Psychology,
City University London

September 2014

Table of Contents

List of Tables **11**

List of Figures **13**

Acknowledgments **14**

Abstract **16**

Chapter 1: An exploration of the measurement of resilience in palliative care workers 17

1.1 Introduction 17

Stress in healthcare workers *18*

Stress in palliative care workers *19*

1.1.1 Understanding resilience 21

1.1.1.1 Defining resilience *23*

1.1.1.2 The case for interactionism *25*

1.1.2 Conceptualising resilience 26

1.1.2.1 How 'adverse' does adversity have to be? *26*

1.1.2.2 What protective factors enable resilient functioning? *28*

1.1.2.3 What constitutes positive adaptation or resilient functioning? *31*

1.1.3 Resilience models and theories 35

1.1.3.1 The ecological-transactional model (Cicchetti & Lynch, 1993) *36*

1.1.3.2 Kumpfer's Resilience Framework (Kumpfer, 1999) *38*

1.1.3.3 Woodgate's process-oriented model of resilience (Woodgate, 1999) *39*

1.1.3.4 Summary of models *41*

1.1.3.5 Conservation of resources (COR) theory *42*

1.1.4 Resilience measurement issues 44

1.1.4.1 Measuring resilience as a trait *44*

1.1.4.2 Measuring adversity *46*

1.1.4.3 Measurement of outcomes 47

1.1.4.4 Item selection and sampling 47

1.2 Summary 49

1.3 Overview of thesis and research questions 50

Chapter 2: Context, Sampling, Research Design and Methods 53

2.1 Introduction 53

2.2 Context 53

2.3 Conducting organisational research 55

2.4 Sampling 56

2.5 Research design 57

2.6 Research methods 60

2.6.1 Questionnaires 60

2.7 Interviews 61

2.7.1 Template Analysis 62

2.7.2 Focus group interviews 63

2.8 Studies presented in this thesis 64

2.8.1 Study One: A systematic and methodological review of resilience measurement scales 66

2.8.2 Study Two: Operationalising resilience: a joint factor analysis of resilience measurement scales 66

2.8.3 Study three: An exploration of resilience in palliative care workers: a template analysis 67

2.8.4 Study four: A new method of measuring resilience in palliative care workers 67

2.9 Summary 69

Chapter 3: A systematic and methodological review of resilience measurement scales 70

3.1 Introduction 70

3.1.1 Challenges associated with the resilience construct 70
3.1.2 Systematic review 73
Part One: Systematic Review of Resilience Measures 74
3.2 Part One: Method 74
3.2.1 Procedure 74
3.2.2 Data Extraction 76
3.2.3 Characteristics of Identified Resilience Measures 86
3.2.4 Conceptualisation of resilience 86
3.3 Part One: Results 87
Part Two: Methodological review of resilience measurement scales 90
3.4 Part Two: Method 91
3.4.1 Procedure 91
3.4.1.1 Applying the Assessment Framework 91
3.5 Part Two: Results 94
3.5.1 Theory Formulation 94
3.5.2 Internal validity evidence 94
3.5.2.1 Internal stability 94
3.5.2.2 Internal consistency 97
3.5.2.3 Replicability 98
3.5.3 External validity evidence 98
3.5.3.1 Convergent validity 98
3.5.3.2 Discriminant validity 98
3.5.4 Application 99
3.5.5 Summary of Results of Psychometric Evaluation 99
3.6 Discussion 100
3.6.1 Implications 102
3.6.2 Limitations and recommendations for further research 104

3.7 Conclusion 105

Chapter 4: Operationalising resilience: a joint factor analysis of resilience measurement scales 106

4.1 Introduction 106

4.1.1 Current approaches to resilience measurement 107

4.1.2 Study Overview 109

Part One: Joint Exploratory Factor Analysis 109

4.2 Part One: Method 110

4.2.1 Participants 110

4.2.2 Procedure 111

4.2.3 Measures 111

4.2.3.1 Revised Ego-Resiliency 89 Scale (ER-89-R: Alessandri, Vecchione, Caprara, & Letzring, 2012) 112

4.2.3.2 Connor-Davidson Resilience Scale (CD-RISC: Campbell-Sills & Murray, 2007) 112

4.2.3.3 Resilience Scale for Adults (Friborg et al., 2003) 113

4.2.3.4 Psychological Capital Questionnaire (PCQ: Luthans, Youssef, & Avolio, 2007). 113

4.2.3.5 The Brief Resilience Scale (BRS: Smith et al., 2008) 114

4.2.3.6 Who-Five Well Being Index (WHO: World Health Organisation, 1998) 114

4.3 Part One: Results 114

4.3.1 Internal consistency and inter-correlations 114

4.3.2 Joint factor analysis 115

Part Two: Confirmatory Factor Analysis 121

4.4 Part Two: Method 121

4.4.1 Participants 121

4.4.2 Measures 122

4.4.3 Procedure 122
4.4.4 Analyses 122
4.5 Part Two: Results 123
4.6 Discussion 126
4.6.1 Implications 128
4.6.1.1 Conservation of Resources Theory (COR) 129
4.6.2 Limitations and Future Directions 132
4.6.3 Conclusion 133
Chapter 5: Exploring resilience in palliative care workers: a template analysis 135
5.1 Introduction 135
5.1.1 Study Rationale 135
5.1.2 Qualitative interviews 136
5.2 Method 136
5.2.1 Participants 136
5.2.2 Procedure 137
5.2.3 Interview schedule 138
5.2.4 Analysis 139
5.2.4.1 Initial coding template 140
5.2.4.2 Coding 141
5.3 Results 143
5.3.1 Intrapersonal resources (1) 145
5.3.1.1 Psychological capital (1.1) 145
5.3.1.2 Self-efficacy (1.2) 147
5.3.1.3 Hardiness (1.3) 147
5.3.2 Interpersonal resources (2) 148
5.3.2.1 Family cohesion (2.1) 149

5.3.2.2 Social resources (2.2) *149*

5.3.3 Procedural knowledge (3) 151

5.4 Discussion 153

5.4.1 Implications 156

5.4.2 Limitations and Future Directions 159

5.5 Conclusion 160

Chapter 6: A new method of measuring resilience in palliative care workers 161

6.1 Introduction 161

6.2 Why use Situational Judgment Tests? 162

6.2.1 A theoretical basis for SJTs: Implicit Trait Policy (ITP) 163

6.3 Research on SJT Development and Validation 164

6.3.1 SJT-item content development 164

6.3.2 SJT scoring keys 166

6.3.3 SJT validity 167

6.3.3.1 Construct validity *167*

6.3.3.2 Criterion-related validity *169*

Part One: SJT development 172

6.4 Part One: Method 172

6.4.1 Participants (Sample 1) 172

6.4.2 Procedure 172

6.4.2.1 Extraction of behavioural indicators (Steps 1-3: SJT development process) 172

6.4.3 Participants (Sample 2) 175

6.4.4 Procedure 176

6.4.4.1 Item-stem development (Steps 4-8 of the SJT development process) 176

6.4.4.2 Creation of scoring key (Steps 9-11 of the SJT development process) 176

6.5 Part Two: Method 178
6.5.1 Participants (Sample 3) 178
6.5.2 Measures 178
6.5.2.1 Michigan Organizational Assessment Questionnaire (MOAQ; Cammann, Fichman, Jenkins, & Klesh, 1983) *179*
6.5.2.2 Five-factor Resilience Resource Questionnaire (5FRRQ). *179*
6.5.2.3 Single Item Measure of Personality (SIMP: Woods & Hampson, 2005) *180*
6.5.2.4 Situational Judgment Test *180*
6.5.3 Procedure 182
6.6 Results 182
6.6.1 Item analysis 182
6.6.1.1 Item Difficulty *183*
6.6.1.2 Item discrimination *184*
6.6.2 Demographics 185
6.6.3 Reliability 185
6.6.4 Validity 185
6.6.4.1 Construct validity evidence *185*
Factor Analysis *185*
Convergent validity *187*
6.6.4.2 Criterion-related validity evidence *189*
Predictive validity *189*
Pre-analysis checks *190*
SJT and T1 organisational attitudinal outcomes *190*
SJT and T2 organisational attitudinal outcomes *190*
Incremental validity (T1 turnover intention) *192*
Incremental validity (T1 organisational commitment) *192*

Incremental validity (T1 job satisfaction) *193*

Incremental validity (T2 turnover intention) *195*

Incremental validity (T2 organisational commitment) *196*

Incremental validity (T2 job satisfaction) *196*

6.6.5 Summary of findings 198

6.7 Discussion 199

6.7.1 SJT development 200

6.7.2 SJT reliability 200

6.7.3 SJT validity 200

6.7.4 Implications 202

6.7.5 Limitations and Future Directions 206

6.7.6 Summary 207

Chapter 7: General Discussion 208

7.1 Summary of results from empirical chapters 213

7.1.1 Study one: A systematic and methodological review of resilience measurement scales 213

7.1.2 Study two: Operationalising resilience: a joint factor analysis of resilience measurement scales 214

7.1.3 Study three: Exploring resilience in palliative care workers: a template analysis 215

7.1.4 Study four: A new method of measuring resilience in palliative care workers 216

7.2 General discussion and theoretical implications 217

7.2.1 Exploring resilience as a set of resources 217

7.2.2 Resilience measurement from an interactionist perspective 218

7.2.3 Qualitative research methods 219

7.2.4 New methods of measuring resilience 220

7.3 Practical Implications 223
7.3.1 Resilience interventions 223
7.3.2 Knowledge transfer 225
7.4 Research limitations 226
7.4.1 Sample characteristics 226
7.4.2 Potential methodological issues 227
7.4.3 Restricted access to data 228
7.5 Directions for future research 230
7.5.1 Operationalising resilience 230
7.5.2 Research design 231
7.5.3 SJT validation 233
7.6 A final note 235
References 236
Appendix 1: Questionnaire Study 2 274
Appendix 2: Participant Consent Form 281
Appendix 3: Information Sheet 282
Appendix 4: CIT Interview schedule 284
Appendix 5: Interview transcript 285
Appendix 6: Questionnaire Study 4 (all study measures) 288

List of Tables

Table 1.1: Adapted from Dunkel-Schetter and Dolbier's (2011) taxonomy of resilience resources 29
Table 2.1: Research design, sampling, and measures for studies presented in this thesis 65
Table 3.1: Inclusion and exclusion criteria for Literature Search 76
Table 3.2: Summary of information of resilience measures identified 79
Table 3.3: Resilience themes derived from scale items (Adapted from Bird et al., 2012) 88
Table 3.4: Quality assessment criteria 92
Table 3.5: Quality Assessment Rankings of Resilience Scales 96
Table 4.1: Demographics by industry and organisation 111
Table 4.2: Intercorrelations among resilience questionnaires and related constructs (N=361) 115
Table 4.3: Factor structure of combined items from five resilience measures 118
Table 4.4: Correlations between factor scores 120
Table 4.5: Second-order model of resilience measures 121
Table 4.6: Summary of Results of Tests of Alternative Factor Structures of Resilience 124
Table 4.7: Mapping of 8FRR model onto Taxonomy of Resilience Resources (Schetter & Dolbier, 2011) 128
Table 5.1: Mapping of template analysis themes and five of the eight resources from the 8FRRM model onto COR model 155
Table 6.1: Example SJT item 166
Table 6.2: SJT item-stem development and scoring process 174
Table 6.3: Examples of item-stems 175
Table 6.4: Criteria for weighting SJT response options 178
Table 6.5: SJT item-stem and corresponding response options 181
Table 6.6: SJT item-level statistics (n=284) 184
Table 6.7: SJT exploratory factor analysis 186

Table 6.8: Correlations between Time 1 and Time 2 study variables in Sample 3 188
Table 6.9: Regression equations for T1 and T2 organisational attitudinal outcomes regressed onto SJT at Time 1 test scores 191
Table 6.10: Hierarchical regression for control variables, personality, 5FRRQ resources, and SJT on T1 organisational attitudinal outcomes 194
Table 6.11: Hierarchical regression for control variables, personality, 5FRRQ resources, and SJT on T2 organisational attitudinal outcomes 197

List of Figures

Figure 1.1: Outcome trajectories associated with resilience and recovery (Bonanno, 2004) 33
Figure 1.2: Resilience pathways (Masten & Narayan, 2012) 34
Figure 1.3: Illustration of the ecological-transactional model 37
Figure 1.4: Kumpfer's (1999) Resilience Framework 38
Figure 1.5: Woodgate's (1999) process-oriented model of resilience 40
Figure 1.6: Framework for the exploration of resilience measurement addressed by the studies within this thesis 52
Figure 2.1: Framework for the exploration of resilience measurement addressed by the studies within this thesis: 58
Figure 3.1: Literature search flow 78
Figure 3.2: Visual representation of adapted Skinner's Validity Evidence Framework 91
Figure 4.1: Confirmatory Factor Analysis: 8F model 125
Figure 5.1: Process of conducting and coding 36 CIT interviews using template analysis 139
Figure 5.2: Initial coding template 141
Figure 5.3: Coding process (Hruschka et al., 2004) 143
Figure 5.4: Final coding template with kappa values 145
Figure 6.1: Distribution of SJT scores 184
Figure 6.2: Multi-measure of resilience resources 204
Figure 7.1: Framework for the exploration of resilience measurement addressed by the studies within this thesis 209
Figure 7.2: Multi-measure of resilience resources 222

Acknowledgments

Lara, thank you so much for taking part in this journey with me. You are an inspiration in so many ways. This has been one of the most incredible chapters of my life and you've been a big part of it. Above all, you always believed in me. I can't tell you how much that means to me.

I owe a big thanks to Paul Flaxman. Your musings resulted in some major shifts in my thinking. I'm going to miss our 'quick' PhD chats. I'm also indebted to Rachel Lewis for introducing me to the world of resilience quite a few years back. You have always taken the time to listen and have been a huge support to me during these last few years. Thanks also to Jo Yarker, Maddy Wyatt, and Ruth Sealey for your generosity of spirit. I am really grateful to each of you for providing me with thoughtful comments on my chapters.

I would also like to thank the participants that took part in my research. I truly believe that people working in palliative care do the work of 'angels'. I'm especially grateful to Mary, Abi, Diane, and Anjali from St Joseph's Hospice who warmly invited me into their organisation with open arms. I'd also like to acknowledge the help I received from Jennifer and Liz from Princess Alice Hospice who believed the research I was doing was worthwhile. It takes an incredible human being to work in end-of-life care. In hindsight I realised how cynical I was when I first walked through the doors of St Joseph's Hospice. I have walked away a humbled person.

To my lovely, Scotland. I have no words for how selfless and supportive you've been. You have inspired me to keep going. You always sat patiently and listened to me no matter what state I was in. You are an amazing person and I am truly grateful for you.

Thanks also to all my chums for not pretending to understand my PhD but who understood what it would take to get through it. Ma and Pa Jels, in laughter you gave me strength. You have motivated me toward excellence and made me believe I could do anything I put my mind to. And, to my parents, I know you will never read this but I think if you could, you'd be very proud of me.

This thesis may be copied in whole or in part without further reference to the author at the discretion of the University Librarian. This permission covers only single copies made for study purposes, subject to normal conditions of acknowledgement

Abstract

Resilience is a concept associated with the idea that some people seem to readily bounce back from adverse experiences. In order to identify the best methods to develop and sustain resilience in palliative care workers there is a need for greater understanding of how to measure the resilience construct. Despite an abundance of resilience models and theories, there is very little consensus on how resilience should be operationalised and measured. Furthermore, there are no empirical studies that explore the measurement of resilience as it pertains to the unique demands of the palliative care setting. Therefore this thesis presents four studies designed to explore the measurement of resilience in palliative care workers.

All studies took place within the context of the UK palliative care sector using adult samples working in hospices, acute wards, and community settings. The first study was a systematic and methodological review of resilience measurement scales to understand how resilience is currently being conceptualised in the peer reviewed literature. The second study explored how resilience is currently operationalised through a joint factor analysis of resilience scales identified in Study One using a sample of human service (n=361) and palliative care (n=245) workers. The third study explored behaviours associated with resilience from the perspective of palliative care workers using template analysis (n=36). Results indicated that in addition to intrapersonal and interpersonal resources, palliative care workers identified procedural knowledge as a key resilience resource. Therefore, the fourth and final study presents the development and validation of a situational judgment test designed to measure a procedural knowledge resource associated with resilience in palliative care workers using a sample of subject matter experts (n=21), hospice workers (n=36), and workers from across the palliative care domain (244).

Overall, findings suggest that due to the over-reliance on self-report resilience questionnaires there is a tendency to measure resilience as a trait rather than a person-situation interaction. In response to this, a new measurement approach was explored using a situational judgment test method. In the final chapter the overall findings are discussed in relation to both their theoretical and practical implications; and finally some directions for future research are suggested.

Chapter 1: An exploration of the measurement of resilience in palliative care workers

1.1 Introduction

Common mental health problems such as depression, stress, and anxiety are widespread in the workplace (Health and Safety Executive, 2013). Poor mental health in the workplace carries enormous costs for employers through sickness absence and reduced productivity whilst at work (Olesen, Gustavsson, Svensson, Wittchen, & Jönsson, 2012). Stress has consistently been one of the most commonly reported types of work-related illness in the UK (Health and Safety Executive, 2012). Labour Force Survey estimates show that the prevalence of stress (which included depression and anxiety) in 2011/12 was approximately 40% of total cases for all work-related illnesses (Health and Safety Executive, 2012). Moreover, a relatively recent review of the health of Britain's working population estimated that around £30-40 billion annually is lost in production which can be attributed to mental health illness (Black, 2008). The costs of lost employment associated with depression and anxiety alone are estimated to be between £6,850 and £7,230 per annum per employee (McCrone, Dhanasiri, & Patel, 2008).

The costs of ill mental health in the workplace are associated with three main factors: absenteeism, presenteeism, and turnover. Absenteeism accounts for more days lost than any other cause of work-related illness (HSE, 2012; CIPD, 2013) and in 2011/12, caused workers in Britain to lose 10.4 million working days (Jones, Hodgson, & Webster, 2013). However, figures estimating absenteeism are often under-estimated as systems for recording, analysing and costing sickness absence are not well developed in many organisations (Sainsbury Centre for Mental Health, 2007). The second contributor to the costs associated with mental ill heath in the workplace is associated with the loss in productivity that occurs when employees come to work but function at less than full capacity because of ill health, referred to as presenteeism. It is estimated that the annual costs of presenteeism attributable to mental health problems in the UK workforce amount to £15.1 billion in total (Centre for Mental Health, 2011). The third cost to organisations associated with mental ill health is associated with staff turnover. The average cost to employers of a job change, including the cost of recruiting, selecting and training a replacement worker, is estimated at £11,625 per person (Sainsbury Centre for Mental Health, 2007).

Bringing together the figures for absenteeism, presenteeism and staff turnover, the quantifiable costs falling on employers is substantial. According to data collected by the

Sainsbury's Centre for Mental Health (2007), the figures imply that a small organisation employing 50 workers will typically incur costs of around £50,000 a year because of mental health problems among its employees. At the other end of the scale the country's biggest employer – the NHS, with around 1.3 million workers will face annual costs of over £1.3 billion (equivalent to about a quarter of the entire NHS mental health service budget). Of particular note in statistics associated with workplace stress is that the highest prevalence of stress was found in public sector employees, in particular health professionals (CIPD, 2013; Health and Safety Executive, 2012). The main work activities causing work-related stress, or making it worse, are work pressure, lack of managerial support, pressure to meet targets, management style, and poorly managed change/restructuring (CIPD, 2013).

Stress in healthcare workers

There is evidence to suggest that work stress and sickness absence are substantial in national health service (NHS) employees (Cousins et al., 2004; Health Care Commission, 2013). There are many factors that contribute to stress in healthcare workers including an imbalance of demands and control, skills, and/or social support at work, which under some conditions can lead to distress, burnout or psychosomatic diseases (Weinberg & Creed, 2000). Many studies have also shown that levels of dissatisfaction, distress and burnout at work are high in healthcare workers (Maslach, Schaufeli, & Leiter, 2001; Raiger, 2005; Ramirez, Graham, Richards, Cull, & Gregory, 1996).Work related stress may be manifested as burnout, which refers to a persistent, negative state of mind characterized by exhaustion, distress, a sense of ineffectiveness, and decreased motivation (Cooper, Dewe, & O'Driscoll, 2001; Schaufeli & Buunk, 2003). A number of factors in the healthcare workplace have been shown to increase the risk of distress and burnout such as increasing workload, and emotional response to contact with suffering and dying patients (McNeely, 2005).

There is little doubt that healthcare workers experience higher levels of psychological distress compared to most of the general working population (S. Collins & Long, 2003; Grunfeld et al., 2000). Frequent exposure to workplace stressors can impact on the loss of physical and psychological resources and in some cases, traumatic stress-like symptoms (Hobfoll & Shirom, 2001). These negative stress outcomes can impact the wellbeing of healthcare workers, but also on their ability to care effectively for others (Barnett, Baker, Elman, & Schoener, 2007). Increased levels of psychological illness and burnout have implications for both the mental and physical well-being of staff and for their employing organisations. For example, research has shown that burnout is linked to a decrease in the quality of patient care,

with distancing and poorer communication (Graham & Ramirez, 2002) and with absenteeism, intention to leave, and high staff turnover (Cordes & Dougherty, 1993; Raiger, 2005).

Stress in palliative care workers

Palliative care, also named end-of-life care, refers to the provision of care for the terminally ill and their families that is often provided by an organised health service such as the NHS or charity organisation. Staff working in palliative care settings have a particularly high risk of experiencing work stress (Pierce et al., 2006) associated with the emotional demands of caring for people with a terminal illness (Ramirez et al., 1996). Further, health care professionals working in acute settings (hospital wards) may experience greater levels of work stress, burnout (Książek, Stefaniak, Stadnyk, & Książek, 2011), and lower levels of job satisfaction than those working a hospice environment (Pierce et al., 2006). These findings indicate that the organisational setting may play a role in the level of work stress experienced by those providing end-of-life care compromising patient care and possibly impacting other team members (Jones, Wells, Gao, Cassidy, & Davie, 2013). Indeed, research comparing differences in stress levels across acute wards, hospices, and community-based settings suggests that environmental and role differences between care giving environments differ substantially, ranging from physical limitations of the environment to shift patterns and job responsibilities (Hulbert & Morrison, 2006). The hospice environment reportedly helps staff cope better with stress (e.g. Parrish & Quinn, 1999). However, irrespective of the palliative care environment the uncertainty of continuous change within the health care sector is becoming a primary cause of stress (Sally Hardy, Carson, & Thomas, 1998) due to the reliance on charity donations to ensure continued service, limited human resources, and reliance on volunteer caregivers in service delivery (Addington-Hall & Higginson, 2001).

As some authors have noted, the palliative care environment is often fraught with the emotional demands of patients suffering and constant presence of death (e.g. Rokach, 2005). Moreover, palliative care workers face additional workplace stressors compared with those working in typical hospital environments due to the burdens associated with making life-changing decisions for patients (Rosch, 1987) with regards to the quality as opposed to quantity of life, the strains of providing bereavement support for family members (Barnes, 2001), and the feeling of loss relating to the inevitable death of patients (L. H. Goldstein & Leigh, 1999). There is a good deal of evidence that mental ill health, including stress, serves as a risk factor for a range of physical health conditions (Sainsbury Centre for Mental Health, 2007; Health and Safety Executive, 2012). Efforts aimed at lowering the prevalence of stress

related illnesses such as burnout are vital and likely to lead to direct gains to both employees and employers.

Within palliative care, gaining an understanding of the factors that promote resilience and mitigate the effects of stress is of relevance for individual staff, for the quality of patient care, and for employers. Helping and caring for the terminally ill and attending to most, if not all, of the patient's needs is of paramount importance and benefit to the patient (Claxton-Oldfield, 2014). However, truly beneficial help can only happen if those working in palliative care are able to adapt to the strains of the job and continue to function normally without negative physical or psychological consequences (Rokach, 2005). Notwithstanding the wealth of evidence identifying the stressors associated with palliative care work, not all employees succumb to poor physical or psychological health (Ablett & Jones, 2007; Wiebe & McCallum, 1986). This finding has led researchers to consider factors that maintain a sense of well-being, in particular, factors that mitigate the effects of workplace stressors and foster resilience.

Despite the substantial increase in resilience research in recent years, examination of the literature indicates that there is a need for greater uniformity and clarity in the definition and operationalisation of resilience in order to facilitate greater rigour in resilience research (Luthar, Cicchetti, & Becker, 2000). Moreover, there appears to be a general consensus that there is a need for greater consideration of measurement issues in resilience research (Davydov, Stewart, Ritchie, & Chaudieu, 2010; Kumpfer, 1999; Luthar et al., 2000). The need for greater clarity surrounding the theoretical construct of resilience highlights many questions that remain unanswered. Most importantly, does resilience actually exist? Or, is resilience simply an umbrella term for any one of the constellation of resources that may help individuals *positively adapt* or *bounce back* from life's adversities? As with any research programme, there are limits to how comprehensively questions such as these can be answered. However, as a preliminary step toward addressing the need for greater clarity associated with the operationalisation and measurement of resilience, this thesis explores resilience in a more constrained way by adopting an interactionist paradigm; a philosophical approach that gives consideration to the interaction between an individual and their environment to further the understanding of resilience. It is envisaged that exploring resilience from an interactionist perspective will yield information about the nature of the resilience construct and ways of increasing the precision in the way the construct is measured. As discussed earlier, there are significant demands placed on those working in the palliative care sector. Identifying areas of development in relation to building the capacity of palliative care workers to adapt to and bounce back from workplace stressors require accurate and precise measurement instruments.

It is therefore the aim of this thesis to explore how best to measure resilience in context of the palliative care environment.

To begin with, the present chapter presents a critical review of how resilience is currently conceptualised, operationalised, and measured. A critical review of the theoretical properties of resilience is important as it highlights some of the key issues in the existing resilience research. These issues are substantial and cannot possibly be addressed in any one research programme, however they do provide a context for this research programme and also have a bearing on the way resilience is measured. The present chapter is divided into three main sections: understanding resilience, resilience models and theories, and resilience measurement. Following this is a thesis overview and the research questions that guided this research programme.

1.1.1 Understanding resilience

Most of the theories on psychological resilience arise from the work of developmental psychologists and psychiatrists in the 1970s studying large numbers of children who despite growing up in highly aversive circumstances emerged as functional and capable individuals (Garmezy, 1991; Rutter, 1979; Werner, 1995). The thrust of this early research was to search for factors that protect an individual from the stressors they encounter and distinguish between those who adapt to adversity and those who do not.

The evolution of resilience research has been summarised in four broad phases (Wright, Masten, & Narayan, 2013):

1) The first phase of research explored the measurement and definition of resilience with a focus on trying to understand individual factors associated with positive adaptation in children and adolescents. Findings from this body of work highlighted a multitude of resources and individual qualities as predictors of resilient functioning (e.g. Masten, Best, & Garmezy, 1990; Werner, 1993).
2) The second phase of research moved beyond asking *what* factors predict resilient functioning toward *how* individuals cope with adverse experiences. In this phase of multidisciplinary research there was a greater emphasis on resilience processes (e.g. Egeland, Carlson, & Sroufe, 1993; Lynch & Cicchetti, 1998).
3) In the third phase of research a substantial amount of interest was devoted toward the development of resilience preventative interventions (e.g. Luthar & Cicchetti, 2000; Masten & Obradovic, 2006).

4) The fourth phase of research shows a shift toward an integrative perspective that encompasses gene-environment interactions, neurobehavioral development and the exploration of moderators of risk as well as the role of neural plasticity in resilience (e.g. Cicchetti, 2010; Masten & Narayan, 2012).

Although these four waves of research have led to significant developments in the understanding of resilience, it has also led to some conceptual misunderstandings associated with the construct itself. This has occurred because the majority of this research presents findings in relation to adaptation to chronic stressors such as longer-term, intense stressors (e.g. Garmezy, 1993; Luthar & Brown, 2007; Luthar & Cushing, 1999) rather than adaptation to acute events such as isolated adverse incidents (e.g. divorce), which are more commonly observed in studies of adult resilience (Bonanno, 2004). Thus, generalising findings from the developmental domain to the adult domain has been somewhat problematic.

As mentioned above, conceptual and definitional misunderstandings surrounding the term *resilience* may be attributed to the fact that resilience was originally advanced in the literature on chronic adversity in children and then only later migrated to the adult literature on isolated stressors such as death or serious injury. Yet, isolated stressors are phenomenologically distinct from chronic stressors (Bonanno & Diminich, 2012). Positive adjustment in the face of chronic stressors emphasizes the measurement of adjustment over a long period of time and as a result, tends to focus on long-term or distal outcomes (Masten & Narayan, 2012), often referred to as *emergent resilience* (Bonanno & Diminich, 2012). For instance, a child subject to ongoing family abuse could be described as resilient if she or he eventually survived those influences and went on to meet normal developmental milestones and psychological adjustment (Luthar & Cicchetti, 2000). By contrast, the bulk of research on adult resilience involves acute isolated events (e.g. bereavement) and therefore the focus of outcomes are on relatively proximal patterns of healthy adjustment (Bonanno & Mancini, 2012; Bonanno, Pat-Horenczyk, & Noll, 2011; Bonanno, 2004, 2005). Thus, positive adjustment in the face of acute stressors has been labelled by Bonanno and Diminch (2012) as *minimal-impact resilience*. Rather than describe a gradual progression towards a positive outcome characterised by *emergent resilience, minimal-impact resilience* suggests little impact on functioning and a relatively stable trajectory of continuously healthy functioning before and following a potentially traumatic event (PTE). This conceptual clarification between different types of resilience is warranted due to the lexical ambiguity associated with the term *resilience.* As such, Bonanno (2004, 2005) makes an important attempt at clarifying some of the confusion associated with the construct of resilience.

As the research on resilience has shifted from the study of adversity in children to the study of adversity in adults, it is reasonable to suggest that corresponding changes in the operational definition of resilience would follow. However, this is not the case and much of the research on resilience in adults has been carried out without consideration of these modifications and as a result, misuses and misunderstandings have proliferated (Bonanno, 2012). Inconsistencies in the specific definition of resilience have led to confusion about its meaning and to some researchers, actually questioning the value of resilience as a theoretical construct (Luthar et al., 2000; Luthar & Cicchetti, 2000; Masten, 2001; Rutter, 2006). Given the misunderstandings about resilience and methodological issues associated with the migration from developmental to adult populations, how then should the construct be defined?

1.1.1.1 Defining resilience

Resilience has been broadly defined as an individual's ability to achieve a positive outcome in spite of serious threats to adaptation or development (e.g. Masten, 2001). Resilience has been variously described as a (1) process, (2) trait, (3) state-like construct, and (4) outcome. (1) Proponents of process models (Campbell-Sills & Stein, 2007; Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003) focus on the internal and external resources used to foster positive adaptation to adversity (Kumpfer, 1999; Polk, 1997). (2) Adopters of trait models (Block & Kremen, 1996; Maddi et al., 2006) operationalise resilience as a set of internal characteristics. (3) Proponents of state approaches have argued that resilience is a lower order construct of *Psychological Capital* (Luthans, Vogelgesang, & Lester, 2006) and propose that positive psychology constructs (hope, optimism, and self-efficacy) are pathways to resilience, which together form a state-like construct. (4) Finally, resilience as an outcome variable refers to the ability to 'bounce back' from physical and psychological stressors (Sinclair & Wallston, 2004; Smith et al., 2008).

Positive outcomes associated with resilience may include healthy psychological functioning in different life domains (e.g., work, family, social) and emotional, behavioural and biological responses to acute stressors (Dunkel Schetter & Dolbier, 2011). Bonanno and Mancini (2012) conceptualise resilience in terms of outcome patterns or trajectories following potentially traumatic events, and also view resilience from a homeostatic standpoint. That is, an individual has a pre-stressor level of functioning that is disrupted following a challenging event, after which the individual returns to a baseline (pre-stressor) level of functioning. Other researchers (Carver, 1998; Tedeschi & Calhoun, 2004) use the term *thriving* to refer to resilient outcomes

that suggests individuals have an improved level of functioning or transformation following an adverse event.

Despite the substantial amount of research on resilience to date, the many varied definitions and conceptualisations of resilience in the literature foster confusion that must be addressed if research in this area is to progress. With this in mind, it is useful to adopt a working definition of resilience for the purposes of clarity. One such definition offered by Windle (2010) is a particularly useful and comprehensive definition:

"Resilience is the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Assets and resources within the individual, their life and environment facilitate this capacity for adaptation and 'bouncing back' in the face of adversity. Across the life course, the experience of resilience will vary". (Windle, 2010, p. 152)

There are three conceptual components of this definition worthy of note: 1) the presence of *significant* stress that carries substantial threat of a negative outcome (antecedent); 2) individual *and* environmental *resources* that facilitate *positive* adaptation; and 3) positive adaptation or adjustment relative to developmental life stage (consequence). These three components infer that resilience culminates from an individual's interaction with their environment which in turn is influenced by developmental factors, situational constraints, and socio-cultural processes (Luthar, Cicchetti, & Becker, 2000; Vanderbilt-Adriance & Shaw, 2008). This working definition explicitly defines resilience as a person-in-context phenomenon and is aligned with the tenets of interactionism that suggest individual behaviour stems from an individual's interaction with her/his environment (Cicchetti & Lynch, 1993; McFarlane & Yehuda, 1996).

As outlined above, resilience has been conceptualised in many different ways (Bonanno, 2004; Carver, 1998; Garmezy, 1991; Kaplan, 1999; Luthar et al., 2000). Despite some notable attempts to develop a unified conceptualisation of resilience the impact has been limited (Luthar et al., 2000). For this reason, it is proposed that interactionism is an appealing paradigm with which to further understanding about resilience and is entirely consistent with the working definition of resilience adopted in this thesis.

1.1.1.2 The case for interactionism

The concept of interactionism refers to the interaction between *person* factors and *situation* factors in explaining behaviour. The *person* concept typically refers to the stable characteristics that define the individual – either those linked to fixed genes and temperament or individual difference measures. The *situation* is an umbrella term that refers to the environment that exists outside of the person (Reynolds et al., 2010). As such, interactionists consider the person-in-context as the fundamental unit of analysis in psychological research (Little, 2000)

In order to advance understanding of how best to assess resilience across different situations, Funder (2009) claims there is a need to refocus resilience measurement from between-person variance to a closer examination of within-person variance. Proponents of interactionism argue that this is why traditional trait approaches to psychological assessment are limited (Endler, 1983; David Magnusson, 1976; Walter Mischel, 1977). Interactionists aim to understand and evaluate the way individuals interact with their environments and it could therefore be argued that this approach to the assessment of resilience may provide a suitable conceptual framework with which to guide the operationalisation of resilience. For instance, there is little agreement as to how best to define resilience (Shaikh & Kauppi, 2010) resulting in variations in how adversities and adaptive outcomes have been operationalised (Masten, Best, & Garmezy, 1990; Masten, 2001; Werner & Smith, 1982). Without a means of establishing what might constitute a resilient outcome (Kaplan, 1999), it becomes difficult to compare adversities across studies (Schoon, 2006) as it is not clear to what extent one individual experiences adversity compared with another (Silver & Wortman, 1980). Interactionist approaches reflect eco-systemic assumptions that life is not experienced in a vacuum but in the wider socio-cultural domain (Germain & Gitterman, 1987; Michael Ungar, 2011). This paradigmatic stance is well suited to the assessment of resilience as it explains adversity, adaptation, and resilience in relative, situational and attributional terms (Shaikh & Kauppi, 2010).

Interactionists (e.g. Endler & Parker, 1992) argue against the global assessments of individual differences, and advocate the assessment of psychological constructs from the perspective of the person-in-context. Hence, interactionists recognise that a person can behave differently across situations and that this intrapersonal variability is meaningful in understanding behaviour. The variability across situations is not considered as measurement error or uninformative variance that should be 'averaged' in order to gain a person's true underlying

score but central to the phenomenon under investigation (Mischel & Shoda, 1995; Mischel, 1977)

An extension of interactionism, referred to as dynamic interactionism (Reynolds et al., 2010), also explains dynamic influences such as developmental or socio-cultural factors that may influence the person-environment interaction (e.g. Roberts & Caspi, 2003). For example, consideration is also given to the possible impact of new experiences (e.g. relocating abroad), social processes, and identity development (drives, abilities, and beliefs). The focus of dynamic interactionism is on the issue of behavioural consistency (traits) as well as change which adopts a life-span perspective of personality where individuals are seen as active agents in their environment (Reynolds et al., 2010). Understanding behavioural consistency may therefore shed light on different pathways to resilience by examining the factors that foster resilience in the context of different adverse situations (Bonanno, 2004; Brewin, Andrews, & Valentine, 2000). Behavioural consistency across situations (e.g. trait resilience) is not simply due to personal attributes rather through the influence of the 'corresponsive principle'; individuals seek out experiences that align with their preferences and dispositions promoting behavioural consistency (Roberts & Caspi, 2003, p470). Dynamic interactionism also acknowledges that life experiences (e.g. parenthood or bereavement) have the potential to change an individual's sense of self and ultimately influence their core attributes (Reynolds et al., 2010, p. 465).

The interactionist paradigm promotes the understanding of individual behaviour that is more integrated, dynamic and contextualised than traditional theories of human behaviours such as personality or learning theories (Reynolds et al., 2010). It is for this reason that interactionism may be a useful integrative framework with which to understand the complex attributes of the resilience phenomenon.

In the following section is an exploration of how resilience is currently conceptualised. Three of the defining characteristics of resilience, in particular, will be explored: adversity, protective factors, and positive adaptation.

1.1.2 Conceptualising resilience

1.1.2.1 How 'adverse' does adversity have to be?

There are many terms used interchangeably to refer to adverse events. Referent terms such as acute stressors, chronic stressors, challenges, risk factors, and potentially traumatic events

have all been used to refer to an adverse event or ongoing adverse experience. There is also disagreement over whether adverse events should be examined as isolated events or together with other related events. For example, some studies identify exposure to a single adverse event as a sufficient risk to infer resilience (Dean & Stain, 2010). Others argue that exposure to adversity is rarely a 'one-off' event and research should focus on cumulative risks such as, job loss, divorce, and bereavement that individuals may face over a lifetime (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006). Additionally, research suggests that it may be the quantity and severity of stressors that may inhibit positive adaptation and *not* the effects of a single adverse event (Luthar, 2006; Vanderbilt-Adriance & Shaw, 2008). Finding some degree of convergence as to what qualifies as *enough* adversity to infer resilience is therefore a primary concern if research is to advance in this area.

Adverse events may stem from multiple life stressors, a single traumatic event, or cumulative stress from a number of individual and environmental factors (Luthar, Doernberger, & Zigler, 1993; Rutter, 1993). For some researchers, adversity is defined in relation to specific adjustment difficulties such as psychological/physical well-being (e.g. Luthar & Cicchetti, 2000). Others maintain that adversity should be defined by the person experiencing the adverse event (Jackson, Firtko, & Edenborough, 2007) so that if an individual deems a stimulus event as sufficiently stressful then it can be referred to as sufficiently adverse. Yet another point of view takes a more modest approach and defines adversity as common everyday disruptions that are 'highly taxing' (Sameroff & Rosenblum, 2006). The central issue with this disagreement of what constitutes adversity is that resilience mechanisms may differ in relation to the severity of adversity (i.e., daily challenges versus trauma). Additionally, not all adversities will predict a negative outcome with absolute certainty (Davydov et al., 2010).

Conversely, a departure from conceiving *adversity* as a precursor to resilience is to conceptualise adversity as a process that may in fact foster resilience. Rutter (2007) suggests that adversity may have a 'steeling effect' so that resilience may actually result from controlled exposure to stressors rather than avoidance. Implicit in this idea is that exposure to risk must be limited and that there must be an opportunity for recovery. This notion has also been referred to by other researchers as *stress inoculation* (Meichenbaum, 2005) and *thriving* (e.g. Carver, 1998). Support for the 'steeling effect' of resilience has also been found in empirical studies. For example, researchers observed an increase in adaptive functioning in Israeli rescue workers who rescued a higher number of bodies following terrorist attacks compared with colleagues who attended less incidents (Zakin, Solomon, & Neria, 2003).

To recap, the disparity in the way that adversity is conceptualised and referred to in empirical studies is somewhat unclear. Consensus is required in order to fully understand the extent to which *adversity* can be considered sufficient to infer resilience. What is vital is that researchers clearly outline what constitutes *adversity* and provide a reasoned justification for its use in research (Luthar et al., 2000). The next conceptual issue associated with resilience that will be discussed relates to the role of protective factors in the resilience process.

1.1.2.2 What protective factors enable resilient functioning?

Protective factors or resources have been a source of variability in definition and measurement and are considered to be those that may reduce or mitigate the negative impact of adversity (Kim-Cohen, 2007). Dunkel-Schetter and Dolbier (2011) propose a taxonomy of resilience resources derived from a review of resilience predictors based on empirical research on resilience. The taxonomy focuses on individual resources that may operate at multiple levels of analysis, i.e., intra-individual, interpersonal, and the wider socio-cultural environment. The taxonomy includes relatively objective characteristics of the individual such as physical strength, good health or high intelligence, as well as subjective perceptions such as perceived mastery over the environment and perceived support. Dunkel-Schetter and Dolbier (2012) stipulate that resources may be inborn, learned from parents or other role models, through personal experience, and may change over time (Segerstrom, 2010). Furthermore, individual resources or combinations of them may become stronger or weaker as a function of prior experience in confronting earlier stressors (Bonanno, 2012b). For classification purposes, the resources identified by Dunkel-Schetter and Dolbier (2012) are grouped into the following six categories: (1) Personality or dispositional resources; (2) self and ego-related resources; (3) interpersonal and social resources; (4) world views and culturally-based beliefs and values; (5) behavioural and cognitive skills; (6) other resources. Table 1.1 lists several resilience resources within each of these categories and representative citations for each.

Table 1.1: Adapted from Dunkel-Schetter and Dolbier's (2011) taxonomy of resilience resources

Resource	Author(s)
I. Personality & Dispositional Resources	
Dispositional Optimism, Hope	Carver, Scheier, & Segerstrom (2010)
Positive affectivity, positive emotional resources (e.g. humour)	Tugade & Fredrickson, 2004
Goal oriented disposition (e.g. tenacious/persistent)	Kumpfer & Hopkins (1993)
Hardiness: Commitment, Control, Challenge	Kobasa, Maddi, & Kahn (1982)
Sense of Coherence: Comprehensibility, Manageability, Meaningfulness	Antonovsky (1987)
II. Self and Ego-related Resources	
Self-esteem, self confidence, ego strength	Block and Kremen (1996); Kashdan and Rottenberg (2010)
Mastery, control, personal agency, Self efficacy (perception that one can perform behaviours to attain desired outcomes)	Bandura (1997); Rutter (1985)
Secure adult attachment style	Mikulincer (2003)
Autonomy, independence (to think and act on own)	Ryff (1998)
III. Interpersonal and Social Resources	
Social network & integration, social connectedness	House et al. (1985)
Available support (perceived support)	Cohen and Wills (1985)
Social cohesion (work, family), High quality close relationships	Zautra, Hall, and Murray (2010)
IV. World Views & Culturally-Based Beliefs and Values	
Spirituality/religious beliefs and practices	Ryff and Singer (2002)
World assumptions (e.g. benevolence, justice, meaningfulness)	Johnson, Hill, and Cohen (2011)
Purpose in life, commitment	Antonovsky (1987)
Collectivism/family	Cohen (2009)
V. Behavioural & Cognitive Skills	
Relaxation skills (e.g. mindfulness, meditation)	Brown, Ryan, and Creswell (2007)
Active or proactive coping skills or style (problem solving, planning, approach coping)	Lazarus and Folkman (1984); Rutter (2000)
Cognitive reappraisal or reframing ability 'positive coping'	Folkman and Moskowitz (2004)
Social skills (e.g. communication, support seeking), Emotion regulation or management skills (e.g. emotional approach coping skill)	Kumpfer and Hopkins (1993); Stanton (2011)
VI. Other Resources	
Social position & SES: Income, financial resources, wealth, education; social capital	Adler et al. (1994)
Intelligence (in multiple forms such as insight, creativity, high cognitive functioning)	Kaplan (1999); Wright, Masten, and Narayan (2013)
Genetic predisposition to good health (e.g. low disease risk, strong immune system)	Kaplan (1999); Zautra, Hall, et al. (2010)
Temperament (calm, stable)	Garmezy (1993); Werner and Smith (1992)
Healthy behavioural practices (diet, physical activity, abstinence from substances, safe sex practices); physical fitness (endurance, strength, flexibility) & vitality, energy	Zautra, Hall, et al. (2010)
Past instructive experience with adversity, biological toughness	Dienstbier and Zillig (2002)

While the taxonomy of resources identifies a range of resilience resources it should be noted that researchers have not been able to identify a single protective factor or combination of resources that consistently leads to resilience for all individuals (Vanderbilt-Adriance & Shaw,

2008). Further, individual characteristics and skills (or lack thereof) may moderate the availability of resources. For example, Champion et al (1995) found that children with conduct problems at 10 years of age were twice as likely as children without behaviour problems to experience severe acute negative life events and severe negative life experiences (e.g. no resilience) in adult life. This finding is consistent with the notion of *dynamic interactionism* (Reynolds et al., 2010) referred to earlier (section 1.1.1.2) that refers to the process of how individuals and situations mutually influence one another. Simply put, individuals are not randomly assigned to the environments in which they live, but select and create their own experiences. In the resilience research this has been described in terms of positive and negative chain reactions which are thought to impact on resilient outcomes (Rutter, 1999). Thus, it is possible that the stress buffering effect of protective factors are also a function of wider gene-environment interactions (e.g. Silberg, Rutter, Neale, & Eaves, 2001).

A final point to make about the range of protective factors identified in the literature is that few researchers have broadly conceptualised *how* such resources operate to assist in adaptation in the context of adversity. One exception is the Conservation of Resources (COR) theory developed by Hobfoll (1989, 2002) proposing that individuals try to obtain and conserve resources so that they can prepare for and manage stress when it occurs (Hobfoll, 2002). A key premise of COR theory is that individuals strive to obtain and retain or protect things that they value to aid in the regulation of self, social relations and behaviour (Hobfoll, 2012). Relatedly, individuals that do not have sufficient resources require more protective factors to maintain resilient functioning. For example, in a 32-year prospective longitudinal study, Werner (1993) found that individuals exposed to greater levels of adversity resulting in a drain of psychological resources required more protective factors to buffer against the negative impact of multiple stressors. Her findings showed that as disadvantage and the number of stressful life events accumulated, more resources were needed as a counterbalance to ensure positive adaptation.

The points discussed above can be summarised as follows: specific protective factors or resources do not in themselves infer resilience; the protective effect of various resources may be heavily influenced by gene-environment interactions; and irrespective of the particular threat, as exposure to risk increases, the stress buffering effect of protective factors decreases significantly (Rutter, 2006). The challenge for researchers is to specify *which* protective factors function as stress buffers in *which* situations. Given the amount of research in this area, there is still little known about the nature of these interactions. Yet another conceptual

challenge facing resilience researchers relates to the definition of adaptive functioning, and is discussed next.

1.1.2.3 What constitutes positive adaptation or resilient functioning?

Research on adult resilience has traditionally been dominated by research on psychopathology, in particular Posttraumatic Stress Disorder (Masten & Powell, 2003). This body of work has defined resilient outcomes such as adaptive functioning as the absence of diagnosable psychopathology. Almedom and Glandon (2007) argue that defining resilience as the absence of a disorder is akin to defining health as the absence of disease. Moreover, exposure to trauma may not result in evidence of clear psychopathology, rather it may lead to sub-threshold symptoms or elevated symptoms and distress for short periods before gradual recovery (Bonanno, 2004). If resilient functioning is defined in binary terms such as the presence or absence of psychopathology, then this conceptualisation negates qualitative differences in adaptive functioning. Moreover, if the absence of psychopathology is considered a resilient outcome, it necessarily precludes the concept of post-traumatic growth as a mechanism of adaptive functioning (Linley & Joseph, 2011; Tedeschi & Calhoun, 2004). This does not mean that the absence of psychopathology cannot be considered a resilient outcome, rather, the point is to recognize that a number of alternative resilient pathways may be possible (Almedom, 2005).

An important, yet often overlooked, issue when examining positive adaptation (i.e. resilience) is the sociocultural context in which an individual operates (Clauss-Ehlers, 2008; Waller, 2001). Ungar and colleagues (2006) argue that resilient outcomes are predominantly defined from a Western psychological discourse, for example, career or financial success. According to Ungar and colleagues, these outcomes lack sensitivity to cultural factors that contextualize how resilience is defined by different populations and manifested in different practices. Therefore, failing to consider the socio-cultural context in which positive adaptation occurs is likely to have relevance to only a minority of individuals in specific cultures.

A more detailed approach to the understanding of positive adaptation is proposed by Luthar and colleagues (Luthar & Brown, 2007; Luthar et al., 2000) who assert that in order to demonstrate positive adaptation the indicators used to represent adaptation must be relative to the adversity in question. For example, for military personnel exposed to war trauma, an appropriate indicator would be the absence of psychiatric symptoms such as PTSD upon returning from a war zone. The nature of the adversity in this case (war zone deployment) should determine what type of adaptation (absence of psychopathology) is appropriate.

Conversely, for an individual that has been made redundant, an appropriate indicator of adaptation would be the absence of anxiety or depression related to financial concerns and job loss respectively. In this less extreme case than that of the military example, the nature of adversity (redundancy) is likely to require a more moderate indicator of adaptation (absence of anxiety/depression) than military personnel exposed to war trauma. Thus, the only logical way to define positive adaptation is to have a clearly referenced adversity and a clear, defensible outcome in response to that adversity (Bonanno, 2004; Luthar et al., 2000).

As depicted in Figure 1.1, Bonanno (2004) makes the distinction between *recovery* and *resilience* clear, which are seen as conceptually distinct constructs (Bonanno, 2004; Campbell-Sills, Cohan, & Stein, 2006; Masten & Narayan, 2012). Central to this line of thinking is that resilience has different outcome trajectories or pathways (Bonanno et al., 2011; Bonanno, 2005; Masten & Narayan, 2012). This notion is based on a homeostatic view point which focuses on pre-stressor levels of functioning as an indicator of resilience after an individual has been exposed to an adverse event. For example, Bonanno (2004) shows in Figure 1.1 that *recovery* is characterised by a moderate temporary period of disruption followed by gradual restoration to healthy levels of functioning. On the other hand, *resilience* is characterised by an ability to maintain relatively stable, healthy levels of psychological and physical functioning. Both chronic and delayed trajectories show that individuals exposed to a potentially traumatic event (PTE) experience significant disruption to functioning with no foreseeable return to normal functioning. It is also of relevance to note that other authors make a further distinction between *resilience* and *coping.* Resilience is characterized by its influence on one's appraisal *prior to* emotional and coping responses and by its positive, protective impact, whereas coping is characterized by its response to a stressful encounter (Skinner & Zimmer-Gembeck, 2007).

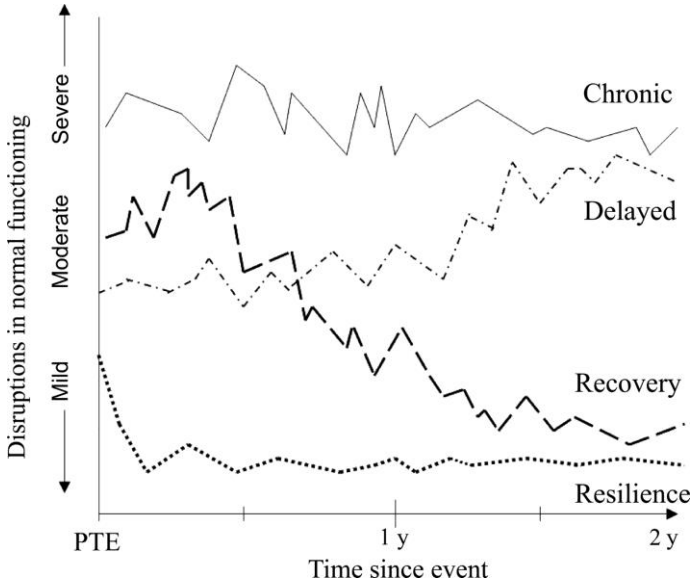
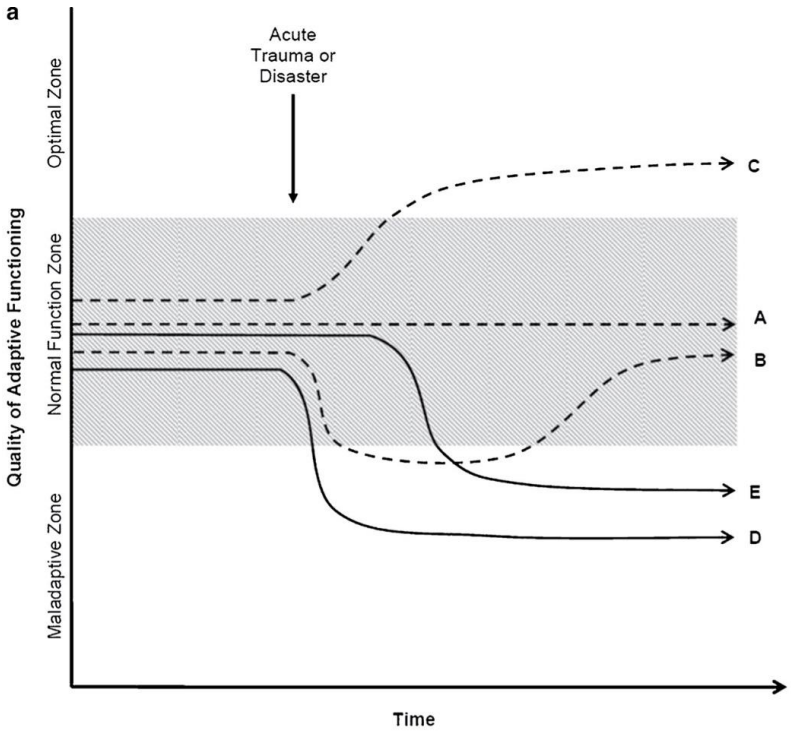


Figure 1.1: Outcome trajectories associated with resilience and recovery (Bonanno, 2004)

Along the same lines as Bonanno's work on outcome trajectories, Masten and Narayan (2012) propose that the confluence of developmental change, promotive/protective influences, and environmental risks is thought to result in multiple adaptive pathways in response to acute/chronic traumatic experiences. These multiple pathways are illustrated in Figure 1.2. Dashed paths illustrate forms of resilience and solid lines indicate maladaptive pathways. Path A illustrates stress resistance. Path B illustrates disturbance with recovery. Path C illustrates posttraumatic growth. Path D illustrates breakdown without recovery, and Path E illustrates delayed breakdown without recovery.

In Paths A, B, and C, resilience pathways indicate evidence of positive adaptation to an acute stressor. Path A shows individual trajectories where adapting to an acute stressor has no disruption to normal functioning. Path B shows that the individual has managed to adapt positively to a stressor event but has suffered a temporary disruption to normal functioning. Path C is perhaps the most optimal outcome, where an individual has had no disruption to normal functioning and has experienced psychological growth as a result of exposure to the acute stressor. Conversely, Paths D and E are exemplars of individual trajectories where exposure to an acute stressor has resulted in breakdowns with no return to normal functioning. The resilience pathways model is a comprehensive model and incorporates the varied outcomes often associated with adaption to adversity that are commonly referred to in the resilience literature. However, further empirical data is required to substantiate the model.



Note: Dashed paths illustrate forms of resilience and solid lines indicate maladaptive pathways**. Path A** illustrates stress resistance**. Path B** illustrates disturbance with recovery. **Path C** illustrates posttraumatic growth. **Path D** illustrates breakdown without recovery. **Path E** illustrates delayed breakdown without recovery.

Figure 1.2: Resilience pathways (Masten & Narayan, 2012)

Whilst focusing on resilience trajectories and outcomes highlight the idea that adaptive functioning may take on many different forms, it is also important to acknowledge that resilience, much like stress, is an overarching process (M. Glantz & Sloboda, 1999; Rutter, 1999). Conceptualising resilience from a process perspective places greater emphasis on the mechanisms linking resources to outcomes, rather than a specific focus on outcomes alone. Thus, equating resilience solely with outcomes implies that resilience is a final endpoint rather than a possible mediator of longer term positive outcomes over the lifespan (Glantz & Sloboda, 1999; Kaplan, 1999).

This section has facilitated an understanding of resilience by reviewing conceptual elements evident within the available literature. The discussion above shows that understanding of resilience is still evolving, however the following key points summarise the main conceptual and definitional features of resilience:

- Resilience is best defined as a phenomenon that is manifested by exposure to adversity and results in positive outcomes or adaptation that may change over the course of an individual's life (Windle et al., 2011).
- There is some disparity in the way researchers have conceptualised adversity, yet it is reasonable to suggest that a precursor to resilience must be significant enough to carry a substantial threat of a negative outcome (Luthar et al., 2000).
- Specific protective factors do not in themselves infer resilience, rather, the level of exposure and interaction between factors is more influential (Rutter, 2006).
- Irrespective of the particular threat, as exposure to risk increases, the likelihood of resilient outcomes decreases significantly (Davydov et al., 2010).
- Resilient functioning is not defined by a particular criterion, instead there are many resilience pathways (Bonanno & Diminich, 2012; Masten & Narayan, 2012).

The next section continues with a review of the existing literature concerned with models of resilience. Several multidimensional models of resilience have been developed, however only three will be discussed. These models have been chosen as they are consistent with the interactionist paradigm. That is, all three models conceptualise resilience as a person-environment phenomenon and thus acknowledge that resilience is a dynamic construct resulting from an individual's interaction with an environmental stressor.

1.1.3 Resilience models and theories

The plethora of resilience definitions and theories raise some challenges with respect to finding a cogent theoretical framework with which to understand resilience. Many authors have proposed possible pathways and models (e.g. Kumpfer, 1999; Masten & Powell, 2003; Richardson, Neiger, Jenson, & Kumpfer, 1990), however these models vary in breadth, detail and supporting evidence. Other models emphasise different components of resilience and place their emphasis on different resources. For example, the casita model (Vanistendael & Lecomte, 2000) adopts an ecological perspective which focuses on various resources ranging from basic material needs e.g. food through to religious faith, political or humanitarian engagement. Other models such as the community and youth resiliency model (Brennan, 2008) emphasise the critical role of social support.

Despite the many resilience theories and models presented in the literature, only those that conceptualise resilience as person-environment phenomenon are outlined and evaluated below. The three models are: the *ecological-transactional model* (Cicchetti & Lynch, 1993); *Kumpfer's Resilience framework* (Kumpfer, 1999); and *Woodgate's process oriented model*

of resilience (Woodgate, 1999). It should be noted that these models do not necessarily explain all aspects of resilience, rather they highlight different components of the resilience process. Adopting an interactionist (i.e. Endler, 1983; Magnusson, 1976; Mischel, 1977) process view of resilience is consistent with the conceptualisation of resilience adopted in this thesis and therefore it is deemed useful to explore these models over others proposed in the literature.

In an attempt to evaluate these theoretical frameworks, one must consider evaluation criteria that can be used. There are many approaches to evaluating theory and criteria used to evaluate theoretical frameworks (e.g. Bacharach, 1989; Weiss, 1997). However, Cramer (2013) suggests a set of evaluation criteria specifically designed to assess the influence of situational demands on human behaviour. Briefly, Cramer (2013) offers three evaluation criteria: (1) Applied value— theories that encompass a great scope or range of explanation for various phenomena yet still have some practical utility; (2) Testability— theories that consist of constructs that are clearly defined and readily open to reliable and valid measurement; and (3) Parsimony—theories that are trimmed of excess concepts and needless explanation and favour parsimony rather than complexity. Cramer's (2013) criteria will therefore be used to evaluate the three models chosen, beginning with the *ecological-transactional model* (Cicchetti & Lynch, 1993) followed by *Kumpfer's Resilience framework* (Kumpfer, 1999), and finally *Woodgate's process oriented model of resilience* (Woodgate, 1999). Following this a brief evaluative summary of all three models will be presented.

1.1.3.1 The ecological-transactional model (Cicchetti & Lynch, 1993)

Depicted in Figure 1.3, the ecological-transactional model is derived from the work of Bronfenbrenner (1979) and presents an ecological conceptual framework for explaining the factors identified in resilience processes. In this model, the individual's environment is framed as nested levels of decreasing proximity – from the individual to their family environment, their neighbourhood and community settings, and finally to societal cultural beliefs and values (Cicchetti & Lynch, 1993). Factors in these environments interact with each other over time in shaping individual development and adaptation. For example, an individual having positive role models in the community may in turn role model positive behaviours in dealing with future adversities. Thus, context and individual functioning are conceptualised as mutually influencing each other (Lynch & Cicchetti, 1998). Each level of the environment contains risk and protective factors for the individual and these factors can be transient or enduring such as support from a strong social network. Factors that are enduring and proximal to the individual have the strongest long-term effects. Factors within a particular level can influence outcomes and processes in the surrounding levels and these ongoing transactions determine the amount

of risk that an individual faces (Cicchetti, Rogosch, & Toth, 2000). Applications of this model have included: maltreatment and community violence (Lynch & Cicchetti, 1998); failure to thrive, Downs Syndrome, parents with a mental illness (Cicchetti, Toth, & Bush, 1988); marital transitions (Hetherington, Bridges, & Insabella, 1998); chronic conduct problems (Dodge & Pettit, 2003); and substance abuse (Cicchetti & Rogosch, 1999).

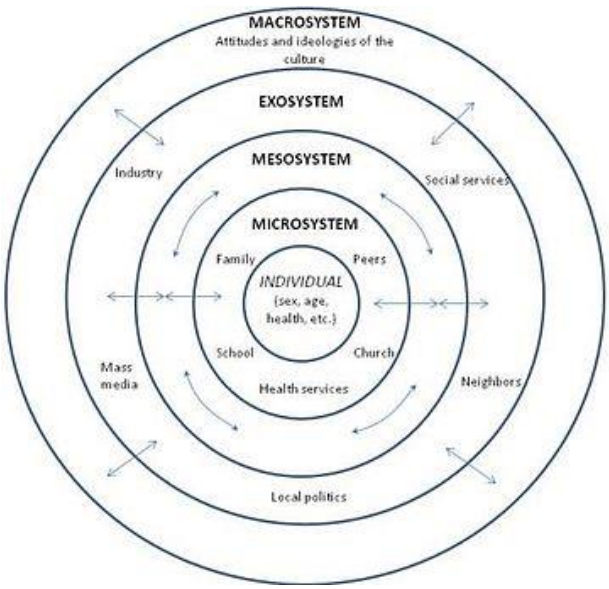


Figure 1.3: Illustration of the ecological-transactional model

Evaluating the model against Cramer's (2013) first criterion of applied value, the ecological-transactional model was formulated to explain the combined influence of child maltreatment. As such it is applicable to developmental research and could be applied to other psychopathological conditions such as post-traumatic stress (Lynch & Cicchetti, 1998). The model also has cross cultural value due to its inclusion of cultural and societal influences (Michael Ungar, 2010). For the second evaluation criterion of testability, testing the various interactions between individual and distal factors such as political influences may be somewhat difficult to actualise. Despite this limitation, indirect and direct effects of the model between specific levels (e.g. influence of parent on individual functioning) have been empirically validated in a range of different community settings (Drake & Pandey, 1996). In relation to the third evaluation criterion of parsimony, the ecological-transactional model remains highly abstract and somewhat confusing. The model is complex with multiple relationships and over-emphasises theory at the expense of methodology. It provides an overarching explanation of all the possible transactions associated with the ongoing process of adapting to adversity, rather than providing explicit propositions of the dominant relationships that exist in the model.

1.1.3.2 Kumpfer's Resilience Framework (Kumpfer, 1999)

Kumpfer's (1999) resilience framework is based on four domains of influence; (i) stressors/challenges (ii) environmental context (iii) internal resiliency factors, and (iv) resilient reintegration/maladaptive reintegration, which are separated by two transactional points (a) person-environment transactional processes and (b) resiliency processes. As illustrated in Figure 1.4, this model shows the linear progression of an individual's encounter with a specific challenge which activates person-environment and resiliency processes resulting in an outcome along the resilience-maladaptive-reintegration continuum.

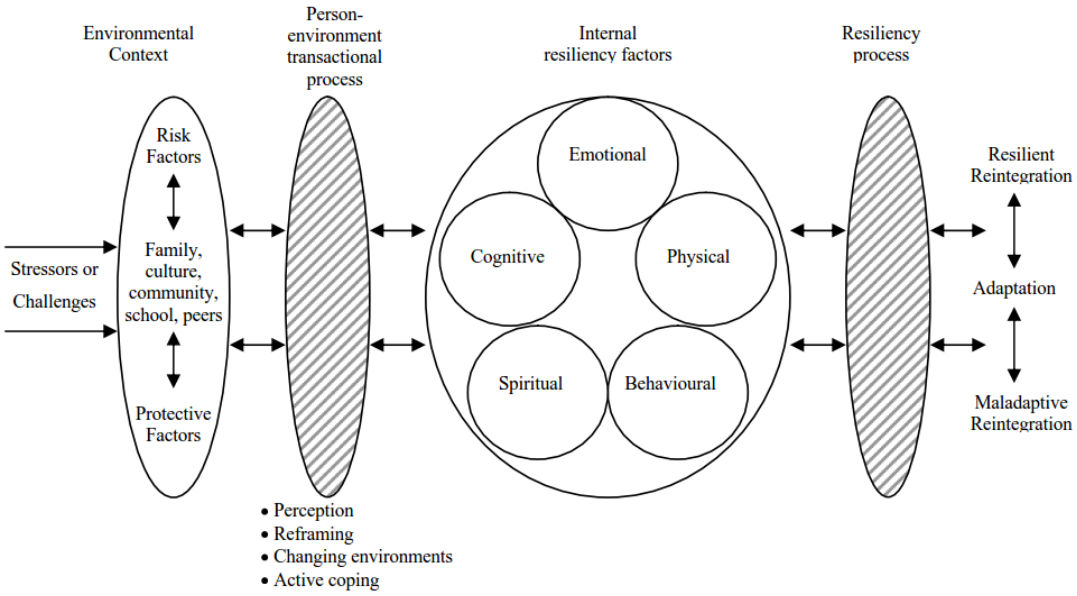


Figure 1.4: Kumpfer's (1999) Resilience Framework

In Kumpfer's model, the stressor or challenge is the first element critical to the model's functioning, the assumption that resilience can only be demonstrated when the person experiences some type of stressor or challenge is implicit. The second element of Kumpfer's model is the environmental context which includes family support, socio-economic status, and culture. The person- environment transactional process is the third element of the model and mediates the interactions between an individual and their immediate environment. According to Kumpfer, transactional processes include selective perception, planning, dreaming and active coping. The internal consistency factors constitute the fourth factor, which are divided into five separate clusters; spirituality or life purpose; cognitive competency e.g., academic skills; empathy; behavioural skills e.g., communication skills; and physical well-being. Each cluster accounts for the many characteristics illustrated in previous resilience investigations

with some individuals exhibiting more characteristics than others. The final element of Kumpfer's model is the resiliency process, specifically, the interaction between the individual and his/her adaptation to their environment. Kumpfer stressed this final stage as critical to the progression of future research.

Evaluating the model against Cramer's (2013) first criterion of applied value, Kumpfer's (1999) model is a comprehensive model that accounts for a wide range of processes associated with positive adaptation. However, it is not clear how a linear model of resilience could be applied in the study of resilience when in reality it is rare that individual's encounter one stress at a time throughout their lives (Hjemdal et al., 2006). The model could however be used to understand the resilience process relative to a single specific type of adversity such as victims of parental abuse or domestic violence. For the second evaluation criterion of testability, components of Kumpfer's (1999) model have been extensively validated in family-focused interventions (e.g. Kumpfer & Alvarado, 2003). However, the notion of resiliency processes within the resilience framework is vague and is left somewhat ambiguous as to what is actually being measured (Davydov et al., 2010). Further, it is unclear how the coping mechanisms associated with the person-environment transactional process are differentiated from the emotional, cognitive, and behavioural components of internal resiliency factors, thus further clarification is needed to understand the various testable components of the model (see Richardson et al., 1990). In relation to the third evaluation criterion of parsimony, Kumpfer's (1999) model offers a relatively clear and straightforward description of how an activating stressor triggers a series of processes that lead to either positive adaptation or maladaptation. The model loses its clarity with respect to defining characteristics of both resiliency processes and reintegration outcomes.

1.1.3.3 Woodgate's process-oriented model of resilience (Woodgate, 1999)

Woodgate's (1999) process-oriented model of resilience, illustrated in Figure 1.5 was specifically developed to examine resilience in relation to cancer. The process-oriented model of resilience proposes that emotional provoking events or situations influence an individual's vulnerability and protective factors. Adapting to a stressor is dependent upon the interaction between risk and protective factors. The outcome of this interaction is ultimately adaptation (suggesting a greater influence of protective factors) or maladaptation (suggesting a greater influence of vulnerability factors).

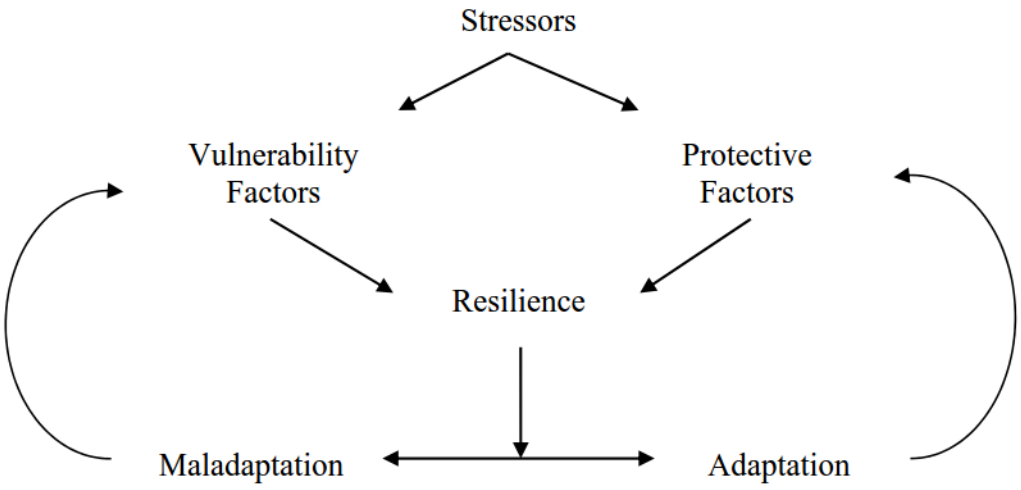


Figure 1.5: Woodgate's (1999) process-oriented model of resilience

Woodgate speculated that responses to stressors will vary along a continuum of responses from maladaptive to adaptive (Rutter, 1985; Richardson, Neiger, Jenson & Kumpfer, 1990). Woodgate (1999) acknowledges that it is possible that an individual may be resilient but may also exhibit a maladaptive response before achieving successful adaptation. In addition, the importance of experience for facilitating the growth of protective factors is highlighted. For example, an individual with greater protective factors is more likely to experience adaptation following adversity, thus, reinforcing the need for these factors. By contrast, an individual is more likely to experience maladaptation if they exhibited greater risk factors. Therefore, Woodgate's (1999) model emphasises a dynamic and cyclic process of resilience development that is exemplified by either the reinforcement of risk factors following maladaptation, or the reinforcement of protective factors following adaptation.

Evaluating the model against Cramer's (2013) first criterion of applied value, Woodgate's (1999) model was developed from research with children living with cancer. As such, the risk and protective factors identified in the model could be used to inform resilience promoting interventions. The model also makes assumptions that highlight the cyclical and dynamic nature of resilience, and highlights the role of experience in the resilience process, which can be used to design interventions that emphasise awareness of past experiences in dealing with future stressful encounters (Rutter, 2006). Woodgate (1999) acknowledges that it is possible that an individual may be resilient but may also exhibit a maladaptive response before achieving successful adaptation. However, the model does not specify the strength of relationships between each component of the model (Bakas et al., 2012). For the second

evaluation criterion of testability, the model appears to be empirically testable as it is possible to assess whether individuals with multiple protective factors predict well-being over and above individuals with a greater number of risk factors. Indeed, Woodgate's model has been empirically validated using chronically ill adolescent samples (e.g. Haase, 2004). It may also be possible to test the model using latent growth curve models to explore the relative effects of prior stressors on positive adaption to future stressors (Rutter, 2006). However, the main limitation with regards to testability is how to operationalise the various points along the maladaptive-adaptive continuum. In relation to the third evaluation criterion of parsimony, Woodgate's (1999) model offers a somewhat clear explanation of the dynamic nature of resilience and is unencumbered by overly complex relationships. Although somewhat simplistic, the model may serve as a basic model for a range of settings with which to explore the complexities of the resilience construct.

1.1.3.4 Summary of models

The three models of resilience outlined in this section all offer explanations of the resilience phenomenon. The ecological-transactional model (Cicchetti and Lynch, 1993) presents an ecological conceptual framework which conceptualises resilience as a process where the socio-cultural context and individual functioning influence each other. Kumpfer (1999) construed a linear resilience framework that organised multiple constructs from previous theorisations into one of six factors. Woodgate (1999) provided a process-oriented cyclical resilience model and speculated that resilience should be mapped along a maladaptation-adaptation continuum.

Using Cramer's (2013) evaluation criteria, all three models satisfied, to some degree, each of the three criterion. With respect to the first criterion—applied value—all three models showed potential impact on practice, with possible applications to individuals of all ages from across various cultures. These models could also serve as a comprehensive approach to assessment and have the potential to inform intervention research. The second criterion—testability—was satisfied by all three models, however all models were validated using adolescent or youth samples, thus further model validation using adult samples is warranted. The final evaluation criterion—parsimony—was best satisfied by Woodgate's (1999) process-oriented model of resilience due to its clearly defined components of the model and uncomplicated outline of dynamic and cyclical resilience processes. Because of the complexity of Kumpfer's (1999) model and ecological-transactional model (Cicchetti & Lynch, 1993) a lack of testing of the full model limits the parsimony of both models.

Notwithstanding the limitations of the models reviewed here, each of the three models conceptualise resilience as a person-environment phenomenon consistent with the interactionist paradigm. Yet, none of these models explicitly accounted for the capacity to develop resilience, and all have an overly narrow conceptualisation of outcome variability that fails to account for the full diversity of adapting to adversity or stress (Bonanno, 2012a). Additionally, none of these models consider the *steeling* effects of exposure to prior stressors (Rutter, 2007), although Woodgate (1999) does acknowledge the role of experience in the resilience process. It is worth pointing out that these models were predominately developed from research in clinical and developmental settings, and as such, may not easily generalise to occupational samples. Barton (2005) also points out that most models of resilience focus on responses to adversity, yet everyday challenges may also call for some of the same qualities that are seen in more difficult situations. Barton (2005) advocates a phenomenological approach to resilience that takes into account individual agency, situational context, and processes of improvisation in everyday life. An alternative theory that may address some of the limitations of the above mentioned models and has been applied to organisational settings is the Conservation of Resources (COR) theory (Hobfoll, 1989, 2002), which is described next.

1.1.3.5 Conservation of resources (COR) theory

COR theory (Hobfoll, 1989, 2002) has drawn increasing interest in the organisational literature. It is both a stress and motivational theory that outlines how individuals and organisations are likely to be impacted by stressful circumstances, what those stressful circumstances are likely to be, and how individuals and organisations act in order to garner and protect their resources. To date, individual studies and meta-analyses have found COR theory to be a major explanatory model for understanding the stress process at work (Westman et al., 2004). Additionally, COR theory has received support in many contexts such as workplace burnout (Grandey & Cropanzano, 1999; Lee & Ashforth, 1996; Westman & Eden, 1997; Westman & Etzion, 1995; Wright & Cropanzano, 1998), and encounters with traumatic events such as war and natural disasters (Freedy, Saladin, Kilpatrick, Resnick, & Saunders, 1994; Ironson et al., 1997; King, King, Foy, Keane, & Fair- bank, 1999).

COR theory is an integrated resource theory (Hobfoll, 2002). Integrated resource theories tend to (a) look at resources broadly, rather than focusing on a specific resource; (b) view resource change in the face of stressful challenges as a key operating mechanism by which well-being and health are influenced; and (c) view the possession of reliable resource reservoirs as critical in promoting and maintaining well-being and health. In particular, COR theory (1989) posits

that people seek to obtain, retain, and protect resources and that stress occurs when resources are threatened with loss (or lost) or when individuals fail to replenish resources after substantive resource investment. Thus, in COR theory resource accumulation is a central motivational construct. If resource loss occurs, individuals put substantial energy into preventing the loss from occurring. Thus, resource loss is central to the experience of stress. Further, because resources are seen as the essential elements of people's stress resistance reserves, loss of resources can downward spiral and lead to further resource loss.

COR theory depicts resources as socio-culturally framed which suggests that individual perceptions are seen as common among members who share the same culture (Hobfoll, 1989; Hobfoll, 1998). This does not negate the importance of individual appraisals but allows for a broader understanding of the stress process among those who share a social culture (see also Palinkas, Petterson, Russell, & Downs, 1993). The socio-cultural orientation of COR theory is also incorporated in its emphasis on material (e.g., shelter, transportation, and food) and condition (e.g., employment and social status) resources and how they interact with person (e.g. personality) and social resources.

COR theory suggests that resources, or their lack, tend not to exist in isolation, but rather will aggregate such that, for example, individuals with high self-esteem will also possess a stronger sense of mastery and have better functioning social support systems (Rini, Dunkel-Schetter, Wadhwa, & Sandman, 1999). COR theory hypothesizes that resource gain and the accompanying positive emotions become increasingly important in the face of adversity. That is, resource gains in themselves will have only modest effects on emotional and functional outcomes following stressful circumstances. However, when resource loss has occurred, the ability to obtain resource gains becomes of increasing importance, providing emotional respite and an increased ability to sustain goal pursuit (Billings, Folkman, Acree, & Moskowitz, 2000; Wells, Hobfoll, & Lavin, 1999). Hobfoll (1988) proposes that when centrally valued resources are challenged such as health, well-being, peace, family, and self-preservation, then this resource loss will negatively impact the ability of people to carry out their lives fully. Often these loss cycles are not only broad-based, but rapid (Hobfoll, 2002). This means that people use key resources in order to conduct the regulation of the self, social relations, and how they organise, behave, and fit into the greater context of organisations and culture itself (Westman et al., 2004).

COR theory may serve as a useful framework to explore resilience by examining the mechanism by which person-situation interact to influence adaptive responses to stressors. In

this framework, the person-in-context is the unit of analysis compared with theories that conceptualise resilience as a feature of personality or individual characteristic (e.g. Block & Block, 1980). As discussed earlier (section 1.1.1.1), the interactionist paradigm rests on the assumption that life is not experienced in a vacuum but in the wider socio-cultural domain (Germain & Gitterman, 1987; Michael Ungar, 2011), and as such, COR theory is aligned with this philosophical perspective.

This section has highlighted the most widely cited interactionist models in the resilience literature and proposes that COR theory may be a parsimonious yet comprehensive framework with which to understand resilience. Following on from this review of resilience models, is a presentation of issues associated with the measurement of resilience. The next section discusses current approaches to the measurement of resilience and highlights some of the main issues associated with the measurement of such a complex phenomenon.

1.1.4 Resilience measurement issues

As highlighted earlier (section 1.1.1.1), resilience has been variously described as a trait (Block & Block, 1980), a state-like construct (Luthans et al., 2007), a process (Friborg et al., 2003), and an outcome (Smith et al., 2008). There is also a lack of agreement on the referent for the term, standards for its application, or agreement on its role in models and theories (Glantz & Sloboda, 1999). Variation in defining and measuring resilience has led to an inability to compare the results of research findings due to methodological and definitional differences (Davydov, Stewart, Ritchie, & Chaudieu, 2010). There is, therefore, a need for greater clarity in the operationalisation of resilience to facilitate greater scientific rigour in this area of investigation (Cicchetti & Garmezy, 1993; Kumpfer, 1999; Luthar et al., 2000a). Therefore, the aim of the next section is to highlight some of the main methodological issues associated with the measurement of resilience. In doing so, four general issues will be discussed: trait measurement, measuring adversity, the measurement of outcomes, and item selection and sampling.

1.1.4.1 Measuring resilience as a trait

Three general observations can be made regarding the measurement of resilience as a trait. First, Rutter claims (2006) that the assumption that it is possible to measure resilience as an observed trait is flawed because resilience is not a static quantifiable entity. For example, an individual may be resilient in relation to some type of adversities but not others. Equally, because context is crucial, individuals may be resilient at one time period in their life but not

at others (Windle et al., 2011). Compounding this problem, those using existing trait resilience measures (e.g. Connor & Davidson, 2003; Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003; Wagnild & Young, 1993) have assumed it is possible to measure a resilient *type* of person and employ resilience scales as a proxy for resilient outcomes (i.e., resilience is measured as variations on the trait resilience scale) (e.g. Davidson, Connor, & Lee, 2005). In some cases, resilience scales have been used in the absence of an actual acute stressor event (e.g. Montross et al., 2006), thus narrowing the research to the personality variable alone, divorced from the context. The main limitation of measuring resilience as a trait is that personality rarely explains more than a small portion of the actual variance in people's behaviour across situations (Bonanno, Brewin, Kaniasty, & La Greca, 2010). For example, Weems and colleagues (2010) examined neuroticism in a small sample of adolescents before and after Hurricane Katrina. Controlling for pre-disaster mental health, gender, and number of hurricane-related stressors, they found that pre-disaster neuroticism predicted only a small amount of variance associated with post-disaster symptoms such as anxiety and depression. Thus, the notion of a resilient *type* of person at best addresses only a piece of the overall puzzle of determining who will or will not be resilient.

Second, despite a number of studies that report associations between personality traits and positive outcomes such as subjective well-being and the absence of psychopathology (Bonanno et al., 2011; Bonanno, 2004), in many studies, personality variables were measured concurrently with the outcome (i.e., after the adversity). Given that personality is not impervious to situational and environmental influences (McCrae & Costa, 1999), it is plausible that the adverse event may inform the personality variable as much as the other way around (Mancini & Bonanno, 2009). The point made here does not refute the notion that personality is a relatively stable disposition, rather it highlights the notion of *characteristic adaptation* put forward by McCrae and colleagues (2000). *Characteristic adaptation* refers to environmental variables such as learned skills, habits, beliefs, roles, and relationships that have a direct effect on personality traits. As such, *characteristic adaptations* are always involved in the expression of personality (McCrae et al., 2000). Returning to the earlier point made that personality is not impervious to situational influences in relation to resilience assessment, a small body of research suggests that traumatic stress may contribute to atrophy in the hippocampus and affect personality through its effects on the brain (Bremner, 1999). There is also cross-sectional evidence that the experience of acculturation (e.g. adapting to new cultures) can change personality profiles (McCrae, Yik, Trapnell, Bond, & Paulhus, 1998), and some longitudinal research has shown that personality change is associated with life events (Agronick & Duncan, 1998). All of these findings are useful reminders that in the

assessment of positive outcomes following adverse events, theoretical generalisations about personality are not immune to environmental influences. Therefore, when drawing conclusions about the role of trait resilience in positive adaptations to adversity, it necessary to acknowledge the influence of *characteristic adaptations* on the expression of trait resilience.

Third, resilience measures have predominantly focussed on assessing a constellation of characteristics that enable individuals to adapt to situational demands they encounter. The problem with this approach is that the majority of measures focus on resilient qualities at the level of the individual only (Ahern, Kiehl, Sole, & Byers, 2006; Naglieri, Goldstein, & LeBuffe, 2010; Windle, Bennett, & Noyes, 2011). Whereas features of the individual are undoubtedly important for understanding positive adaptation in the face of adversity, the availability of resources from family (e.g., close bonds with at least one parent) and the community (e.g., support from peers) are also invaluable (see Horton & Wallander, 2001).

1.1.4.2 Measuring adversity

Much of the research investigating resilience antecedents such as adverse events or stressors focus on single events such as reactions to a divorce or prior combat experience. However, adversities often co-occur (Green et al., 2010), making it difficult to isolate the impact associated with any single event. Seery (2010) suggests that current measures of cumulative adversity commonly assess a small range of stressors. In turn, the fewer stressors measured, the more difficult it is to identify the critical differences between individuals that have limited exposure to stressors versus those that have been exposed to a wide range of stressors. Thus, obscuring the true effects of the adversity in question and limiting conclusions that can be drawn about the inference of resilience itself. For example, two individuals that have high ratings on a daily hassles measure may provide information about how well an individual responds to daily hassles but says nothing about the wider stressors that may be impacting on their resilience.

A further consideration when measuring stressors relates to the heterogeneity of events sampled. There is a need to differentiate between chronic circumstances and acute events since the effects associated with each of these categories can differ (Masten, Neemann, & Andenas, 1994). Different properties of stressors need to be accounted for, such as, the duration (chronic vs. acute), frequency (rare vs. common occurrence) and intensity (high vs. low demand). Thus, it is inappropriate to treat events that vary in intensity, such as, bereavement or financial difficulty as comparable to one another (Luthar & Cushing, 1999).

1.1.4.3 Measurement of outcomes

Positive outcomes differ widely depending on sample demographics, number of risks, and the number and type of outcomes—in general, studies utilising predominantly white middle class samples and single risk factors found higher rates of positive outcomes than studies using ethnically diverse low-income samples and multiple risk factors. Thus caution is warranted when results from one study are generalised to other samples, so that resilience rates are not overestimated (Bonanno, Galea, Bucciarelli, & Vlahov, 2007).

Another methodological issue worthy of note is to question the stage at which resilient functioning should be measured. Using data obtained years after the occurrence of an aversive event (Wingo, Fani, Bradley, & Ressler, 2010) makes it impossible to retrospectively determine the sustainability of resilient functioning relative to a specific adverse event. For example, data obtained two years after the onset of a traumatic event might show a person to be symptom free and show signs of positive adaption. At the same time, this individual may have suffered Posttraumatic Stress Disorder (PTSD) for a significant portion of time after the event and have only experienced symptom remission two years later.

Relatedly, the assessment of resilience at a single point in time may only capture state characteristics as opposed to assessing an individual's thoughts, feelings and behaviour throughout the entire process of dealing with adversity (Hoge, Austin, & Pollack, 2007). Therefore, longitudinal studies are important in determining the stability (or lack of stability) of resilience across an individual's lifespan (Luthar, 2006; Windle, 1999). Moreover, utilising longitudinal designs when researching resilience represents a useful approach that is consistent with the conceptualisation of resilience as a dynamic process of positive adaptation to adversity (Luthar, 2006).

1.1.4.4 Item selection and sampling

There is a limited evidence base for the selection of items within current measures of resilience (Atkinson, Martin, & Rankin, 2009; Davydov et al., 2010). For example, the Brief Resilient Coping Scale (BRCS; Sinclair & Wallston, 2004) was developed solely using Polk's (1997) classification of resilience phenomenon. Authors did not provide a justification as to why this particular perspective was prioritised over others. Furthermore, although the content of the Connor-Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was drawn from a number of different peer-reviewed sources (e.g. Kobasa, 1979; Lyons, 1991; Rutter, 1985), scale authors also used resilience factors that were not based on empirical evidence such as

the memoirs of Sir Edward Shackleton's expedition in the Antarctic in 1912 (Alexander, 1998). Similarly, items from the Brief Resilience Scale (BRS; Smith et al., 2008) were solely derived from a dictionary definition of resilience (the ability to "bounce back" or recover from stress) favoured by the lead author. It is critical that in instrument development, item sampling is clearly justified, perhaps starting with a review of the vast empirical knowledge of resilience-related research.

Current measures of resilience predominantly sample items that are *implicitly* assumed to be associated with positive adaptation in the face of adversity (Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). However, without the simultaneous measurement of context-specific stressors this connection cannot be corroborated. Rutter (2006) argued that resilience is an interactive concept that can only be studied if there is a thorough measurement of factors relative to the adversity in question. To help reduce ambiguities in item development alternative paradigms that adopt a person-in-context unit of analysis (Little, 2000) such as qualitative methods may be a valuable addition to the item development process.

To summarise, three pivotal components influence the degree to which resilience can be successfully measured—adversity, protective factors, and positive adaptation. As such, Bonanno (2012b) suggests the following methodological criteria should be met in the assessment of resilience: (1) the temporal bounds of adversity should be defined; (2) positive adaptation must be explicitly defined; and (3) measurements need to be obtained at multiple points in time. Without a clear operationalisation of these components it becomes difficult to compare findings across studies (Schoon, 2006) and clarify to what extent an individual displays resilience compared with another (Silver & Wortman, 1980). The issues raised here are critical for the refinement of future measures of resilience.

While diversity in research approaches can be valuable, the result of variation in defining resilience (or failing to) and the measurement of adversity and positive outcomes has led to contradictory findings and in some cases, an inability to compare results due to irreconcilable methodological and definitional differences. There is an obvious need for greater uniformity and clarity in the definition, terminology and operationalisation of resilience to capitalise on current knowledge and to facilitate greater scientific rigour in this body of work (Kumpfer, 1999; Luthar et al., 2000). As there have now been many identified factors associated with resilient outcomes, ongoing development of the concept of resilience will depend in part on greater standardisation of definition and research approaches. An integral part of this process is the development of a reliable and valid means of measurement.

The aim of this introduction has been to identify and present a critical overview of conceptual and methodological issues associated with the theoretical construct of resilience. The final part of this introduction summarises these findings and presents the research questions guiding this thesis.

1.2 Summary

Integrating findings from the literature on resilience has inherent difficulties due to the variability with adversity, protective factors and the ways positive adaptation has been operationalised (Rutter, 2000). It is challenging to determine criteria for meaningfully grouping studies together, and questions arise regarding interpreting differences in results across studies. For example, it is unclear whether disparate results are due to differences in sample demographics, different types of stressors, protective factors, and/or outcomes measured. At present, while some broad generalisations can be made, there are limits regarding specific conclusions that can be drawn from research on resilience due to the lack of agreement on theory, method, and terminology.

Rutter (1999) argues that there can be no universal resilience factors because specific genetic contexts interact with individual traits (Silberg et al., 2001) thus negating the possibility of identifying any universal resilience factors. This view is supported by empirical evidence where there is a lack of consistency in what constitutes resilience across time and domains which suggests that *global resilience* is at best, quite rare, if non-existent (Vanderbilt-Adriance & Shaw, 2008). Thus, resilience might be better conceptualized in terms of specific outcomes at specific time points, as such it may be more useful to measure resilience in relation to circumscribed outcomes, such as, resilience in *palliative care workers* or resilience in *academic achievement.* Given this narrower conceptualization of resilience, questions remain as to whether resilience is still a useful theoretical construct? Moreover, what is to be gained from research on resilience if it needs to be defined in such constrained ways? It could be argued that a narrower definition of resilience may well contribute positively to the literature and understanding of resilience processes because it is a more accurate representation of the construct. Advances in research on resilience require a fundamental acknowledgment that resilience involves complex processes of interrelated risk and protective factors that are *both* internal and external to the individual. Further, resilience must be understood as a dynamic construct that *may* fluctuate at different individual life stages. Additionally, researchers must clarify how they are defining risk, protective factors and adaptive functioning. Situational specificity should also be a key consideration. Aside from

recommendations for how to advance research on resilience, one caveat should be kept in mind—in some instances, resilience is not a possible outcome; the greater the intensity and number of risks an individual is exposed to, the less likely an individual is to display resilient functioning (Rutter, 2012; Vanderbilt-Adriance & Shaw, 2008).

1.3 Overview of thesis and research questions

As with all research, certain issues were prioritised over others and this meant that some aspects of resilience were not considered in this thesis, in particular, the focus on resilient outcomes such as post traumatic growth. This decision was taken by the researcher as the present thesis has an operational focus, which is aimed at exploring ways of measuring resilience in palliative care workers that may inform future interventions and development of staff.

To date, and to the knowledge of the author, there is very little research exploring the measurement of resilience in palliative care workers. Very little is known about the behaviours that impact on judgments made by palliative care workers when dealing with the emotional demands of end-of-life care. To begin with:

- Chapter 2 will discuss context, sampling and set the scene for the current thesis.
- Chapter 3 presents findings from a systematic and methodological review of available published measures of resilience. The review also evaluates available measures through an interactionist lens, which is designed to provide information about the extent to which resilience is measured as a person-situation phenomenon, rather than a global resilience construct.
- Building on findings from the systematic and methodological review, Chapter 4 performs a joint factor analysis on five of the highest rated measures identified in the review to understand how resilience is currently being operationalised.
- Following on from findings in Chapter 4, a qualitative study using template analysis, will be presented in Chapter 5 to examine whether the operationalisation of resilience by authors of resilience measures is relevant to the palliative care setting.
- Based on results from Chapter 5, it was concluded that a new interactionist measurement method is warranted to assess the range of resources associated with resilience in palliative care workers. Thus, Chapter 6 introduces the situational judgment test (SJT) method as a new means of assessing situational judgments in the effectiveness of resilience related behaviours in palliative care workers.

- In the concluding chapter, a general discussion of findings of this research programme is presented including implications for research and practice, study limitations, and possible avenues for future research.

So, with the overall aim of this research to explore the measurement of resilience in palliative care workers, the over-arching research question is:

"How can resilience be measured in palliative care workers?"

In addressing the research question, each of the four studies presented in this thesis (see Figure 1.6) will answer the following specific research questions:

1. *How is resilience currently operationalised by existing measures of resilience?*
2. *What resources are associated with resilience in palliative care workers?*
3. *Are current approaches to resilience measurement applicable to the palliative care setting?*
4. *How can resilience measurement be extended to the palliative care context?*

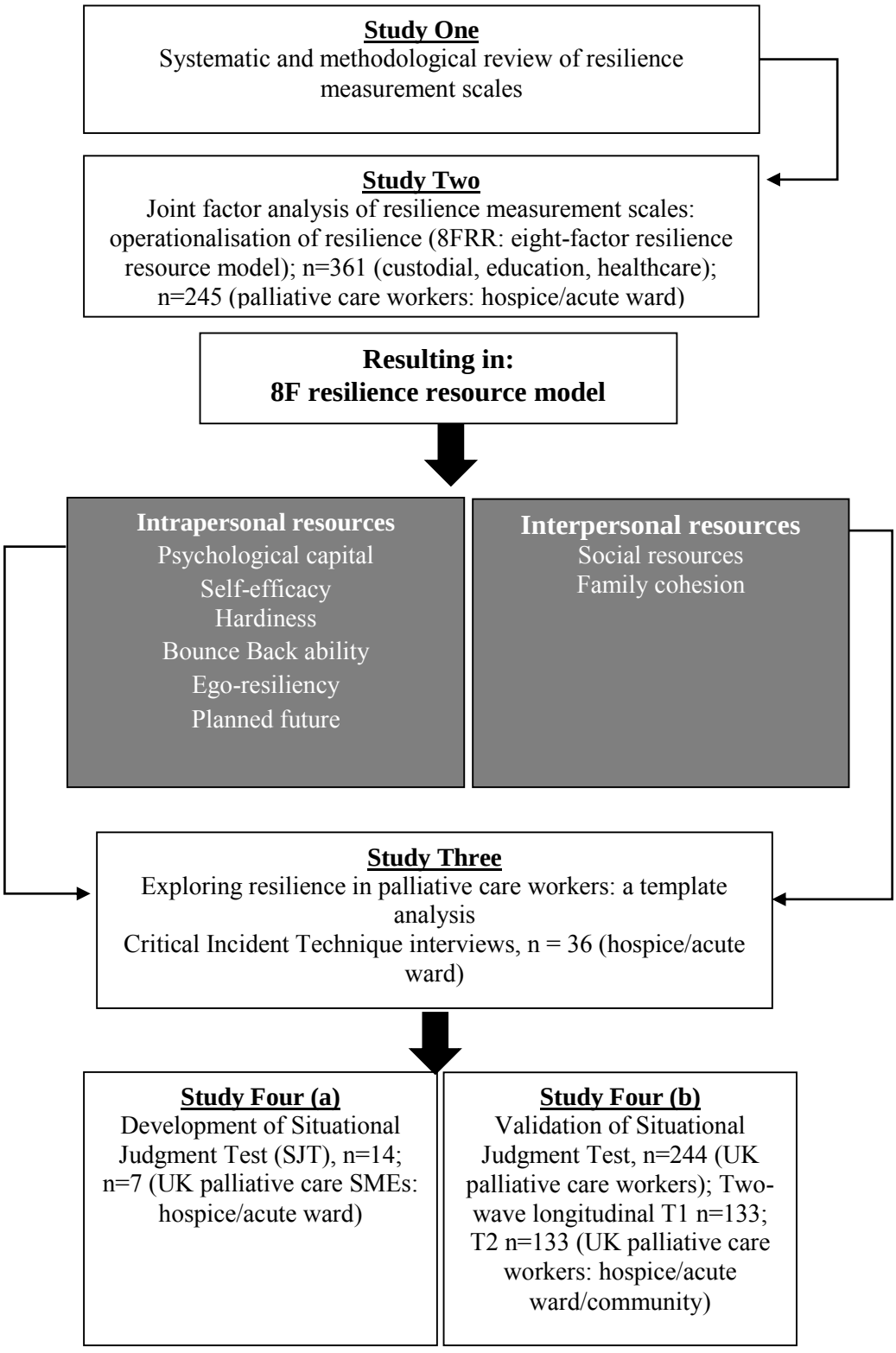


Figure 1.6: Framework for the exploration of resilience measurement addressed by the studies within this thesis

Chapter 2: Context, Sampling, Research Design and Methods

2.1 Introduction

This chapter begins by presenting the context within which this research programme was conducted. Next, the sampling, research design and methods are considered; and finally a brief outline of each of the studies conducted within this thesis is presented.

2.2 Context

It is important to consider 'context' in organisational research, since it is likely to have at least some influence on the way in which research is conducted (Johns, 2001). The context of the present thesis was the palliative care setting. Although palliative care services have traditionally provided end-of-life care for cancer patients, more recently these services have broadened to include palliative treatment for people with other life threatening conditions, which has led to a drain on already depleted resources (Addington-Hall & Higginson, 2001).

Working in palliative care is considered to be inherently stressful (Abeloff, 1991; Graham & Ramirez, 2002). There is a widely held belief that because staff working in palliative care services are regularly exposed to the pain and suffering of patients, that this is a major source of job stress (Graham et al., 2006). In addition, there may be conflict between the curative focus of professional training and the daily reality of interacting with patients who have advanced disease and cannot be cured. This could lead to a sense of helplessness and personal failure when treatment inevitably becomes palliative (Whippen & Canellos, 1991). Working with patients who are young, or with whom the member of staff identifies can also be distressing (Graham et al., 1996) as staff may be confronted with issues of their own mortality (Nash, 1989).

Palliative care work is unique and carries a high risk of stress, depression and burnout (Sally Hardy et al., 1998). With regard to patient care, burnout has been associated with a decrease in the quality of patient care, and greater distancing with poorer communication (Ramirez, Graham, Richards, Cull & Gregory, 1996; Whippen & Canellos, 1991). From an organisational perspective, psychological morbidity (e.g. depression, anxiety) and burnout is linked to absenteeism, intention to leave, and high staff turnover (Cordes & Dougherty, 1993). The demands on palliative care workers are substantial. For example, on a daily basis decisions must be made relating to: (1) the autonomy of the patient and fulfilment of end-of-life arrangements; (2) euthanasia and assisted suicide; (3) withholding or withdrawing

treatments (such as hydration or nutrition); and (4) a decision not to resuscitate (Worthington & Thorns, 2005). In addition to this, those working in end-of-life care often make life-changing decisions for patients (Rosch, 1987) and are required to support entire family units through illness and bereavement (Barnes, 2001). In addition to these demands, research has shown that in some cases, inevitable patient deaths also contribute to feelings of helplessness in palliative care workers (L. H. Goldstein & Leigh, 1999).

In a recent systematic review exploring levels of burnout shown by palliative care professionals (Pereira, Fonseca, & Carvalho, 2011), several risk factors were identified as increasing susceptibility to burnout: 1) a lack of self-confidence in professionals' own communication skills with patients and relatives; 2) time pressures (Jackson et al., 2008); and 3) problems with the transmission of bad news, particularly when this was related to ineffective curative treatment (Dimoska, Girgis, Hansen, Butow, & Tattersall, 2008). Authors of the systematic review (Pereira et al, 2011) opined that these risk factors may be related to a lack of job experience and training. Support for this claim has been found in several studies indicating that burnout risk factors appeared to be related to a lack of education, avoiding contact with patients, a negative self-assessment of performance, and lower professional qualifications (Ablett & Jones, 2007; Payne et al., 2011).

Research identifying factors that protect palliative care workers from negative health outcomes emphasise the importance of spending time with patients and families combined with the establishment of effective communication with family members (Jackson et al., 2008). As a consequence, working in palliative care promotes personal enrichment related to the fact that caring for those who are dying and helping their relatives is regarded as a significant contribution. These professionals therefore develop a sense of personal gratification, which leads to greater personal and professional satisfaction, which may have a protective factor against workplace stressors (Olthuis & Dekkers, 2005). Other protective factors against workplace stressors in end-of-life care are emotional control, positive self-re-evaluation, support, supervision , continuing education (Pereira et al., 2011), deepening of interpersonal team relationships, stable interpersonal private relationships (Ablett & Jones, 2007), physical exercise, leisure, relaxation, and professional appraisal (Payne, 2001).

While the identification of protective factors against stressors may be encouraging in that they may inform future interventions, many of the findings associated with protective factors in palliative care workers were not actually carried out in palliative care units. Many studies were situated in oncology settings (e.g. Dimoska et al., 2008; Jackson et al., 2008). Although there

are similarities between oncology units and palliative care units, there are some peculiarities in palliative care units that need to be studied further. Pereira and colleagues (2011) note that oncology settings are more concerned with cure than palliative care. As such, palliative care teams act in an interdisciplinary manner that may reduce barriers between professionals and foster closer interpersonal ties with patients and family units.

Exploring resilience in palliative care workers is warranted particularly given the stressors and emotional demands required of end-of-life care. Whilst there has been a great deal of research exploring a number of psychological stressors in palliative care workers, much less attention has been paid to resilience in palliative care workers, and even less attention has been paid to the measurement of resilience in palliative care workers. The present research programme goes some way in addressing this gap in the research.

2.3 Conducting organisational research

As was outlined in the previous chapter, much of the resilience research has been conducted in non-organisational settings such as developmental (e.g. Masten & Obradovic, 2006) and clinical (e.g. Bonanno, 2004) domains. By necessity, generalising findings from resilience research in developmental and clinical samples to occupational samples requires a substantial amount of research conducted in the workplace. However, it should be noted that there are particular challenges associated with conducting research in organisations.

A specific challenge in this particular research programme was dictated by the operational demands of the various palliative care organisations in which data were collected. Specifically, participating organisations imposed constraints on the amount of data that could be collected from participants, since the time that employees had available was extremely limited. This had implications for both interview and survey data collection. With regards to interview data collection, interviews were kept to on average one hour (ranging between 45-70 minutes). Further, due to operational demands (e.g. patient deaths, family bereavement), interviews were either cut short, cancelled, or rescheduled. In relation to survey data collection, the organisation imposed constraints on the time taken to complete questionnaires; a guideline of 15-20 minutes for survey completion time was therefore considered acceptable. Thus, the research was guided, not only by the research needs and associated research questions, but also by the needs of the organisation and participants. Thus, both access to, and the time that participants had available, were two major constraints to the present research. Unfortunately these issues were outside of the researcher's immediate control and therefore had an impact on the amount of data that could be collected within this context.

It should also be noted that in organisational field-based research, a number of uncontrolled factors will inevitably exist (Robson, 2011). For example, variance associated with job roles and context. Thus, in order to minimise the potential confounding influence that context variables might have on findings in this thesis, the samples were drawn from three palliative care settings: hospice, acute hospital wards, and the community; and to minimise the confounding job characteristics variables within the research context, samples were drawn from five occupational groups: nurses, consultants, mental health workers, social workers, and occupational therapists. Therefore potential confounds were minimised to increase the internal, external, and ecological validity of findings.

2.4 Sampling

The present thesis draws upon one sample of custodial, education, and healthcare workers, and four samples of palliative care workers from hospice, acute hospital wards, and community settings. Due to the nature of end-of-life care, employees working on acute wards also worked in hospices. However, employees working in the community did not have dual roles. It can be hard to gain representative samples from a specific population when conducting field-based research (Robson, 2011); therefore measures were taken to ensure that participant samples were representative of the broader employee population. This was achieved by comparing demographic variables between respondents and non-respondents; for all five specialties (nurses, consultants, mental health workers, social workers, and occupational therapists), the samples used were relatively representative since there were no significant demographic differences between respondent and non-respondent samples.

Constraints on research can also arise from aspects of the setting in which it takes place. These include collaboration; attitudes to research; infrastructure and resources; and research capacity. Each of these is underpinned by and contributes to a more elusive quality – that of the culture and ethos of the settings. Three of the four studies conducted in this thesis were conducted in a hospice setting. The fourth study (presented in Chapter 6) also included those working in community palliative care and acute wards. There were two main constraints related to conducting research in a hospice setting that were encountered.

1) Across many hospice settings, as a result of staff shortages and high workloads, a lack of time to participate in research has been identified (Nyatanga, 2012; Peterson, Jackson, Fitzmaurice, & Gee, 2009). In a study exploring perceived facilitators and barriers to conducting palliative care research (Payne, Preston, Turner, & Rolls, 2013), lack of time was

identified as the primary barrier by 63% of provider participants. Indeed, a lack of time to participate in studies impacted upon the timelines for data collection in all four studies but particularly for Studies 3 and 4. In Study 3 it was difficult trying to take employees out of the operation for one hour interviews due to staff shortages. In Study 4 the convening of focus groups was extremely difficult as it was rare that all participants could meet at the same time on successive occasions. Further, attendance at focus groups was often interrupted by demands on the wards. 2) Organisational outcome data is difficult to access and is limited due to inconsistent record keeping —for example, performance data such as the effective use of social care packages or various aspects of in-patient management is often not available (Payne et al., 2011). It was not possible for the thesis author to gain access to any hard outcome data such as appraisal data or performance related metrics as this was deemed (by the hospice ethics committee) to be too sensitive for release to external personnel.

2.5 Research design

The aim of this research programme was to explore the measurement of resilience in palliative care workers; to the knowledge of the author, there has been no measure of resilience specifically designed for palliative care workers. In addressing the aim, this thesis adopts an inductive approach that begins with an exploration of the construct of resilience and its measurement, followed by the operationalisation and measurement of resilience for use in the palliative care domain. Figure 2.1 outlines the research process.

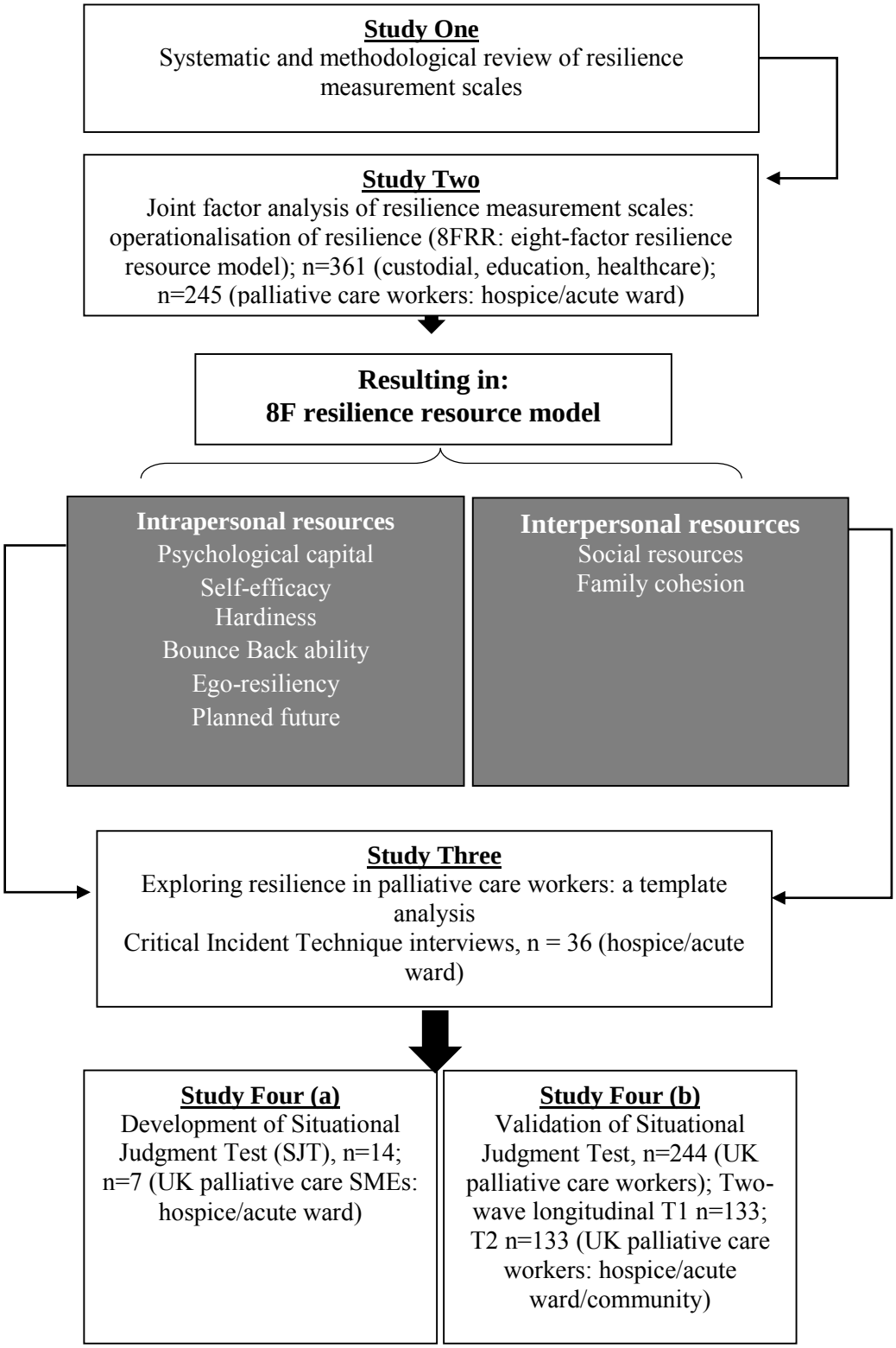


Figure 2.1: Framework for the exploration of resilience measurement addressed by the studies within this thesis:

As mentioned above, the present thesis adopts an inductive approach to the study of resilience in palliative care workers and it is for this reason that it was necessary to use a combination of quantitative and qualitative data collection methods. Very little is known about the behaviours that impact on judgments made by palliative care workers that lead to resilient functioning. Of the information that is available, qualitative research designs are typically employed (e.g. Ablett & Jones, 2007; Jackson, Firtko, Edenborough, 2007), which limits the degree to which results can be generalised to other samples. Therefore, to address this limitation, a *concurrent nested design* (Robson, 2011) was used. This type of research design involves nesting qualitative data within a predominately quantitative design, in order to sufficiently operationalise resilience from the perspective of palliative care workers. Using a *concurrent nested design* increases the content validity through qualitative data collection methods, and also increases the ability to generalise data through quantitative data collection from a wider sampling frame. Secondly, to address the limitation of construct and measurement issues discussed in Chapter 1 (section 1.1.4), the present thesis uses an interactionist paradigm as an overarching framework (Endler, 1983). Contrary to the approaches adopted by trait measures of resilience (e.g. Connor & Davison, 2003; Smith et al., 2008), interactionism espouses a person-situation approach to the measurement of psychological phenomena. Since the focus of the present thesis was to explore the measurement of resilience *in* palliative care workers, adopting an interactionist paradigm was deemed necessary as information associated with the individual (employee) and environment (hospice, acute ward, community) are critical to the understanding of individual resilience in the context of palliative care (Endler, 1983; Reynolds et al., 2010).

As noted in the first chapter, positive outcomes that are associated with resilience should be clearly specified and relative to the adversity that is thought to trigger the resilience process. For example, in the palliative care context, an outcome measure of burnout would be expected as there is substantial evidence linking palliative care work with burnout (Pereira et al., 2011). Resilience in this case would be constrained to the workplace and demonstrated by a lack of burnout risk indicators. Thus, resilience processes are only relevant to the life domain under investigation (i.e. the workplace), and not necessarily generalisable to all other life domains. Given the need to adopt such a narrow conceptualisation of resilience, questions remain as to what can be gained from research on resilience if it needs to be defined in such a constrained way? One could argue that adopting a narrower definition of resilience may well be the first step toward understanding whether *resilience* can in fact be operationalised as a theoretical construct in its own right. Advances in research on resilience require a fundamental acknowledgment that resilience involves complex processes that are *both* dependent on

individual differences and situational influences (Rutter, 2006). Therefore, the present research programme explores how to measure resilience in a very specific context— the palliative care setting— rather than examining possible ways of measuring resilience as a global construct. Moreover, findings from this research are specific enough to be applied to the nuances of the palliative care domain, yet generalizable to a range of job roles within this domain.

2.6 Research methods

Both quantitative and qualitative research methods were employed in this thesis to address the overall research objectives. This included quantitative questionnaires, focus groups, and qualitative interviews analysed using template analysis. The following sections briefly outline the questionnaire measures and qualitative data collection methods used in this research programme.

2.6.1 Questionnaires

In Studies 2 and 4, questionnaires were used as a way to gather data to produce a quantifiable representation of how resilience is currently operationalised by existing, published measures of resilience. As a method of data collection, questionnaires are considered to be relatively simple to use: versatile and efficient in terms of researcher/participant time and effort (R. Kent, 2001; Robson, 2011). Furthermore, they are useful in theory and hypothesis testing (De Vaus, 2002).

In Study 2, items to measure resilience were derived from five resilience self-report measures: 1) Resilience Scale for Adults (RSA: Friborg et al., 2003); 2) Psychological Capital Questionnaire (PCQ: Luthans, Youseff, & Avolio, 2007); 3) Brief Resilience Scale (BRS: Smith et al., 2008); 4) Revised Ego-resiliency Scale-89 (Guido Alessandri, Vecchione, Caprara, & Letzring, 2012); and 5) 10-item Connor Davidson-Resilience Scale-10 (CD-RISC-10: Campbell-Sills & Stein, 2007). To examine whether each of the five measures were measuring a similar positive psychological construct, all five measures were correlated with a measure of subjective well-being, the *WHO-Five Well-Being Index* (WHO-5: World Health Organization, 1998).

In Study 4, to validate the Situational Judgment Test (SJT) in Part Two of the chapter, a number of different variables were measured:

- To examine convergent validity, SJT scores were correlated with a measure of trait-resilience which was the result of a joint factor analysis in Study 2 (referred to as the five-factor resilience resourcequestionnaire: 5FRRQ)
- To examine predictive validity, SJT scores were regressed onto organisational outcome variables—organisational commitment, job satisfaction, and turnover intention as measured by the Michigan Organizational Assessment Questionnaire (Cammann, Fichman, Jenkins, & Klesh, 1983)
- Evidence of SJT incremental validity in predicting organisational attitudinal outcomes as measured by the MOAQ was examined by examining the predictive capacity of SJT scores over demographic variables (education and job experience), personality as measured by the single-item measure of personality (SIMP: Woods & Hampson, 2005), and trait-resilience as measured by the 5FRRQ from Study 2; all variables were regressed onto MOAQ items.

Further details of the questionnaire scales and items used in this research programme can be found both in the relevant study chapters and in Appendices 1, 2, 3 and 6.

2.7 Interviews

In Study 3, critical incident technique (CIT) interviews were used to explore the behaviours associated with resilience in palliative care workers. The interview technique is a data collection method that is flexible and can address issues where the participants' perspectives are important (King, 2012; Robson, 2011). Therefore, the interview as a data collection method was considered useful in this particular context because the data gathered would be used to inform the operationalisation and measurement of resilience in palliative care workers.

This approach to data collection was considered important to the research aims of this thesis as in order to develop a new method of resilience assessment it is essential to involve the target population in item development and selection (Skinner, 1981). As such, it is incumbent upon researchers to elicit information about resilience from the point of view of the participant and not the point of view of the researcher (Silverman, 2013). Further, there are three advantages of interview data collection. Firstly, questionnaires often implicitly assume that the researcher and participants share a similar understanding of the variables examined, however this is not always the case (Bartunek & Seo, 2002). By restricting participant responses to pre-defined items on a given questionnaire, important additional information gained from participant experiences may be lost. Second, qualitative research methods allow participants to expand on responses adding detail that they consider relevant to the topic (Robson, 2011). This is not

possible when closed-response questionnaire items are used. Third, qualitative data can be used to explain data from quantitative findings to help understand the complex nature of the phenomenon and range of perspectives that are required to understand it (Bryman, 2012).

One of the main disadvantages of conducting interviews when compared to questionnaires is that they are time-consuming for participants (King, Cassell, & Symon, 2004; Silverman, 2013). Therefore the researcher aimed to keep each interview to an average of 60 minutes. With permission, all interviews were recorded, and then transcribed verbatim (see Appendix 5 for a full interview transcript). Interview data were analysed according to the guidelines for template analysis (Crabtree & Miller, 1999; King, 2012).

2.7.1 Template Analysis

Template Analysis is a method of thematically organising and analysing qualitative data which has been applied in a broad range of research areas in the social sciences (King, 2012). Central to template analysis is the development of a coding template, which summarises themes identified by the researcher(s) as important in a data set, and organises them in a meaningful and useful manner. Themes are recurrent features of participants' accounts characterising particular perceptions and/or experiences that the researcher sees as relevant to their research question. Coding is the process of identifying themes in accounts and attaching labels (codes) to index them. Once a researcher using template analysis has identified the themes or codes in their textual data, these are then organised by the researcher into their template, which is arranged so that it usefully and meaningfully represents the relationship between different themes (Joanna Brooks & King, 2012).

The data involved in studies using template analysis are usually in the form of interview transcripts such as those from CIT interviews in Study 3, but template analysis can be employed with any kind of textual data including focus group data, diary entries, or open ended question responses on a written questionnaire. It is important to note that template analysis does not refer to a distinct methodology, or even a single, clearly delineated method of data analysis. It refers rather to a varied but related group of techniques for thematically organising and analysing data, and it is thus relatively flexible and adaptable to the needs of a particular study (Brooks & King, 2014). This means that template analysis is a pragmatic technique which can be applied within a range of different qualitative research approaches. For example, it can be used by qualitative researchers taking a *realist* position and concerned with the *discovery* of underlying causes of human action and particular human phenomena (Robson, 2011). Research of this type would likely be concerned to demonstrate researcher

objectivity and coding reliability (Brooks & King, 2014). In contrast, template analysis can also be used by those taking what is known as a *constructivist* stance who assume that there are always multiple interpretations to made of any phenomena, which arise from the position of the researcher and social context of the research (Brooks & King, 2014). In the present research programme, there is more of a focus on the realist position concerned with the discovery of behaviours associated with resilience in palliative care workers.

In Study 3, the template coding scheme was arranged in a hierarchical fashion depicting relationships between themes, with the broadest themes (first-level codes) at the top, and more specific second or third-level themes descending from such. While *a priori* themes can be drawn from the literature or previous research (Crabtree and Miller, 1999), in the present study *a priori* themes were drawn from the 8FRR model identified in Chapter 4. Thus, template analysis was selected as the analytical technique to code all 36 CIT interview transcripts. This analysis is outlined in further detail in Study 3 (Chapter 5).

2.7.2 Focus group interviews

In Study 4, focus group interviews were conducted with subject matter experts (SMEs) to develop SJT items. With regards to focus groups interviews, Robinson (1999) notes a number of key advantages. Firstly, focus groups have natural quality controls on data collection as participants tend to provide checks and balances on each other. Second, focus groups are an efficient technique for data collection as the range of data is increased by collecting from several people at the same time. Third, groups dynamics help focus on the most important topics and it is easy to assess agreement on specific topics.

Focus groups were conducted to validate the behavioural indicators that were extracted by the researcher from CIT interviews in Study 3. Participants in focus groups could also provide additional resilience related behaviours that were not previously considered. The focus group is a technique that involves a moderator-facilitated discussion among multiple participants about a specified topic of interest (Kitzinger & Barbour, 1999). In this case the topic of interest was related to the adaptive behaviours thought to facilitate resilience in the palliative care working environment. Focus groups generate qualitative data that can both enrich and extend what is known about a concept and inform item development for measures such as the situational judgment test (SJT). In turn, this knowledge can improve the content validity of instruments (Vogt, King, & King, 2004). For Study 4, focus groups comprised two groups of subject matter experts (n=14; n=7) who had substantial experience (at least ten years) working

in the palliative care sector. A full description of the use of the focus group interview in this thesis is given in Study 4 (Chapter 6).

2.8 Studies presented in this thesis

Four studies are presented in this thesis and shown in Table 2.1 which depicts the research design, sampling, and measures used in each study. The research programme was designed to explore the measurement of resilience in palliative care workers. As this research programme was an inductive piece of research, each study builds on findings from the preceding study. The next sections outline each of the studies in this thesis.

Table 2.1: Research design, sampling, and measures for studies presented in this thesis

Study	Sample	Research design/ method	Measures and analysis
1	Three reviewers: thesis author, two psychologists	Systematic and methodological review of resilience measurement scales	Skinner's (1981) construct validation framework
2	Sample 1: 361 custodial, education, and health care professionals Sample 2: 245 UK palliative care workers (hospice/acute hospital wards)	Quantitative, questionnaire-based, and cross-sectional	Sample 1 and Sample 2: CD-RISC, RSA, BRS, PsyCap, ER-89-R, WHO-5, age, gender, experience, and education.
3	Thirty-six clinicians from two hospices in the South East of England: nurses (n=12), consultants (n=9), mental health workers (n=8), social workers (n=5), and occupational therapists (n=2).	Qualitative method, data collection via CIT interviews.	Data coded using template analysis. Eight-factor model of resilience from study 2 comprised coding template.
4	Sample 1: SMEs from a hospice in the South East of England: nurses (n=6), consultants (n=2), social (n=3), psychologists (n=3). Sample 2: SMEs from a hospice in London: nurses (n=2); consultants (n=3), psychologists (n=2). Sample 3: 284 UK palliative care workers from hospice, acute wards, and community: nurses (n=149), consultants (n=57), social workers (n=43), mental health professionals (n=22), and occupational therapists (n=13).	For sample 1 + 2: Qualitative method, data collected via CIT interviews and focus groups. For sample 3: Quantitative, questionnaire-based, and two-wave longitudinal: T1=SJT scores; MOAQ scores; 5FRRQ; SIMP T2=SJT scores; MOAQ scores	Sample 3: SJT scores, five-factor resilience resource questionnaire derived from study 2 (5FRRQ), MOAQ, SIMP, age, gender, experience, and education.

2.8.1 Study One: A systematic and methodological review of resilience measurement scales

Study Purpose: The purpose of Study One was to identify and evaluate published resilience measurement scales to understand how resilience is currently conceptualised by existing scale authors. The review also evaluates available measures through an interactionist lens, which is designed to provide information about the extent to which resilience is measured as a person-situation phenomenon, rather than a global resilience construct.

Part One

Part One of the study commenced with a systematic literature search using specific inclusion and exclusion criteria. Following this, identified resilience measures were content reviewed and thematically analysed. The purpose of the thematic analysis was to understand how resilience is currently conceptualised by existing scale authors.

Part Two

In the second part of the study, the psychometric properties of the measures identified in the systematic review were evaluated using Skinner's (1981) construct validation framework. Each of the scales was evaluated against several quality assessment criteria.

2.8.2 Study Two: Operationalising resilience: a joint factor analysis of resilience measurement scales

Study Purpose: The purpose of Study Two was to empirically examine the five highest rated measures from Study 1 to further understanding about how resilience is currently being operationalised.

Part One

In Part One of the study, items from the five highest rated measures from Study 1 were combined and factor analysed using a sample of 361 working adults from custodial, education, and health care sectors. Results from Part One would reveal to what degree scale authors are operationalising resilience in the same way, if at all. The resulting factor model would be a preliminary step toward understanding how resilience is currently being operationalised.

Part Two

To validate the findings from Part One, a confirmatory factor analysis was performed in Part Two of the study using a sample of 245 palliative care workers. Palliative care workers were sampled from across the UK and were working in either hospices or acute hospital wards at the time of the study. Two competing models were tested to assess best fit to the data and confirm the factor model identified in Part One. The resulting resilience model would provide

preliminary evidence of how resilience could be operationalised based on the item content from five peer-reviewed measurement scales.

2.8.3 Study three: An exploration of resilience in palliative care workers: a template analysis

Study purpose: The purpose of Study 3 was to use template analysis to understand what resources are associated with resilience in palliative care workers and to examine whether the operationalisation of resilience by authors of resilience measures is relevant to the palliative care setting. Study 3 is a first step towards exploring how resilience can be operationalised for the purposes of measurement in palliative care workers.

In Study 3, a qualitative data collection method was used to identify salient and personally relevant experiences of palliative care workers who have encountered adverse experiences in the workplace. This approach was used to explore the behaviours associated with resilience in end-of-life care. Critical incident technique (CIT) interviews were conducted with a sample of 36 UK employees from two hospices (includes those working in dual roles—acute hospital ward). Examples of behaviours that were both effective and ineffective in dealing with adversity were extracted from interviews. These data extracts were then coded using the resilience model from Study 2 as an initial coding template. The final coding template that emerged from the template analysis suggested that the current operationalisation of resilience by authors of self-report measurement scales was not broad enough to capture the nature of resilience in palliative care workers, indicating that new approaches to measurement are warranted. Thus, the final coding template would serve as a foundation for item content for the subsequent development of a resilience measure specifically designed for use in palliative care workers.

2.8.4 Study four: A new method of measuring resilience in palliative care workers

Study Purpose: The purpose of Study 4 is to extend and apply findings from Studies 1-3 to develop and validate a situational judgment test (SJT) which represents a new method of measuring resilience in palliative care workers.

Part One

In Part One of the study, the development of SJT item-stems and scoring keys is described which involved two phases of qualitative data collection:

1) Using data collected from CIT interviews with palliative care workers in Study 3 (n=36), behavioural indicators extracted from interviews were used to develop situational judgment test (SJT) item-stems.
2) To develop the SJT scoring key, focus groups were convened comprising two samples of subject matter experts (SMEs). The first group of SMEs were sampled from a hospice in the South East of England: nurses (n=6), consultants (n=2), social workers (n=3), and psychologists (n=3). The second group of SMEs were sampled from a hospice in London: nurses (n=2); consultants (n=3), psychologists (n=2). Many of the SMEs held dual roles in both the hospice and acute hospital ward setting. Both groups of SMEs independently reviewed SJT item-stems for quality and developed scoring keys associated with each item. Item-stems and scoring keys were finalised once intergroup reliability had reached acceptable levels (see Chapter 6).

Part Two

In Part Two of the study, the reliability, construct, and criterion-related validity of the SJT were examined using a sample of 284 UK palliative care workers from hospice, acute wards, and community settings: nurses (n=149), consultants (n=57), social workers (n=43), mental health professionals (n=22), and occupational therapists (n=13). A two-wave longitudinal study design was used for these analyses and consisted of the following:

1) Evidence of SJT reliability was demonstrated by test-retest analyses (n=133) and examining the internal consistency of the SJT.
2) Construct validity was examined by establishing the factor structure of the SJT through exploratory (n=142) and confirmatory factor analysis (n=142). Further evidence of construct validity was examined by assessing the degree of convergence between the SJT and job experience, education and the resilience model (referred to as the five-factor resilience resourcequestionnaire) from Study 2 (n=284).
3) Criterion-related validity was established by examining whether the SJT could predict organisational attitudinal outcomes (organisational commitment, job satisfaction, and turnover intention) at Time 1 and Time 2. Further evidence of criterion-related validity was established by examining whether the SJT explained incremental evidence in organisational attitudinal outcomes (organisational commitment, job satisfaction, and turnover intention) above and beyond education, job experience, personality, and the 5FRRQ.

Taken together these data would provide preliminary evidence toward the validation of a novel method of measuring resilience in palliative care workers.

2.9 Summary

In summary, this chapter has outlined the context, sampling, research design and research methods used in this thesis. The research takes place in the context of the palliative care sector and draws on samples of clinicians from hospices, acute hospital wards, and community settings. In drawing participants from these three sectors, potential confounding job and organisational context variables could be controlled to some extent. However, due to the nature of organisational research, there were a number of constraints regarding access to participants which influenced the research design and methods employed. This thesis employs both quantitative and qualitative research methods, in order to examine the overall aim of this research: to explore the measurement of resilience in palliative care workers. The chapters that follow present the four empirical studies that comprise this thesis. The first of which is presented next and presents findings from a systematic and methodological review of resilience measurement scales.

Chapter 3: A systematic and methodological review of resilience measurement scales[1]

3.1 Introduction

In Chapter 1, findings from a literature review on resilience highlighted the need for greater uniformity and clarity in the definition, conceptualisation, and operationalisation of resilience. Recent theoretical developments in resilience research (Bonanno & Diminich, 2012; Masten & Narayan, 2012) suggest there is a critical need for greater consideration of measurement issues in resilience research (Cicchetti & Garmezy, 1993; Kumpfer, 1999; Luthar et al., 2000; Luthar & Cushing, 1999).

The aim of this chapter is to conduct a systematic and methodological review of peer-reviewed published resilience measures to provide a synthesis of current approaches to resilience measurement. Building on conclusions drawn from Chapter 1, this review will examine resilience measurement through an interactionist lens to understand the extent to which existing measures operationalize resilience as a person-situation phenomenon. A secondary aim of this study is to add to the literature on resilience measurement by updating the findings from two previous systematic reviews of resilience measures (Ahern et al., 2006; Windle et al., 2011). This makes a unique contribution to the literature as this systematic review evaluates the degree to which existing measures are theoretically consistent with interactionism. Thus, the following three research questions were posed: *What published resilience measures are currently available? Are these measures conceptualising resilience from an interactionist perspective? What is the quality of these measures?*

3.1.1 Challenges associated with the resilience construct

As described in Chapter 1, resilience is a phenomenon that results from the interaction between individuals and their environment (Rutter, 2006) and not necessarily something that individuals innately possess. Currently, there is considerable disparity in the way resilience is operationalised (e.g. trait or process) which has highlighted the need for clarity with respect to definition and measurement (Luthar & Brown, 2007) and prompted calls for a critical review of resilience measures (Cicchetti, Rogosch, Lynch, & Holt, 1993; Kumpfer, 1999; Luthar, Cicchetti, & Becker, 2000; Luthar & Cushing, 2002). The lack of agreement on how

[1] A version of this chapter is published in *Psychological Assessment* journal: Pangallo, A., Zibarras, L., Lewis, R., & Flaxman, P. (2014). Resilience through the lens of interactionism: A Systematic Review.

resilience should be operationalised (Luthar & Cicchetti, 2000) is not peculiar to the resilience construct, rather a commonly found challenge associated with the operationalisation of latent psychological constructs (Amedeo, Golledge, & Stimson, 2009). Similar challenges have been encountered in the operationalisation of other latent constructs such as mindfulness (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) and body awareness (Mehling et al., 2009).

Aside from some of the methodological challenges associated with the measurement of latent constructs, there are some noteworthy conceptual challenges that are particular to resilience. As discussed in Chapter 1 (section 1.1.2), early studies of resilience sought to understand how children faced with chronic adversity such as poverty (Garmezy, 1991) were able to positively adapt and develop into functioning (and in some cases thriving) adults despite their challenging rearing environments (Masten, Coatsworth, & Coatsworth, 1998; Werner, 1986). This early body of research was almost entirely directed at children (Rutter, 1979; Werner & Smith, 2001) who continued to function normally despite exposure to systemic stressors. Thus, one drawback of early resilience research is that conclusions drawn from these studies may not generalize outside of developmental settings (Bonanno & Diminich, 2013). Also highlighted in Chapter 1, three further conceptual challenges were identified that have implications for the way resilience is measured. These are summarised below.

First, earlier studies examined resilience only in the context of chronic stressors (e.g. Werner & Smith, 2001). Chronic stressors are relatively long-term, systemic stressors, such as poverty or ongoing abuse, which tend to have a high risk of negative outcomes (Masten & Narayan, 2012; Masten, 2001). However, not all adversities are chronic and so generalizing findings from these studies to adult settings may not always be appropriate. This is because the nature of stressors in developmental studies may not be comparable to those typically encountered by adults. For example, recently, research into adult resilience demonstrates that the adversities facing adults are typically, but not restricted to, isolated events such as loss or other potentially traumatic events, which are best described as acute stressors (Bonanno & Diminich, 2013).These events are often isolated from an otherwise normal environment. Drawing a distinction between chronic and acute stressors is therefore important, since positive adjustment (i.e. resilience) is likely to co-vary with the type and duration of a given stressor (Masten & Narayan, 2012). Acute stressors, being isolated adverse experiences, are likely to have a smaller disruptive effect on functioning compared with chronic stressors (Bonanno & Diminich, 2013).

Secondly, the resources required to achieve a resilient outcome and criteria used to determine that outcome are likely to differ depending on the nature of the situation. Roisman (2005) cautions that outcomes associated with resilience can only be inferred if the stressor that triggered the adverse situation would result in a negative outcome for a majority of individuals. For example, a natural disaster or terrorist attack would most likely have a negative impact on most people. The implication for resilience measurement is that currently, we do not know very much about those properties of situations that are most influential in resilient outcomes. Therefore, it is difficult to draw conclusions as to what combination of factors may influence or attenuate resilient functioning. Endler (1983), a proponent of interactionism, suggests that the answer lies in the development of systematic taxonomies of situations. Such taxonomies would outline defining features of a situation to provide a structural framework within which to examine individual behaviour.

Thirdly, resilient outcomes have been described in three different ways in the literature including, a return to normal functioning (Wagnild & Young, 1993), positive adaptation (Luthar et al., 2000) and post-traumatic growth (Linley & Joseph, 2011; Polk, 1997). Given the emphasis on chronic adversity in developmental studies, it could be argued that findings from these studies may not be directly comparable (or relevant) to adult resilience outcomes in personal or workplace settings. Moreover, the measures required to assess resilience would differ depending on the outcome of interest. For instance, in earlier studies where children had survived significant abuse, measures that assess the absence of psychopathology would determine whether a resilient outcome had been achieved (Bonanno, 2004). However, in the context of adult resilience, it could be argued that measurement of psychopathology is not a suitable index of resilience in relation to isolated stressors such as divorce.

The conceptual challenges summarised above emphasise the inconsistencies associated with the definition, operationalisation, and measurement of resilience suggesting a need for further theoretical delineation (Gillespie, Chaboyer, & Wallis, 2007). Indeed, Windle (2010) attempts to do so through the methods of systematic review, concept analysis and stakeholder consultation and arrived at the following working definition of resilience:

"Resilience is the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Assets and resources within the individual, their life and environment facilitate this capacity for adaptation and 'bouncing back' in the face of adversity. Across the life course, the experience of resilience will vary"
(Windle, 2010, p. 152)

This definition explicitly states that resilience culminates from an individual's interaction with their environment which in turn, is influenced by developmental factors, situational constraints, and socio-cultural processes (Luthar, Cicchetti, & Becker, 2000; Vanderbilt-Adriance & Shaw, 2008). As mentioned earlier, this definition of resilience is adopted in the present thesis as it is conceptually consistent with interactionism (e.g. Ekehammar, 1974; Endler & Parker, 1992) and explains resilience as a dynamic person-environment phenomenon. This approach is useful in broadening the understanding of resilience for two main reasons. Firstly, interactionism attempts to explain more than individual characteristics thought to influence resilience (trait resilience), which conceal the dynamic nature of resilience over an individual's course of development (Kaplan, 1999; Lepore & Revenson, 2006). Further, trait resilience explanations do not account for within person variation, which explain why some people are resilient in some situations and not others (Gillespie et al., 2007). Secondly, recent empirical studies (Bonanno & Diminich, 2012; Masten & Narayan, 2012) have identified different outcome trajectories and different pathways to resilience associated with a range of adversities; highlighting the need for measures capable of predicting variations in resilient outcomes.

3.1.2 Systematic review

The aims of the present systematic review were two-fold: 1) to further understanding of how resilience is conceptualised and, 2) to evaluate the psychometric properties of resilience measures using a validity evidence framework proposed by Skinner (1981); a method that emphasises the interplay between theory development and empirical analysis of latent constructs. The framework proposed by Hunsley and Mash (2008) could also serve as a suitable framework for the evaluation of psychological measurement instruments. However, Skinner's (1981) construct validation framework was chosen as it provides a framework for the evaluation of theoretical models rather than clinical utility of measures (as per Hunsley and Mash, 2008).

This study is a timely update to the literature since only two previous systematic resilience reviews have been conducted with a different focus to the present review (Ahern et al., 2006; Windle et al., 2011). The most recent of these reviews identified measures with an upper time limit of 2008. Since these findings are six years old, a re-examination of measures may lead to new developments in the assessment of resilience. The first of the two reviews (Ahern et al., 2006) gave a detailed review of resilience instruments, but only reviewed six measures that would be suitable for use in adolescent populations, consistent with the aims of the study.

In addition, the authors did not include a detailed assessment framework to assess the qualitative differences among the instruments reviewed. The second review by Windle and colleagues (Windle et al., 2011) used such stringent assessment criteria that no one measure suitably met 50% of the quality assessment criteria. Yet the authors concluded that low ratings were not indicative of poor quality measures, rather due to a lack of information about scale development. Interestingly, both of the previous reviews omitted any thematic review of evidence based on test content resulting in limited information about how resilience is conceptualised. This is an important omission as the manner in which a construct is conceptualised is critical to its subsequent measurement; therefore, a review of scale dimensions is the second aim of the present study.

The present study is organised in two parts. Part One will present findings from a systematic literature review and thematic analysis of resilience measurement items. Part Two presents findings from a methodological review of resilience measures identified in the systematic review from Part One.

Part One: Systematic Review of Resilience Measures

The purpose of Part One was to conduct a systematic review of resilience measurement scales developed for use in adults. Identified measurement scales were subsequently content reviewed to further understanding of how resilience is currently being operationalised.

3.2 Part One: Method

3.2.1 Procedure

A literature search was conducted using the following databases: EBSCOHost (CINAHL Plus, E-journals, Health and Psychosocial Instruments, MEDLINE, PsycARTICLES, Psychology and Behavioural Sciences Collection, PsycINFO) and Scopus (Health Sciences). A Google Scholar search using the same search parameters resulted in duplications. Search parameters included the following: (resilien*=TI) AND (questionnaire OR assess* OR scale* OR instrument OR measure*=TI) NOT (youth OR child* OR adolesc*). Results were restricted to English AND human AND adult AND peer reviewed publications and were subject to specific exclusion and inclusion criteria (see Table 3.1). The inclusion criteria comprised: studies with unrestricted study populations (18+); studies from unrestricted time periods; scale refinements since scale development is an iterative process and can result in the development of revised scales (McHorney, 1996); and conceptually related cases. The term conceptually

related cases refers to constructs that may not contain *all* of the defining attributes of resilience (Walker & Avant, 2005) but are conceptually related to resilience. For example, hardiness is a concept often confused with resilience; what distinguishes hardiness from resilience is that hardiness is a stable personality trait whereas resilience is a dynamic construct (Windle, 2010). Exclusion criteria comprised: studies that did not contain original data; studies that did not describe or validate an assessment of adult resilience; qualitative studies; and measures that were specifically designed for particular occupations—these studies were excluded to increase the generalizability of findings (e.g. military risk and resilience inventories).

Table 3.1: Inclusion and exclusion criteria for Literature Search

Inclusion criteria	Exclusion criteria
1. Study population: adults (18+)	1. Study did not contain original data
2. Study settings: Unrestricted	2. Study did not describe or validate an assessment of adult resilience
3. Time period: Unrestricted	3. Qualitative studies
4. Publication criteria: English; peer reviewed	4. Measures relative to specific occupations
5. Admissible criteria: Original study of scale development; scale revisions; validation studies	
6. Conceptually related cases*	

* *Note:* conceptually related constructs include borderline and related cases, which have emerged from the concept analyses approach described by Walker and Avant (1995). Borderline cases are often mistaken for resilience but differ substantially on one defining characteristic. Related cases are related to resilience but do not contain all of the defining attributes.

3.2.2 Data Extraction

Figure 3.1 outlines the sequence of steps that were taken for the review. The initial literature search yielded 263 potential papers. After reviewing abstracts, 149 papers were rejected either as they were duplicates, satisfied the exclusion criteria, or failed to meet any of the inclusion criteria. Examples include language adaptations of existing resilience scales, bodily toughness inventories, and military deployment risk and resilience inventories.

Of the remaining 114 papers, 15 papers were excluded, as they were studies describing psychological constructs but were contrary cases (see Walker & Avant, 2005). Contrary cases refer to constructs that are not examples of resilience. That is, measures that do not refer to significant adversity/risk, the presence of assets or resources to offset the effects of the adversity, or positive adaptation. Examples include a measure of anxiety, a measure examining solution focused thinking, a coping competence assessment, or studies that did not report a measure of adult resilience (see Table 3.1).

A further 82 studies were removed from further analysis as they reported findings from applications of existing measures. For example, studies included the use of scales (e.g. CD-RISC) in psychopharmacological trials however this was not for the purpose of scale development. Other studies examined invariance between specific cultures, and positive and negative affect. Some scales were used to examine resilience in Chinese earthquake survivors, yet did not actually discuss measurement refinement or scale validation. The remaining 17 papers comprised:

- Eight resilience scales consistent with findings from Ahern et al., (Ahern et al., 2006) and Windle et al., (Windle et al., 2011)
- One scale revision, Revised Ego-Resiliency Scale (ER-89-R: Alessandri, Vecchio, Steca, Caprara, & Caprara, 2007) not previously identified
- Two short versions of existing scales: abbreviated Connor-Davidson Resilience Scale (CD-RISC-2: Vaishnavi, Connor, & Davidson, 2007) and abridged Multidimensional Trauma Recovery and Resiliency Instrument (MTRR-99: Liang, Tummala-Narra, Bradley, & Harvey, 2007) not identified in earlier reviews
- Six scales which had not been identified in earlier reviews: Multidimensional Trauma Recovery and Resiliency Instrument (Harvey et al., 2003); Personal Views Survey III-R (PVS: Maddi et al., 2006)[2]; Psychological Capital Questionnaire (PCQ: Luthans, Avolio, & Avey, 2007); Resilience in Midlife Scale (RIM Scale: Ryan & Caltabiano, 2009); Sense of Coherence Scale (SOC: Antonovsky, 1993);Trauma Resilience Scale (TRS: Madsen & Abell, 2010).

Table 3.2 provides a summary of the 17 measures identified in the systematic review. Measures are presented under one of three headings: process measures, trait/state measures, and outcome measures.

[2] This is the most recent iteration of hardiness intended to supersede previous measures (e.g. Unabridged Hardiness Scale, Abridged Hardiness Scale; Revised Hardiness Scale). To aid clarity, the PVS-III-R will be the only hardiness measure included in this study despite it sharing the same format and item content as the Dispositional Resilience Scale (DRS).

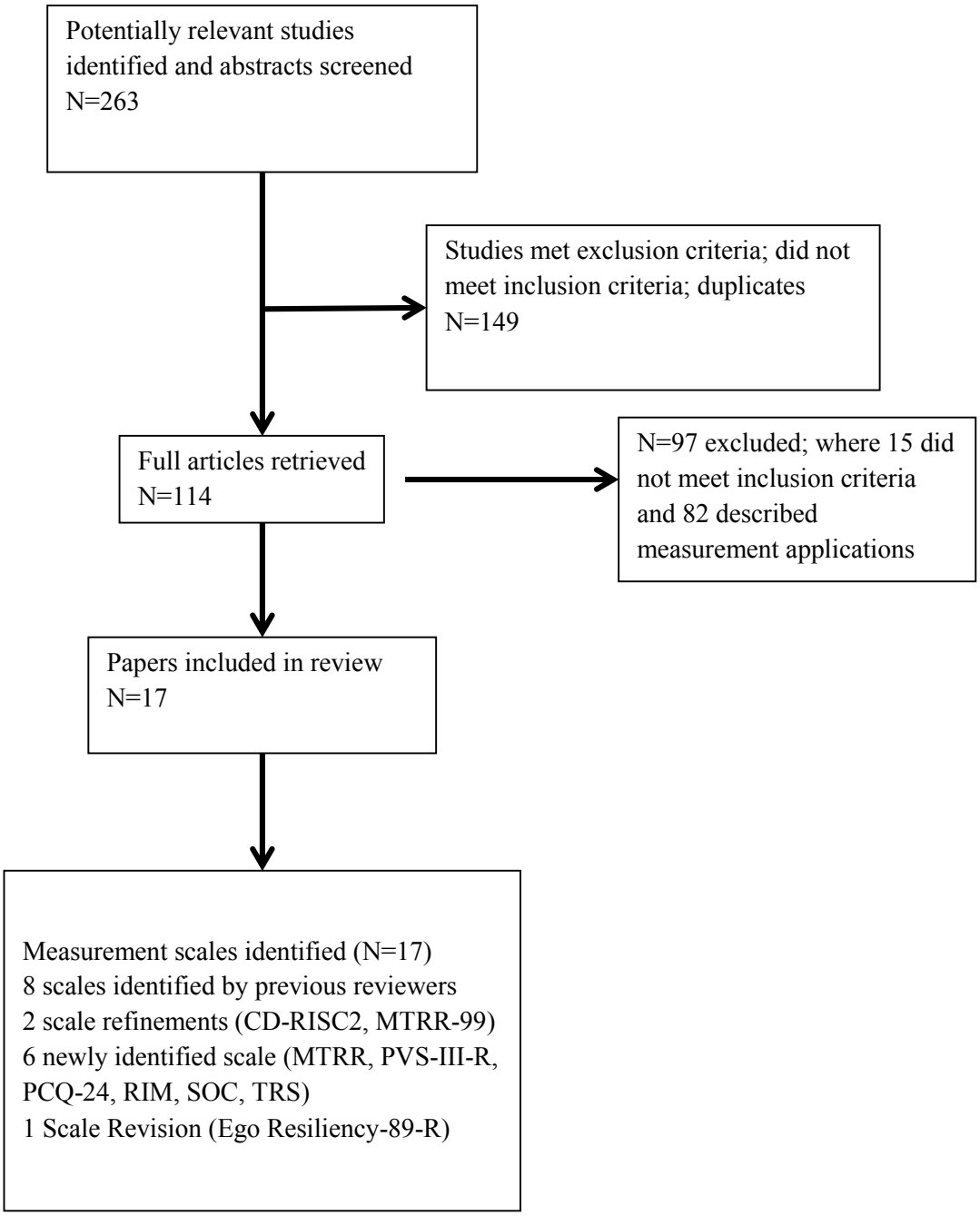


Figure 3.1: Literature search flow

Table 3.2: Summary of information of resilience measures identified

	Measure	Conceptual Foundation	Development Sample(s)	Reliability of test scores	Validity Evidence
	Process measures				
1	Baruth Protective Factors Inventory (BPFI: Baruth & Carroll, 2002)	Based on empirical findings (e.g. Masten, Best, & Garmezy, 1990) that delineate protective factors: adaptive personality, supportive environment, fewer stressors, and compensating experiences	Undergrad students (n=98).	**16-items** Total scale (α=.83) Subscales: adaptive personality (α=.76), supportive environment (α=.98), fewer stressors (α=.55), compensating experiences (α=.83)	Content validity: expert evaluation of item pool drawn from literature. Validity argument: Positive correlation BPFI fewer stressors subscale with Multidimensional Health Profile (MHP) life stress domain (*r*=.49), perceived stressfulness of events (*r*=.50), global stress (*r*=.41). Negative correlation between BPFI adaptive personality and MHP Psychological Distress scale (*r*=-.27). Supportive environment scale of BPFI positive correlation with MHP informational support scale (*r*=.21).
2	Connor–Davidson Resilience Scale (Connor & Davidson, 2003)**	Stress-coping conceptualised as hardiness (Kobasa, 1979; Rutter, 1985), stress endurance (Lyons, 1991) and Shackleton's experiences of survival.	General population (n=577); primary care outpatients (n=139); psychiatric outpatients (n=43); generalized anxiety disorder study sample (n=25); two PTSD clinical trial participants (n=22; n=22).	**25-items** Total Scale (α=.89) Subscales (no α reported) 1) personal competence, high standards, and tenacity. 2) trust in one's instincts, tolerance of negative affect, & strengthening effects of stress 3) positive acceptance of change, & secure relationships 4) control 5) spiritual influences Test-retest (ICC) r=.87	Content Validity: literature review. Validity argument: correlated with hardiness (sr=.83) and Social Support (sr=.36); Negatively correlated (r=-.76) with Perceived Stress (PSS-10) Sheehan Stress Vulnerability Scale (SVS) (ρ=-.32); CD-RISC had no significant relationship with the Arizona Sexual Experiences Scale (ASES) – evidence of discriminant validity.

	Measure	Conceptual Foundation	Development Sample(s)	Reliability of test scores	Validity Evidence
3	10-item Connor-Davidson Resilience Scale (CD-RISC-10 Campbell-sills & Stein, 2007) +	As for parent scale	Three undergraduate student samples (n=511; 512; 537)	**10-items** Unidimensional scale (α=.85).	Content Validity: As for parent scale Validity argument: correlated with original CD-RISC (r=.92); Scores on CD-RISC-10 moderated relationship between childhood maltreatment and current psychiatric symptoms (R =.56, R^2 =.31) measured by Brief Symptom Inventory and Childhood Trauma Questionnaire.
4	2-item Connor-Davidson Resilience Scale (CD-RISC-2: Vaishnavi, Connor, & Davidson, 2007)	As for parent scale	Participants in national survey of trauma: Group 1, n=458 Five groups of psychiatric outpatients: n=138; n=42; n=43; n=24; n=75.	**2-items** Unidimensional scale α not reported Test-retest (ICC) no clinical change reported (time lapse and data not reported)	Content Validity: As for parent scale Validity argument: correlated with each item of original CD-RISC (r=.27 to r=.66); Scores on CD-RISC-2 scores did not correlate significantly with ASES (r=0.21, n.s.)
5	Multidimensional Trauma Recovery and Resiliency Scale (Harvey et al., 2003)**	Ecological perspective of community psychology (Harvey, 2007) focusing on interaction of person and environment in reactions to stress	Adults (86% female) in treatment for abuse (n=181).	**135-items + clinically directed interview (MTRR-I), a Q-sort (MTRR-Q), and a 135-item, observer-rated, questionnaire** Total Scale (α=.97) Subscales 1) authority over memory (α=.85), 2) integration of memory and affect (α=.75), 3) affect tolerance (α=.88), 4) .symptom mastery and positive coping (α=.80), 5) self-esteem (α=.88), 6) self-cohesion (α=.79), 7) safe attachment	Content validity: items drawn from literature on trauma impact and recovery and clinical experience of research team. Items selection guided by in-depth interviews and pilot sample. Validity argument: clinician-estimated recovery status as predictor of MTRR subscales - significant main effects for composite scale and five of the eight subscales: Integration of Memory and Affect, Affect Tolerance, Symptom Mastery and Positive Coping, Safe Attachment, and Meaning Making.

	Measure	Conceptual Foundation	Development Sample(s)	Reliability of test scores	Validity Evidence
				(α=.71), 8) meaning making (α=.83).	
6	99-item Multidimensional Trauma Recovery and Resiliency Scale (MTRR-99: Liang & Harvey, 2007)	As for parent scale	As for parent scale	**99-items + clinically directed interview (MTRR-I), a Q-sort (MTRR-Q), and a 135-item, observer-rated, questionnaire** Total Scale (α=.78) Subscales 1) authority over memory (α=.83), 2) integration of memory and affect (α=.77), 3) affect tolerance (α=.82), 4) .symptom mastery (α=.76), 5) self-esteem (α=.84), 6) self-cohesion (α=.72), 7) safe attachment (α=.63), 8) meaning making (α=.85).	Content validity: as for parent scale Validity argument: The mean inter-correlation between MTRR-99 and MTRR scales was r=.61 (ranging from r=.40 to r= .85).
7	Resilience in Midlife Scale (RIM: Ryan & Caltabiano, 2009)	Measures attributes associated with mid-life changes (35 to 60 years) which is one of the longest stages in the lifespan, and a time of major change (Ryff et al., 1998)	Australian university students (35-60 yrs) + community members (aged 35 to 60 years). N=130.	**25-items** Total scale (α=.87). Subscales (no α reported) 1) self-efficacy 2) family/social networks 3) perseverance 4) internal locus of control 5) coping and adaptation.	Content validity: literature review Validity argument: correlation with CD-RISC (r = .81), Rosenberg Self-Esteem Scale (RSES) (r = .71). Negative correlation with state-trait anxiety inventory (STAI) (r = -.68).
8	Resilience Scale for Adults (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003)	Theoretically consistent with findings of early developmental empirical studies (Garmezy, 1991; Rutter, 1979; Werner, 1986)	Applicants to a military college in Norway (n=482)	**33-items** Total Scale (α not reported) 6 subscales Perception of self (α=.70), Planned future (α=.66), Social competence (α=.76), Family	Content validity: literature review Validity argument: RSA-social competence correlated with *Agreeableness* (r=.69), sociability subfacet of *Extroversion* (r=.60), and social intelligence (r=.88) measured by

	Measure	Conceptual Foundation	Development Sample(s)	Reliability of test scores	Validity Evidence
				cohesion (α=.78), social resources (α=.69), Structured style (α= .69) test-retest: r= >.70 for all subscales	the TSIS-social skills instrument. RSA-social resources correlated with *Agreeableness* (r=.66). *Conscientiousness* correlated with RSA-structured style (r=.83). No significant relationship observed between RSA and Raven's Advanced Matrices – evidence of discriminant validity.
9	Trauma Resilience Scale (TRS: Madsen & Abell, 2010)	Protective factors associated with negative effects of violence (Hjemdal, 2007; Trickett, Kurtz, & Pizzigati, 2004; Werner & Smith, 2001)	University students (US) & adult community education settings (n=577). Age (mean 22 yrs). Violence experienced by 47.3% of sample.	**59-items** Total scale (α=.93). 4 subscales Problem solving (α=.85), relationships (α=.85), optimism (α=.85), spirituality (α=.98).	Content validity: content matter experts reviewed item pool. Validity argument: TRS-supportive relationship correlated with social subscale (*r*=.16) of Beckham Coping Strategies Scales. TRS-spirituality correlated with Spirituality and Spiritual Care Rating Scale (*r*=.28). Discriminant validity shown by no correlation with sexual orientation scale and ethnicity.
	Trait measures				
10	Resilience Scale (Wagnild & Young, 1993)	Individual adaptation enhanced through: equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness (Beardslee, 1989; Caplan, 1990; Rutter, 1987)	810 older adults (aged between 53-95) from a community in Northwestern US	**25-items** Total Scale (α=.91) Subscales (no α reported) 1) personal competence 2) acceptance of self & life Test re-test: 18mth-interval *r*=.67 to .84 in pregnant and postpartum women	Content validity: items developed by (a) qualitative study of older women (b) literature review (c) expert panel. Validity argument: Correlations with morale (*r*=.54, *r*=.43, and *r*=.28), life satisfaction (*r*=.59 and *r*=.30), health (*r*=.50, *r*=.40 and *r*=.26), and self-esteem (*r*=.57). Negative correlations with perceived stress (*r*=-.67 and *r*=-.32), symptoms of stress (*r*=-.24), and depression (*r*=-.36).

	Measure	Conceptual Foundation	Development Sample(s)	Reliability of test scores	Validity Evidence
11	Ego Resiliency-89 (ER89: Block & Kremen, 1996)**	Block & Block's (1981) psychodynamic theory of ego resiliency: absence of susceptibility to anxiety, engagement with world, manifested by positive affect and openness to experience	Young adults tested at age 18 (n=106) and 23 (n=104). Usable data was available for 95 subjects.	**14-items** Total Scale (α=.76) Test re-test: 5-yr interval (*r*=.67 and *r*=.51) for females and males respectively.	Content Validity: items drawn from the Minnesota Multiphasic Personality Inventory (MMPI), California Psychological Inventory (CPI) (Gough, 1956). Validity argument: ER self-report scores and ER observer scores highly correlated for women (*r*=.69) and men (*r*=.84).
12	Revised Ego-Resiliency 89 Scale (Guido Alessandri et al., 2012) +	As for parent scale	Italian young adults aged between 19-21 years. (n=754)	**10-items** Total Scale (α=.75) Subscales: OR: optimal regulation (α=.85), OL: openness (α=.79). Test-retest: 2-year interval *r*=.49 for OR, *r*=.54 for OL, *r*=.56 for total scale.	Content Validity: As for parent scale Validity argument: OR subscale correlated with stability (sr = .35 for males, .36 for females) and Plasticity (sr = .19; .25). OL correlated with Plasticity (sr = .37; .41).
13	Personal Views Survey III-R (PVS-III-R: Maddi et al., 2006)	Measurement of hardiness (commitment, control, challenge) or existential courage and motivation to cope effectively with stressors (Kobasa, 1979).	College students and working adults (n=1239)	**18-items** Total Scale (α=.80) Subscales: Commitment (α=.69); Control (α=.57); Challenge (α=.73).	Content Validity: Items drawn from available scales relevant to commitment, control, and challenge Validity argument: negative correlation with social desirability (*r*=-.41), anxiety (*r*=-.33), repressive coping is (*r*=-.50), right wing authoritarianism (*r*= -.21). Positive correlation with innovation (*r*=.24).
14	Psychological Capital (PCQ: Luthans et al., 2007)	Builds on psychological resource theory (Hobfoll, 1989) and broaden and build theory (Fredrickson & Branigan, 2003)	Sample 1&2 management students (n=167; n=404); Sample 3 = hi-tech manufacturing (n=115); sample 4 = insurance sales (n=144)	**24-items** Total Scale (α=.88, α=.89, α=.89, α=.89) Subscales efficacy (α=.75, α=.84, α=.85, α=.75); hope (α=.72, α=.75,	Content validity: panel of experts adapted items from validated scales e.g. optimism (Carver et al., 2010), hope (Snyder, 2000), resilience (Wagnild & Young, 1993), and efficacy/confidence (Parker, 1998).

	Measure	Conceptual Foundation	Development Sample(s)	Reliability of test scores	Validity Evidence
				α=.80, α=.76); resilience (α=.71, α=.71, α=.66, α=.72); optimism (α=.74, α=.69, α=.76, α=.79) Test–retest: 4-week interval between administrations *r*=.52	Validity argument: Positive relationship with core self-evaluations (*r*=.12 to *r*=.46), job satisfaction (*r*=.39), affective organization commitment (*r*=.36), and performance (*r*=.33) and satisfaction (*r*=.32) in manufacturing sample; in insurance sales sample positively correlated with performance (*r*=.22) and job satisfaction (*r*=.53). PsyCap did not have a significant relationship with Agreeableness, or Openness – evidence of discriminant validity.
15	Sense of Coherence Scale (SOC: Antonovsky, 1993) **	Theory of salutogenesis (positive factors associated with health) described as "generalized resistance resources": comprehensibility, manageability, meaningfulness (Antonovsky, 1979).	Israeli retirees (n=805); Kibbutz control group (n=260)	**29-items** Total scale (α=.91) Test-retest: 12 month interval between administrations, retirees (r=.52) controls (r=.56).	Content validity: Systematic mapping of items, consultation with colleagues and piloting with Israeli adults. Validity argument: negative correlation with trait anxiety (*r*=-.61), and attitude to loss (*r*= -.39).
	Outcome measures				
16	Brief Resilient Coping Scale (Sinclair & Wallston, 2004)	Dispositional resources identified in Polk's (1997) model (self-efficacy, optimism, self-reliance). Resilience conceptualised as cognitive appraisal skills to actively problem solve .	Rheumatoid arthritis patients (sample 1 = 90; sample 2 = 140)	**4-items** Unidimensional (α=.69) Test-retest over 5- to 6-week period (*r*=.71).	Content validity: scale authors wrote items. Validity argument: correlated with optimism (*r*=.50, self-efficacy (*r*=.48), pain coping reappraisal (*r*=.60), active problem solving (*r*=.57), social support (*r*=.24), positive affect (*r*=.50), and life satisfaction (*r*=.25). Negative correlation with neg affect (*r*=-.28), helplessness (*r*=-.32), and catastrophizing (*r*=-.38).

	Measure	Conceptual Foundation	Development Sample(s)	Reliability of test scores	Validity Evidence
17	Brief Resilience Scale (BRS: Smith et al., 2008)	Focus on bounce back feature of resilience. Supports Carver's (1998) concept of resilience which includes the return to a previous level of functioning and/or 'thriving'	Sample 1 = US students (n=128); Sample 2 = US students (n=64); Sample 3 = Cardiac patients (n= 144); Sample 4 = women (20 fibromyalgia + 30 controls)	**6-items** Unidimensional Total scale (Samples 1–4 = α=.84, α=.87, α=.80, α=.91). Test-retest: ICC of r=.69 after one month and r=.62 after three months in two separate samples.	Content validity: Items developed by scale authors and piloted with undergraduate students. Validity argument: Correlated with: ego resiliency (*r*=.49 to *r*=.51); CD-RISC (*r*=.59); optimism (*r*=.45 to *r*=.69); social support (*r*=.27 to *r*=.40); active coping (*r*=.31 to *r*=.41). BRS negatively correlated with pessimism (*r*=-.32 to *r*=-.56), perceived stress (*r*=-.60 to *r*=-.71), anxiety (*r*=-.46 to *r*=-.60), and depression (*r*=-.41-.66). The BRS test scores had no significant relationship with religion or venting – evidence of discriminant validity.

** Parent Scale

3.2.3 Characteristics of Identified Resilience Measures

All the 17 measures reviewed conceptualised resilience as either a: process, trait, state, or outcome. As described in Chapter 1, proponents of process models (Campbell-Sills & Stein, 2007; Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003) focus on the internal and external resources used to foster positive adaptation to adversity (Kumpfer, 1999; Polk, 1997). Adopters of trait models (Block & Kremen, 1996; Maddi et al., 2006) operationalize resilience as a set of internal characteristics. Proponents of state approaches have argued that resilience is a lower order construct of *Psychological Capital* (Luthans, Vogelgesang, & Lester, 2006) and propose that positive psychology constructs (hope, optimism, and self-efficacy) are pathways to resilience, which together form a state-like construct. Finally, resilience as an outcome variable refers to the ability to 'bounce back' from physical and psychological stressors (Sinclair & Wallston, 2004; Smith et al., 2008). In addition, these four approaches could be further divided into two groups; those that operationalize resilience as multidimensional (Connor & Davidson, 2003; Friborg et al., 2003; Harvey et al., 2003; Madsen & Abell, 2010) and those that operationalize resilience as one dimension (Block & Kremen, 1996; Campbell-Sills & Stein, 2007; Smith et al., 2008). Despite the range of different conceptual approaches used, there was very little variation apparent in the scope of the assessment. Most measures comprised items assessing person variables (traits or state-like characteristics associated with resilience). Five measures (BPFI, CD-RISC, RIM, MTRR[3], RSA, TRS) also included situational variables querying the existence or perception of social support. Only one measure (MTRR[4]) explicitly conceptualised resilience as a phenomenon consistent with interactionism.

3.2.4 Conceptualisation of resilience

The first aim of this study was to understand how resilience is currently conceptualised using interactionism as a conceptual framework. A thematic analysis was conducted by one reviewer (AP) who firstly aggregated all self-report scale items[5] into a global anonymised list of items and subsequently identified themes that were independently reviewed by a second (LZ) and third reviewer (CS). Using the Kappa coefficient of agreement (Cohen, 1968), the mean pairwise Kappa coefficient between the primary researcher (AP) and second reviewer (LZ) was κ=.84. After consultation, both reviewers (AP, LZ) agreed on 20 preliminary themes

[3] Includes short-form MTRR-99
[4] Includes short-form MTRR-99
[5] Four versions of existing scales (CD-RISC-2, CD-RISC-10, ER-89-R, MTRR-99) were not presented here to avoid redundancy as their parent scales provided all relevant information.

(including subthemes). A third reviewer (CS) who was unfamiliar with the themes and subject area was also asked to review the item pool and thematic areas. The mean pairwise Kappa coefficient between the primary researchers (AP, LZ) and third reviewer (CS) was κ=.81. There were no major points of difference, however based on the findings of the third reviewer (CS), there was a discussion about whether a theme of hardiness would more accurately describe the original *perseverance* theme. After a further revision of items by all three reviewers (AP, LZ, CS), it was agreed that *hardiness* was a more suitable higher order theme consisting of three subthemes: *control, commitment*, and *challenge*. Twenty-four final themes emerged from the data (including subthemes) which are presented in Table 3.3.

3.3 Part One: Results

Eight higher order themes and 16 sub themes (see Table 3.3) were identified and organised into two categories: person (relating to the internal resources including competence and stable attributes) and situation (external resources within the immediate environment or wider community). The most common themes related to person variables and in descending order were *adaptability, self-efficacy, active coping, positive emotions, mastery,* and *hardiness*. In the situation category, two themes were identified, *social support* and *structured environment*.

It was not possible to develop themes further in the situational category as items comprising this theme referred to global dimensions of support and structured environment. For example, the social support theme indicated whether social support was available to the individual but did not refer to the quality of that support such as the nature and frequency of contact. Similarly, structured environment referred to a global preference for planning and organising however further information was not present as to the mechanisms behind these preferences. Taken together, this review revealed that there was a preponderance of items assessing global traits or individual characteristics associated with resilience. The exception to this, was that used by authors of the MTRR who include a clinically directed interview (MTRR-I), a Q-sort (MTRR-Q), and a 135-item, observer-rating scale. The PCQ also includes an observer rating form.

Table 3.3: Resilience themes derived from scale items (Adapted from Bird et al., 2012)

Higher order theme	Sub theme	TRS	PCQ	RSA	RS	ER-89*	CD-RISC*	BRS	BRCS	PVS	RIM	MTRR*	SOC	BPFI	Total
							Internal resources								
Adaptability	(a) flexibility (b) acceptance (c) openness		✓		✓	✓	✓	✓			✓			✓	**7**
Self-efficacy	(a) positive self esteem		✓	✓			✓				✓		✓		**5**
Active Coping	a) acceptance						✓	✓	✓		✓	✓			**5**
Positive emotions	a) optimism b) hope	✓	✓	✓			✓					✓			**5**
Mastery	a) internal locus of control b) resourcefulness		✓	✓			✓						✓		**4**
Hardiness	(a) commitment (b) control (c) challenge			✓	✓					✓	✓				**4**
							External resources								
Supportive relationships	(a) social competence (b) family coherence	✓		✓			✓				✓	✓		✓	**6**
Structured environment	(a) planning (b) organising			✓						✓			✓		**3**
Conceptual adequacy*		**Part**	**Min**	**Part**	**Part**	**Min**	**Part**	**Min**	**Min**	**Min**	**Yes**	**Yes**	**Min**	**Part**	

Note: only parent scales represented. *Conceptual adequacy: Yes = consistent with interactionism; Partial=partially consistent; Min=minimally consistent
PCQ=Psychological Capital Questionnaire; RSA = Resilience Scale for Adults; RS=Resilience Scale; ER-89-R=Revised Ego Resiliency-89 Scale; CD-RISC-10=Connor-Davidson Resilience Scale-10 item; BRS=Brief Resilience Scale; CD-RISC=Connor-Davidson Resilience Scale; BRCS=Brief Resilience Coping Scale; ER-89=Ego Resiliency Scale; PVS-III-R=Revised Personal Views Survey III; RIM=Resilience in Midlife Scale; MTRR=Multidimensional Trauma Recovery and Resilience Scale; SOC=Sense of Coherence Scale; BPFI=Baruth Protective Factors Inventory; TRS=Trauma Resilience Scale

Whilst themes that emerge from this analysis are consistent with characteristics associated with resilience (see Fletcher & Sarkar, 2013; Windle, 2010), there is a notable absence of sociocontextual and demographic predictors of resilience. Many of the measures identify resilience factors that elicit behaviours and attitudes associated with resilience. Independent predictors of resilience such as demographic and sociocontextual variables are of particular significance as these variables may exert a cumulative influence on resilience. Evidence supporting this assertion was found in a study by Bonanno and colleagues (2007) who indicated that resilience was uniquely predicted by participant gender, age, race/ethnicity, education, level of trauma exposure, income change, social support, frequency of chronic disease, and recent and previous life-stressors.

This finding supports the work of early longitudinal research examining resilience in children from adverse rearing environments (Garmezy, 1991; Rutter, 1999; Werner, 1995). Findings from this body of work and more recent research (e.g. Bonanno et al., 2007) suggests that resilience results from a cumulative mix of person variables (e.g., disposition), demographic variables such as education (Brewin et al., 2000), and sociocontextual variables such as social supports (Atkinson et al., 2009).

The next step in the item review consisted of two raters (AP, LZ) comparing the dimensions of each measure to examine whether resilience was operationalised in a manner consistent with the working definition of resilience adopted in this thesis (see section 1.1.1.1):

1) Measures that included items relating to the interaction of internal and external resources and changes over time, were rated as having conceptual adequacy
2) Measures that included items relating to the interaction of internal and external resources without accounting for developmental influences through either item content or measurement method were classified as having partial adequacy
3) Measures that included items only related to person characteristics, were classified as having minimum conceptual adequacy.

Results are displayed in the final row of Table 3.3. Two measures (RIM, MTRR) conceptualised resilience as a combination of internal and external factors and accounted for developmental influences either through item content or measurement methodology and were therefore classified as having conceptual adequacy. Five measures (BPFI, CD-RISC, RS, RSA, TRS) described resilience as a multi-dimensional process and identified factors both internal and external to the individual, however there was no clear reference to changes over

time in measurement methodology or content, thus these measures were categorised as having partial adequacy. The remaining six measures (BRCS, BRS, ER-89, PCQ, PVS-III-R, SOC) were classified as having minimal conceptual adequacy as authors propose measures that assess intrapersonal characteristics alone. No single measure included different situational taxonomies or assessed variance associated with situation-specific resilience. This is surprising, given that a great deal of work reveals the need to discern different outcomes associated with different adverse situations (e.g. Bonanno & Diminich, 2012; Furr et al., 2010). The clinically directed interview (MTRR-I) does however provide an opportunity for data of this kind to be collected consistent with interactionist measurement approaches. It is thus proposed that the MTRR is the only measure that shows conceptual coherence with an interactionist approach to resilience measurement.

The first aim of this chapter was to examine how resilience is conceptualised by authors of published resilience measurement scales. This review revealed that the dimensions queried by the items vary considerably across measures and appear to represent different aspects of the theoretical construct of resilience. There was no widely accepted unifying measurement of resilience identified, however there was a clear preference for measures to operationalise resilience as a trait-like characteristic.

Part Two: Methodological review of resilience measurement scales

For the second aim of this chapter, the psychometric assessment, 17 resilience measures were assessed using a *construct validation* approach (Cronbach & Meehl, 1955; Loevinger, 1957). The *construct validation* approach has been formulated into a three-stage framework by Skinner (1981) and is presented in Figure 3.2. The first stage of Skinner's (1981) framework is the theory formulation phase, which involves defining the content domain and theoretical foundations of the construct (content validity). Secondly, the internal validity phase involves test stability, internal consistency, and replicability. The third stage of the framework, the external validity phase, is concerned with convergent and discriminant evidence of test scores.

3.4 Part Two: Method

3.4.1 Procedure

3.4.1.1 Applying the Assessment Framework

Using an adaptation of Skinner's (1981) validity evidence framework in combination with established empirical guidelines to determine specific cut-off criteria (Fitzpatrick et al., 2006; Hu & Bentler, 1999; McDowell, 2006; Streiner & Norman, 2008; Terwee et al., 2007), resilience measures were assessed against six criteria (see Table 3.4): content validity, stability, internal consistency, replicability, convergent evidence, and discriminant evidence. In addition to these six criteria, one criterion related to applicability was added, which has been observed in other systematic reviews of latent constructs (e.g. Bird et al., 2012; Mehling et al., 2009). This criterion provides information about the extent to which each measure has been validated in separate studies beyond the original development study.

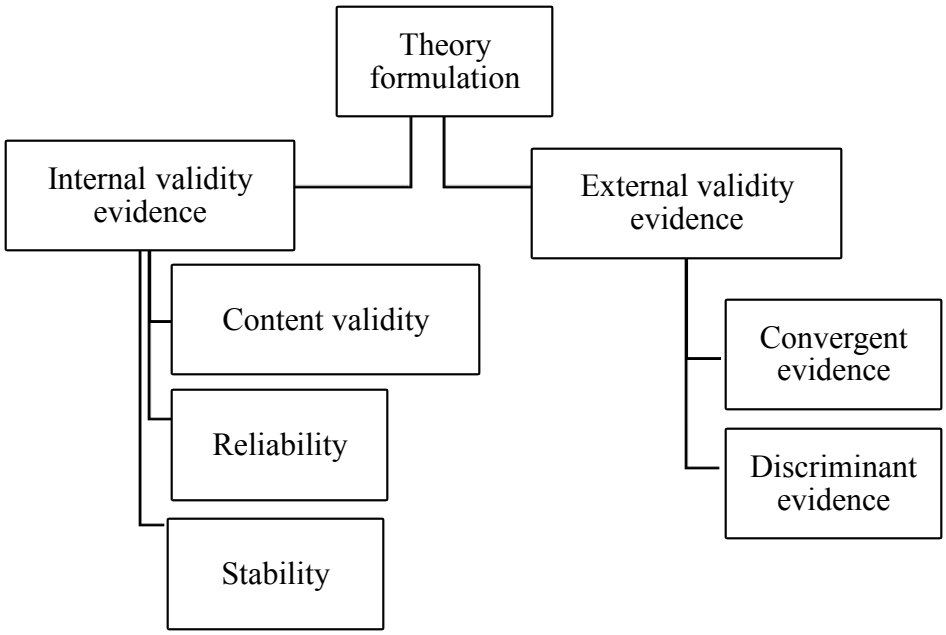


Figure 3.2: Visual representation of adapted Skinner's Validity Evidence Framework

Table 3.4: Quality assessment criteria

Criterion	Definition	Score	Scoring criteria
Theory Formulation			
Content validity	The extent to which the construct is comprehensively sampled by scale items.	2	Clear description of item selection AND involvement of target population AND subject matter experts in item selection/development
		1	Either target population OR subject matter experts NOT involved in item development/selection
		0	Incomplete description of item development/selection
Internal validity evidence			
Internal consistency	Extent to which (sub)scale items correlate to determine whether items are measuring the same construct.	2	Cronbach's α = .70 to .90 for total scale and/or subscales.
		1	Cronbach's α <.70 for total scale and/or subscales
		0	Insufficient information
Stability	Scores on repeated administrations of same test highly correlated OR scores on similar version of same test highly correlated.	2	Values of >.70 for test re-test or parallel forms; >.75 if Intra Class Correlations (ICC) reported
		1	Test re-test or parallel forms <.70
		0	Insufficient information
Replicability	Exploratory Factor Analysis (EFA) followed by Confirmatory Factor Analysis (CFA) to empirically support hypothesised factor structure.	2	A cut-off value close to .95 for TLI, CFI; a cut-off value close to .08 for SRMR; and a cut-off value close to .06 for RMSEA; OR EFA primary factor loadings >.60, absence of salient cross loadings with n>100 AND > 3-items per factor.
		1	EFA with n<100 AND < 30-items per factor with loadings >.60 AND/OR cross loadings >.32; OR CFA does not meet good model fit and is NOT performed using separate sample from EFA .
		0	Insufficient information
*External validity evidence**			
Discriminant evidence	Test scores show no correlation with theoretically distinct measures	2	No significant correlation of test scores with theoretically distinct measure
		1	Low significant correlation (<.3) of test scores with theoretically distinct measure
		0	Insufficient information
Convergent evidence	Positive correlations of test scores in theoretically expected directions with related measures.	2	Correlation of test scores at >.30 with conceptually similar measure.
		1	Correlation of test scores at <.30 with conceptually similar measure; OR correlation with theoretically unrelated measure
		0	Insufficient information
Application			
Extent of measurement application (modified after McDowell, 2006).	Refers to the number of separate studies in which the instrument was used for empirical or validation studies.	2	Many: > 12 published studies
		1	Several: 5- 12 published studies
		0	< 5 published studies.

*Can also be evidence of criterion related evidence in absence of criterion measure (Cronbach & Meehl, 1955)

Each scale was assessed against the seven assessment criteria and awarded points using a three-point rating scale (as adopted in other systematic reviews e.g. Windle et al., 2011). Scales were allocated two points for fully satisfying the assessment criterion, one point for partially satisfying the assessment criterion, and zero for not satisfying the criterion (outlined in Table 3.4). The assessment criteria for each point allocation across all framework categories (theory formulation, internal validity evidence, external validity evidence) were as follows:

- *Theory formulation:* Two points were awarded if a clear description of item selection and development was presented, including the use of subject matter experts and the target population; one point was awarded if item selection and development was clearly described but input from either target population or subject matter expert was missing; and points were not awarded for ambiguous descriptions lacking this information.
- *Internal validity evidence* (stability, internal consistency, replicability): Two points were awarded if appropriate statistical analyses (test re-test, reliability analysis, exploratory and confirmatory factor analysis) were performed and results met minimum acceptable standards (see Table 3.4); one point was awarded if correct analyses had been performed but results did not meet minimum acceptable standards; and for incomplete or missing information, no points were awarded.
- *External validity evidence:* Two points were awarded per criterion if the scale correlated at |>.3| with other scales in theoretically expected directions; in the case that the minimum cut-off of |>.3| was not met but analyses were performed correctly, one point was awarded per condition; if author(s) did not present evidence of either conditions the scale was not awarded any points.
- *Application:* Using McDowell's (2006) structured evaluation for determining how widely a measure has been validated; two points were awarded for measures that had been validated in more than 12 published studies. One point was awarded if measures had been published in 5-12 separate studies. No points were awarded if the scale had been applied less than five times in separate studies.

Once each measure had been assessed, criterion scores across all four categories (theory formulation, internal validity evidence, external validity evidence, application) were summed to produce an aggregated criterion score; with a maximum possible score of 14. This method enables a systematic comparison of measures, highlighting the relative strengths and weaknesses of each. A cut-off score of 10 out of a possible 14 points (approximately 70% agreement with assessment criteria) was determined by the thesis author to be a measure

possessing 'acceptable' psychometric properties. The term 'acceptable' is an arbitrarily determined descriptor, which is an extension of Windle et al's (2011) systematic review; measures that met less than half of the quality assessment criteria in the study were described as 'moderate'. It was therefore concluded that measures reviewed in this study that met at least 70% of the assessment criteria showed acceptable psychometric properties.

3.5 Part Two: Results

Results from the systematic assessment are presented in Table 3.5. The 17 resilience measures were evaluated against criteria outlined in Table 3.4. All of the measures received the highest score for at least one criterion. Note that a zero score is not necessarily indicative of poor quality, but rather insufficient evidence to evaluate the measure conclusively. Additionally, with the exception of the ER-89-R, BPFI, CD-RISC-2, MTRR, RIM, and TRS, all remaining scales have been widely used in the literature in separate studies. Findings from the review will be presented under three validity evidence categories (theory formulation, internal validity evidence, and external validation). In addition, one further category was added to demonstrate each measure's validation in studies beyond the original scale development.

3.5.1 Theory Formulation

Measures awarded 2 points. The ER-89, ER-89-R, PCQ, MTRR, MTRR-99, SOC, RS, and TRS achieved the maximum score for content validity as item development and selection involved the use of subject matter experts and/or the target population.

Measures awarded 1 point. The remaining measures reviewed were awarded one point as they did not supply adequate information regarding content validity, nor were subject matter experts/target population involved during item selection and development.

Measures awarded 0 points. No measures were awarded 0 points.

3.5.2 Internal validity evidence

3.5.2.1 Internal stability

Measures awarded 2 points. The RSA, RIM, and CD-RISC-2 reported test- retest correlations of above the minimum cut-off score of r=.70

Measures awarded 1 point. The RS had satisfactory test re-test correlations in a sample of post-partum women *(*r=.67 to r=.84*)* which was administered five times in a 12 month period, however not all test administrations yielded correlations above r=.70, hence a score of one was awarded.

The ER-89 reported test re-test correlations separately for males (r=.51) and females (r=.67), however the method used to conduct the analysis was not reported (e.g. ICC or Pearson's r) which meant a score of one was allocated. The ER-89-R also achieved one point for this criterion as scale authors did not achieve test re-test correlations above r=.70 for total scale (r=.56) or subscales (optimal regulation, r=.49; openness to life experience r=.54). A possible explanation for this finding is that test administrations were separated by a two-year time lapse, which may have influenced test stability due to random factors (e.g. changes in life circumstances) not associated with the measure itself.

The Connor Davidson Resilience Scale (CD-RISC) and Brief Resilience Scale (BRS) were both awarded one point. These two scales both reported Intra Class Coefficients (ICC) as evidence of test stability. Authors of the CD-RISC reported an ICC value of r=.87 indicating this measure had test stability well above the minimum ICC cut-off value (r=.75), however a sample of 24 was used for the analysis which may have compromised the power of this study. Similarly, authors of the Brief Resilience Scale used two small samples to provide evidence of test stability (r=.69 in sample of 48 patients with fibromyalgia; r=.62 in sample of 61 undergraduate students). Both analyses did not reach the conventional minimum standard of r=.75 for test stability using ICC analyses..

Table 3.5: Quality Assessment Rankings of Resilience Scales

Scale	Theory Formulation	Internal Validity evidence			External Validity Evidence		Application	Total Score
	Content validity/2	Stability/2	Internal consistency/2	Replicability/2	Convergent evidence/2	Discriminant evidence/2	/2	/14(%)
PCQ	2	1	2	2	2	2	2	**13 (92%)**
RSA	1	2	1	2	2	2	2	**12 (85%)**
BRS	1	1	2	1	2	2	2	**11 (78%)**
CD-RISC	1	1	2	1	2	2	2	**11 (78%)**
ER-89-R	2*	1	2	2	2	0	1	**10 (71%)**
TRS	2	0	2	2	2	1	0	**9 (64%)**
MTRR-99**	2*	0	2	0	2	2	1	**9 (64%)**
CD-RISC-10	1*	0	2	2	2	0	2	**9 (64%)**
SOC	2	1	2	0	2	0	2	**9 (64%)**
RS	2	1	2	0	2	0	2	**9 (64%)**
ER-89	2	1	2	0	2	0	2	**9 (64%)**
BRCS	1	1	1	1	2	0	2	**8 (57%)**
CD-RISC-2	1*	2	0	0	2	2	0	**7 (50%)**
PVS-III-R	1	0	1	1	2	0	2	**7 (50%)**
RIM	1	2	2	0	2	0	0	**7 (50%)**
MTRR**	2	0	2	0	2	0	1	**7 (50%)**
BPFI	1	0	2	0	2	0	0	**5 (35%)**

* As for parent scale **excludes Q-sort and clinically directed interview. PCQ=Psychological Capital Questionnaire; RSA = Resilience Scale for Adults; RS=Resilience Scale; ER-89-R=Revised Ego Resiliency-89 Scale; CD-RISC-10=Connor-Davidson Resilience Scale-10 item; BRS=Brief Resilience Scale; CD-RISC=Connor-Davidson Resilience Scale; BRCS=Brief Resilience Coping Scale; ER-89=Ego Resiliency Scale; PVS-III-R=Revised Personal Views Survey III; RIM=Resilience in Midlife Scale; MTRR=Multidimensional Trauma Recovery and Resilience Scale; SOC=Sense of Coherence Scale; BPFI=Baruth Protective Factors Inventory, TRS=Trauma Resilience Scale

Measures awarded 1 point (continued). The Brief Resilience Coping Scale (BRCS) is designed to assess resilience with respect to pain management. As evidence of test stability, two samples of rheumatoid arthritis patients were included in test-retest analyses. The BRCS was administered to the first sample at baseline and six weeks later; findings showed acceptable stability (r=.71). In the second analysis, test stability was examined by correlating post-interventions scores on a cognitive behavioural intervention for adaptive coping and scores obtained three months later, however the test-retest correlation (r=.68) was below the minimum conventional cut-off value, hence awarding one point for this criterion.

Scale authors of the Psychological Capital Questionnaire (PCQ:Luthans et al., 2007) argue that their low test re-test coefficient (r=.52) was evidence that PsyCap may be *state-like* and therefore likely to be lower than the standard cut-off of r=.70**.** It was therefore not possible to award maximum points for this criterion. The author of the SOC (Sense of Coherence Scale) reports evidence of test stability over a two-year period among retirees, however the test-retest value (r=.54) was below the cut-off value resulting in an award of one point for this criterion.
Measures awarded 0 points. The remaining measures (BPFI, CD-RISC-10, PVS-III-R, MTRR, MTRR-99, TRS) did not report analyses for test stability and therefore did not satisfy the minimum requirement for this criterion.

3.5.2.2 Internal consistency

Measures awarded 2 points. Thirteen measures reported Cronbach's alpha values of above r=.70 for total scales and if applicable composite sub scales (BPFI, BRS, CD-RISC, CD-RISC-10, ER-89, ER-89-R, MTRR, MTRR-99, PCQ, RIM, RS, SOC, TRS), thus satisfying the full requirements for this criterion.
Measures awarded 1 point. The RSA reported values for each of the six sub scales but did not report Cronbach's alpha for the total scale. This could be explained by the authors' argument that in this iteration of the scale, scores should be interpreted at the dimension level and not as a total score (Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005). Despite this, three subscales did not reach the minimum standard for evidence of acceptable internal consistency and therefore did not fully satisfy this assessment criterion, resulting in an allocation of one point for this criterion. The PVS-III-R demonstrated an acceptable Cronbach's alpha for the total measure (r=.80), however reported values below the minimum accepted alpha value for the *control* subscale (r=.57) and *commitment* subscale (r=.69) and did not fully satisfy the conditions for this criterion.

Of all the measures, the Brief Resilient Coping Scale (BRCS) did not meet the minimum criterion for adequate internal consistency for the total scale (r=.69), however analyses were adequately performed therefore one point was awarded on this criterion.

Measures awarded 0 points. The CD-RISC-2 did not report on this criterion.

3.5.2.3 Replicability

Measures awarded 2 points. Five measures achieved the maximum score for replicability (PCQ, RSA, CD-RISC-10, ER-89-R, TRS). These measures all used confirmatory factor analysis to confirm findings from initial exploratory factor analysis, which resulted in a factor structure consistent with authors' proposed theoretical rationale guiding scale development.

Measures awarded 1 point. A further four measures partially met the replicability criterion. The BRS, BRCS, CD-RISC, and PVS-III-R provided findings from exploratory factor analyses but did not confirm the factor structure using confirmatory factor analysis. The CD-RISC identified five factors however two of the items on the fourth factor cross-loaded onto factor five (comprised of two loadings above .50).

Measures awarded 0 points. The BPFI, CD-RISC-2, ER-89, MTRR, MTRR-99, RIM, RS, and SOC did not report details of replicability analyses in their scale development studies and therefore received no points for this criterion.

3.5.3 External validity evidence

3.5.3.1 Convergent validity

Measures awarded 2 points. All (scale) test scores met the full criteria for convergent evidence (see Table 3.2 for individual analyses).

Measures awarded 1 point. No scales were awarded 1 point.

Measures awarded 0 points. No scales were awarded a score of zero.

3.5.3.2 Discriminant validity

Measures awarded 2 points. Six measures (PCQ, RSA, BRS, CD-RISC, CD-RISC-2, MTRR-99) presented evidence for acceptable discriminant evidence (of test scores) reporting no significant correlations with measures that were theoretically distinct from resilience (see Table 3.2 for individual analyses).

Measures awarded 1 point. The TRS was awarded 1 point for discriminant validity.

Measures awarded 0 points. The remaining ten measures did not report discriminant evidence analyses.

3.5.4 Application

Measures awarded 2 points. Ten measures were used in more than 12 validation studies, showing an acceptable number of published validation studies beyond original scale development (McDowell, 2006).

Measures awarded 1 point. The MTRR, MTR-99, and ER-89-R were moderately well validated in other studies, however not as extensive as other measures.

Measures awarded 0 points. The BPFI, CD-RISC-2, RIM, and TRS were not extensively validated in the literature, with few studies published beyond their original development studies.

3.5.5 Summary of Results of Psychometric Evaluation

Table 3.5 provides detailed information about the psychometric properties of each measure. In summary, five measures scored ten or more points out of a possible fourteen (PCQ, RSA, BRS, CD-RISC, ER-89-R), indicating measures with acceptable psychometric properties. With the exception of seven measures (BPFI, CD-RISC-2, ER-89-R, MTRR, MTRR-99, RIM, TRS), all instruments had been extensively validated in separate studies beyond their original development. Regarding dimensionality, the BRS, BRCS, CD-RISC-10, CD-RISC-2 conceptualise resilience as one dimension and exclude the role of external resources. Similarly, the PVS-III-R, ER-89, ER-89-R, RS, SOC, and PCQ exclude the role of supportive relationships and external support, however these six measures have conceptualised resilience in terms of internal characteristics that infer resilience albeit differently from one another (with the exception of the ER-89 revised scale). Three measures (CD-RISC-2, RSA, RIM) fulfilled a high standard for test stability and five (CD-RISC-10, ER-89-R, PCQ, RSA, TRS) for replicability. All measures fully satisfied the convergent evidence criterion, however only half of the measures reported discriminant evidence analyses (PCQ, RSA, BRS, CD-RISC, MTRR-99, TRS, CD-RISC-2). Of particular note was that only six scales fully satisfied the criterion for content validity (ER-89[6], PCQ, SOC, RS, MTRR[7], TRS) indicative of systematic construct development.

[6] Includes ER-89-R
[7] Includes MTRR-99

3.6 Discussion

This study presents findings from a systematic and methodological review of peer-reviewed published resilience measures and in doing so provides a synthesis of current approaches to resilience measurement. The study also set to answer the following broad questions: *What published resilience measures are currently available? Are these measures conceptualising resilience from an interactionist perspective? What is the quality of these measures?* These questions were explored through the aims of the present study.

The first study aim was to identify how many published resilience measurement scales are available and determine whether scale authors are conceptualising resilience from an interactionist perspective. This has not been attempted before and adds to the findings of previous reviewers (Ahern et al., 2006; Windle et al., 2011). Similarly, this study adds to previous findings by extending the present systematic review beyond 2008 to include six measures of resilience not previously identified. The second aim of the present study was to examine the psychometric properties of resilience scale to examine the relative quality of existing measures. A *construct validation* approach (Skinner, 1981) was used as an assessment framework that has also not been used by previous reviewers. What follows is an integrated discussion of findings including theoretical and practical implications, followed by study limitations and future research directions.

Consistent with the first study aim, a systematic review was conducted to identify available peer-reviewed published measures of resilience. A total of 17 measures were identified which satisfied the inclusion criteria for the systematic review, nine of which had not been identified in previous systematic reviews. Each of the 17 measures were subsequently examined through an interactionist lens to understand how existing measures of resilience are currently being conceptualised. Using an appropriate theoretical framework is an appropriate first step in understanding how resilience can be best measured as it provides a blueprint for theoretical and empirical coherence. Despite the various conceptual approaches used to study resilience, it is commonly accepted that resilience is best defined as a process characterised by a complex interaction of internal and external resources moderated by developmental influences (Masten et al., 1999; Rutter, 1985; Werner, 1993; Windle, 2010). However, most of the items reviewed in this study were designed to capture aspects of either trait or state resilience but not their interaction, and thus do not explain: a) different resilience outcome trajectories (Bonanno & Diminich, 2012; Masten & Narayan, 2012) b) the role of situational influences and c) the dynamic nature of the construct such as the role of prior exposure and developmental influences (Grant, 2006). The exception to this was the Multidimensional Trauma Recovery

and Resiliency (MTRR and MTRR-99) measure which operationalised resilience as a dynamic phenomenon which used multi-modal assessment methods (e.g. Q-sort, and clinical interview) to capture components of person-environmental interdependences. Despite its conceptually strong foundation, the MTRR is designed for those dealing specifically with childhood or prior abuse, which may limit its application to other settings. It has also not been well validated in other samples to date.

Taken together, the lack of a generally agreed definition of resilience meant that is was not possible to identify a consensus-driven conceptualisation of resilience, which raises questions about the ability to operationalise the theoretical construct of resilience. The dimensions queried by the items vary considerably across instruments and represent different aspects of the construct. Further, eleven out of seventeen measures did not fully meet the criterion for content validity suggesting some limitations in terms of systematic item development. There was also undue emphasis on the assessment of trait resilience. This is problematic because resilience involves the capacity to manage external dimensions of stress as well as internal distress and threat appraisal (Folkman, Lazarus, Dunkel Schetter, DeLongis, & Gruen, 1986). It is possible that observer ratings or objective ratings of individual responses to varied situations will assist in moving methods beyond explanations of resilient personalities toward objectively verified assessments of resilience in context.

For the second study which was to assess the relative quality of the 17 measures identified in Part One, the psychometric properties of each measure was reviewed using guidelines from Skinner's (1981) validity evidence framework. Five measures (BRS, CD-RISC, ER-89-R, RSA, PCQ) satisfied 70% or more of the assessment criteria indicating that they had acceptable psychometric properties. Of these measures, the CD-RISC and RSA referred to the influence of resources external to the individual typical of interactionism discussed in the introduction of this paper. The PCQ received the highest psychometric ratings but showed minimal conceptual adequacy with interactionism. Authors do argue that the PCQ represents items that are closer to a state-like construct and are thus susceptible to change and open to development (Luthans et al., 2006), however no items queried situational variation or variables external to the individual.

As mentioned earlier, measures meeting less than 70% of the assessment criteria are not necessarily measures of poor quality, rather that there is a lack of information reported which allows us to draw conclusions about their relative quality. Based on findings from this systematic review, it is also concluded that all measures with the exception of the BPFI met

at least 50% of the assessment criteria. Also noteworthy, with the exception of the MTRR inventories, none of the measures reviewed included contextual information such as asking participants how they would respond in specific adverse situations (e.g. victim of violence, natural disaster, terminal illness), nor were test administrations designed for use across more than one time point. The majority of measures (except MTRR and PCQ additional forms) used cross-sectional self-report items to assess how participants normally manage stressful situations. In some cases, participants were directed to think about the last few weeks when responding to items. Taken together, it is concluded that the measures reviewed may represent a combination of state-trait measures of resilience, however at present these approaches remain independent of one another and do not directly assess person-situation interactions.

3.6.1 Implications

Four broad theoretical implications emerge from this systematic review. To begin with, findings from this study demonstrated that there is an emphasis on the measurement of resilience as a trait. Developments in assessment methodologies may benefit from shifting emphasis from resilience as an individual characteristic to examining resilience as person-in-context phenomenon consistent with interactionism. Interactionist approaches to measurement follow the basic idea that any assessment of human behaviour depends in some systematic way on characteristics of the person, characteristics of the situation, and the interaction between person and situation (Endler & Parker, 1992; David Magnusson, 1999; Steyer, Schmitt, & Eid, 1999). Stable dispositional as well as systematic albeit instable situational or contextual factors together create a psychological state, which varies across time points and situational demands. As such, an important theoretical implication of this review is that advances in resilience assessment may benefit from interactionist theoretical frameworks such as latent state-trait theory (LST: Steyer, Ferring, & Schmitt, 1992; Steyer et al., 1999; Steyer & Schmitt, 1990). LST posits that state, trait, situation and interactions effects and measurement error must be explained by any given measurement model (Steyer & Schmitt, 1990). LST provides a methodology for the estimation of contextual attributes that result from person-situation interactions. Whilst demonstrations of the utility of LST are beyond the scope of this thesis, there is abundant research evidence in support of LST basic assumptions (e.g. Courvoisier, Nussbeck, Eid, Geiser, & Cole, 2008; Deinzer et al., 1995; Steyer et al., 1992, 1999).

Secondly, a review of item content in Part One of this study highlighted the fact that measures were comprised of items typically associated with trait resilience, with no reference to a specific context or domain of functioning (e.g. work, home, education). For example in the

case of social support, six of the measures reviewed (BPFI, CD-RISC, MTRR, RIM, RSA, TRS), comprised items relating to external support, which is thought to influence individual responses to adversity (Cohen, 2004). However, the majority of these measures capture information relating to social support using Likert scale responses, which rather crudely indicate whether social support is either present or absent (or somewhere in between). The nature and quality of that support is omitted from the assessment and therefore valuable information is lost. House et al., (1985) posit that in order to gain meaningful information about support functions, three distinctions can be made: 1) emotional – understanding, empathy and concern; 2) instrumental – concrete actions that network may perform such as physical assistance, financial assistance, or practical assistance and; 3) informational – guidance or advice. Distinctions need to be made with respect to the amount of support received but also the nature of support such as whether it is emotional, instrumental, or informational (House et al., 1985). Without such contextual knowledge it is difficult to know in what situations different types of social support (e.g. emotional versus instrumental) are more effective in protecting individuals from the negative impact of stressors. The use of qualitative data collection methods may be of some practical utility in this regard, which is further explored in Chapter 5 of this thesis.

Thirdly, many of the measures reviewed operationalised resilience as a multidimensional construct. Nonetheless, there was a lack of agreement as to which dimensions best represent resilience. There is scope to empirically examine measures together to determine areas of conceptual overlap, which is an approach other researchers have used to understand other latent constructs such as mindfulness (Baer et al., 2006) and core self-evaluations (Judge, Erez, Bono, & Thoreson, 2003). Examining resilience scales in concert will allow an empirical investigation of resilience items to determine areas of conceptual overlap and distinction, indeed this will be explored in Chapter 4.

Finally, there is some debate about what it means to be a successfully adapted individual and more specifically, about who gets to define successful adaptation (Schoon, 2006). Successful adaptation differs in relation to historical, cultural and developmental contexts (Masten & Coatsworth, 1998) and therefore there is a diversity of criteria used to identify positive adaptation. These varied criteria make it difficult to aggregate findings and draw coherent conclusions about the actual term *resilience* (Masten & Powell, 2003).

3.6.2 Limitations and recommendations for further research

There are four main limitations of this study that should be noted. First, it is acknowledged that commercially developed resilience measures were excluded from this study, which may have limited the number of relevant measures identified. Whilst this was a consideration, only peer-reviewed, published measures were chosen to increase the rigour of the study. Future research may benefit from exploring both commercial and peer-reviewed measures.

Second, the search strategy used in the present study was limited to selected databases (e.g. EBSCOHost and Scopus (Health Sciences) and keywords (e.g., resilience, measure). Given that standard keywords were used within each search engine, any article indexed by that search engine would have been captured; however, a review of reference lists might have revealed additional citations.

A third limitation of this study was that there was not more of a diverse group to perform the sorting task to develop themes. This was addressed by agreeing on themes once inter-rater reliability had reached a mean pairwise Kappa coefficient of 80% agreement (Cicchetti, 1994). An individual was also recruited who was not familiar with the resilience literature and found a high level of agreement. Future research would include a more diverse pool of reviewers in this phase of the study.

A final limitation of this study relates to the equal weighting given to each of the assessment criteria used to determine the relative quality of each scale reviewed. It is acknowledged that differential criterion weightings may have produced more meaningful results. For example, the content validity criterion could have carried a more substantial weighting than other assessment criteria owing to the fact that if a scale has not been systematically developed and lacks content validity, the other assessment criteria may be rendered less meaningful. Similarly, the discriminant validity of a scale may be less important than evidence of the applied value of a scale through evidence of criterion related validity. Such considerations are worthy of note for similar future research endeavours.

Future directions in resilience research could also benefit from clarifying the distinction between resilience in the context of chronic versus acute stressors (Bonanno & Diminich, 2013; Masten & Narayan, 2012). Positive adaptation to stressors of varying intensity will undoubtedly have different outcome trajectories. Along these lines, future research might explore how assessment of situational demands activates behaviour (e.g. Tett & Burnett, 2003). This presents an opportunity for researchers to employ multi-method measurement

approaches to further understanding resilience in relation to specific, time-bound situations, which is explored in Chapter 6.

3.7 Conclusion

This systematic review extended findings from two previous studies (Ahern et al., 2006; Windle et al., 2011). In addition to this, the present study addressed three research questions: *What published resilience measures are currently available? Are these measures conceptualising resilience from an interactionist perspective? What is the quality of these measures?* These questions were addressed through a comprehensive review of resilience measures in addition to an evaluation of the psychometric properties using Skinner's (1981) validity evidence framework. In parallel, an examination of how resilience is currently conceptualised was conducted using an interactionist assessment framework. Results revealed that five instruments demonstrate acceptable psychometric properties (BRS, CD-RISC, ER-89-R, PCQ, RSA), two of which (RSA, CD-RISC) moved beyond the measurement of individual characteristics associated with resilience. The MTRR is perhaps the most conceptually consistent with interactionism; however, it lacks extensive validation outside of abuse victims.

It is acknowledged that there are too many ways to deal with life's adversity to be able to capture them all in one measure. Nonetheless, it is useful to assess a broad range of functions to provide a more detailed understanding of the interacting factors shaping positive adaptation to adversity over the life of an individual. Building on the findings of this chapter, the next study will jointly factor analyse five of the highest rated measures in this review. The purpose of the next study is to empirically examine how existing measures are currently operationalising the resilience construct and to what degree they are measuring resilience in the same way.

Chapter 4: Operationalising resilience: a joint factor analysis of resilience measurement scales[8]

4.1 Introduction

Following a systematic and methodological review of resilience measurement scales in Chapter 3, it was concluded that resilience has been conceptualised in different ways by authors of resilience measurement scales, suggesting a lack of agreement in the way resilience is conceived (Davydov et al., 2010; Cicchetti & Garmezy, 1993; Kumpfer, 1999; Luthar, Cicchetti, & Becker, 2000; Luthar & Cushing, 1999). In light of these conclusions, the present study seeks to clarify the operationalisation of resilience through a joint factor analysis of resilience measurement scales. An empirical synthesis of existing resilience measures advances understanding of the degree to which existing measures of resilience are operationalising *resilience* in the same way. Thus, the overarching research question is posed: *How do existing measures of resilience currently operationalise the resilience construct?*

The study reported in this chapter makes a contribution to the literature by synthesising existing knowledge about the way resilience is currently operationalised and measured. A two-part investigation entailing concurrent examination of several resilience measures will be reported. Five of the highest rated measurement scales based on findings from the methodological review of resilience scales in Chapter 3 were selected for empirical investigation. Part One of this study involves a joint factor analysis of these five selected measures to examine the degree of uniqueness and redundancy across them. Part Two of this study involves a confirmatory factor analysis to test the model identified in Part One. The primary aim of this chapter is to understand the extent to which existing measures of resilience are assessing the same *resilience* construct.

Two samples of working adults participated in the current study. Sample 1 consisted of adult workers from the UK from three public sector domains: custodial, education, and healthcare. This sample was used to conduct an exploratory factor analysis (EFA) on a combined item pool of the five highest rated measures from the methodological review in Chapter 3. In a subsequent confirmatory factor analysis (CFA), sample 2 consisted of a sample of UK palliative care workers used to validate the model identified in the EFA.

---

[8] A version of this chapter has been submitted to *Assessment* journal: Pangallo, A., & Zibarras, L. (*submitted*). Operationalising resilience: A joint factor analysis of resilience measurement scales.

4.1.1 Current approaches to resilience measurement

As discussed in Chapter 1, more recent conceptualisations of resilience generally support a process-oriented view of resilience. The process oriented view of resilience goes beyond a trait based view to incorporate factors external to the individual to explain how individuals bounce back and in some cases thrive in spite of significant stress or adversity (Luthar, Cicchetti, & Becker, 2000; Tusaie & Dyer, 2004). What remains unclear in process-oriented approaches to measurement is what situational features moderate the interaction of factors internal and external to the individual which infer resilience (e.g. Dunn, Iglewicz, & Moutier, 2008). Thus, process-oriented measures lack an interactionist representation of resilience as they provide situationally general scale scores that do not increase understanding of the way that situational and personal characteristics interact to affect behaviour. Measures that are aligned with interactionism adopt a contextualised view of resilience and recognise that it is situated in the socio-cultural environment, not isolated in inner cognitive-affective processes (Smith & Semin, 2007).

Interactionism establishes a methodological framework for the measurement of resilience allowing for the explanation of the ways situational characteristics interact with individual traits resulting in positive adaptation to adversity (resilience). The methodology for studying dynamic 'resilience' person-situation interactions requires the simultaneous assessment of person and situation variables, as such, there is no differentiation made between dependent and independent variables (Endler, 1983). Further, to explore behavioural consistency across a range of situations such as dealing with bereavement, experiencing natural disasters, or negotiating workplace stressors, it is important to assess changes in the relationship between independent and dependent variables over time to identify the reciprocal effects of person-situation variables (Hu & Bentler, 1999). The assessment of resilience is currently dominated by measures that comprise items that are situationally general (e.g. "I am talkative"). Such approaches eliminate situational differences at the item level and therefore situational variance represents 'noise' which precludes the identification of situational factors in measurement (Murtha, Kanfer, & Ackerman, 1996).

In sum, resilience from an interactionist paradigm considers the person and the situation as a complex 'whole' that must be studied as one continuously interdependent unit (Reynolds et al., 2010). One of the main challenges that resilience scholars face is to shift from content approaches (individual variables associated with resilience) toward approaches that assess resilience as a context-variant construct. Adopting such approaches will further understanding

of how individuals respond to varying amounts of stressors across a range of situations (Riley & Masten, 2005) over the lifespan (Gillespie, Chaboyer, & Wallis, 2007; Windle, 2010).

Despite attempts at developing a unified approach to the measurement of resilience, there is at present no consensus on how to assess the complexities of the resilience construct (Davydov et al., 2010; Pangallo, Zibarras, Lewis, & Flaxman, *in press*). This has led to different approaches to the operationalisation and measurement of resilience. For instance, three main measurement approaches dominate the assessment of resilience:

1) Individual characteristics that promote resilience and provide a buffer against adversity (Block & Block, 1980; Werner & Smith, 1992)
2) Resilience as a process where factors such as social and family support interact with individual characteristics such as self-esteem and self-efficacy to promote resilience (Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003; Ryan & Caltabiano, 2009)
3) Resilience as an outcome which assesses positive adaptation to stressors such as chronic illness (Smith et al., 2008).

In addition to these broad approaches to measurement, scale authors differ in how they represent the dimensionality of resilience. For example, authors of the Brief Resilience Scale (BRS), Ego-Resiliency-89 scale (ER-89), and 10-item Connor Davidson Resilience Scale (CD-RISC-10) conceive resilience as a one-dimensional construct; authors of the Revised Ego-resiliency Scale (ER-89-R) scale propose a two-dimensional scale, whilst authors of the CD-RISC (original version), Resilience Scale for Adults (RSA), Psychological Capital Questionnaire (PCQ), Resilience Scale (RS), and Mid-life Resilience Scale (MLRS) operationalise resilience as a multi-dimensional construct (see Pangallo et al., in press; Windle, 2010).

In light of the inconsistencies associated with the conceptualisation and operationalisation of resilience (see Fletcher & Sarkar, 2013), the present study seeks to clarify the operationalisation of resilience through a broad based empirical analysis. By examining measures of resilience concurrently, it will be possible to examine the degree of overlap with respect to what existing measures of resilience are purporting to measure. This is important, as there has been general agreement in the literature that it may not be possible, or at least difficult, to reach agreement on how to best operationalise and measure resilience (e.g. Davydov et al., 2010; Luthar et al., 2000; Kaplan, 1999; Masten, 2007; Windle, Bennett, & Noyes, 2011). Therefore, conducting a joint factor analysis on pooled items from several

resilience measures may lead to new insights into how resilience is currently operationalised. For example, whether resilience should be conceptualised as a one-dimensional or multidimensional construct, and to understand the extent to which self-report measures of resilience are assessing the same *resilience* construct. Joint factor analyses of psychologically-related constructs have been used in the past to clarify conceptual uncertainties (e.g. Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006; Ferguson, 2001; McCrae & Costa, 1989), there are however, to the author's knowledge, no reported joint factor analyses of resilience measures. Therefore, this research makes an important contribution to the literature by providing an empirical rather than descriptive synthesis of self-report measures of resilience.

4.1.2 Study Overview

There are two parts to this study. In Part One, resilience measures will be jointly factor analysed to examine the pattern of factor loadings showing common and unique variance associated with individual measures. Since the present study is the first of its kind to include a reasonable breadth of resilience measures, it was deemed exploratory in nature. Hence no *a priori* hypotheses were made regarding likely results of the exploratory factor analysis (EFA), although two speculations were made on the basis of previous observations in the literature with regards to theorised points of distinction and overlap (e.g. Davydov et al., 2012; Pangallo et al., in press; Windle, 2010):

1) Given the lack of previous research involving concurrent examination of resilience measures it was speculated that the exploratory factory analysis might expose substantial redundancy in the measures. Thus, if items from all five scales are conceptually related, they would be expected to load onto the same respective factors comprising a higher order *resilience* factor.
2) A second possibility was that measures might extrapolate as largely independent factors which may mean that existing resilience measures are assessing different salutogenic resources. This would result in discrete factors comprised of items from each scales or subscale from the respective measures.

In Part Two, a Confirmatory Factor Analysis (CFA) will be performed to confirm the factor structure that emerges during the EFA. A sample of palliative care workers was used for this analysis to investigate the replicability of the model using an independent sample.

Part One: Joint Exploratory Factor Analysis

In the previous chapter outlining a methodological review of resilience measurement scales, five measures of resilience were identified that met over 70% of the quality assessment criteria, indicating measures with acceptable psychometric properties. Based on these findings, five resilience measures were selected for analysis in the present study which satisfied three inclusion criteria: 1) measures had to possess acceptable psychometric properties that is, meeting 70% of the assessment criteria based on findings from the review in the previous chapter; 2) measures had been extensively validated in separate studies beyond their original development – showing external validity evidence; 3) measures must have been published and peer-reviewed. By using these criteria, there is a degree of confidence that the measures under investigation were of sufficient quality and well validated.

It should be noted that only the top five measures were selected for further review due to limitations placed on the researcher from the hospice ethics committee. A restriction of 20 minutes was placed on the amount of time it would take participants to complete the survey and therefore it was not possible to include a larger number of measures in the present study.

4.2 Part One: Method

4.2.1 Participants

Sample 1 comprised 361 working adult participants with a mean age of 40 years (SD=15); approximately two-thirds of which were female (66.5%). Participants were from three occupational sectors: custodial, education, and health care. Approximately 40% of participants were in management positions, 15% of which classified themselves as senior managers or directors; the remaining 60% participants were in operational roles. Over 40% of participants were working between 35-45 hours per week, 22% working over 45 hours per week, and 14% were working over 55 hours per week. The remaining 24% of participants worked less than 35 hours per week. On average, 10-18% of participants had 2-4 years of experience, 40-55% had between 5-10 years of experience, and 35-45% of participants had 10 or more years of experience. Depicted in Table 4.1 is a breakdown of tenure per organisation.

Table 4.1: Demographics by industry and organisation

Sector	Organisation	% of total sample[a]	Average (%) tenure
Custodial	National Offender Management Service	10% (n=36)	2-4 years: 10% 5-10 years: 55% 10+ years: 35%
Education	Department of education	20% (n=72)	2-4 years: 18% 5-10 years: 40% 10+ years: 42%
Health Care	Chelsea and Westminster Hospital, Royal Free hospital, Guy's and St Thomas	70% (n=253)	2-4 years: 15% 5-10 years: 40% 10+ years: 45%

[a] (n=361)

4.2.2 Procedure

A purposive sampling methodology (Robson, 2011) was used to invite working adults from three public sector organisations in the UK to participate in the study. Purposive sampling was considered appropriate for this study as participants were required to meet two eligibility criteria: Firstly, that participants had a minimum of two years of workplace experience in their current roles; and that participants were working in job roles with substantial emotional labour (Hochschild, 1983) such as prison workers, teachers, and health care workers. Participants were recruited from the National Offender Management Service, Department of Education, and Department of Health. The author gained organisational access through existing contacts.

Invites were sent out via email to participants inviting them to take part in the study, and of the 705 invites sent out, 383 participants responded to the survey (54% response rate). Of the 383 respondents, 22 participants did not fully complete the survey and so analyses were conducted on 361 cases. Participants were informed that their data would be anonymised and kept confidential. It was also made clear that participation in the study was completely voluntary and could be withdrawn at any time.

4.2.3 Measures

After providing informed consent, participants completed a number of questionnaires online, beginning with a short demographic form, which requested age, gender, and years of working experience. Participants subsequently completed five resilience questionnaires and one measure of psychological well-being (see Appendix 1: Questionnaire Study 2 for questionnaire). The well-being measure was used to show the degree to which each scale

showed convergent validity with a conceptually related construct. Given that this research took place in an applied setting (as described in Chapter 2), short-form measures were used where possible to reduce the time resource required to answer the questionnaire.

The five resilience scales used in this study were: 1) Resilience Scale for Adults (RSA: Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003); 2) Psychological Capital Questionnaire (PCQ: Luthans, Youseff, et al., 2007); 3) Brief Resilience Scale (BRS: Smith et al., 2008); 4) Revised Ego-resiliency Scale-89 (ER-89-R: Alessandri, Vecchione, Caprara, & Letzring, 2012); and 5) 10-item Connor Davidson-Resilience Scale-10 (CD-RISC-10: Campbell-Sills & Stein, 2007). Two of the five scales (CD-RISC-10, ER-89-R) were trait measures. The remaining three measures were developed to measure resilience as a process (RSA), a state-like construct (PCQ), and an outcome (BRS). All five scales were expected to correlate significantly and positively with one related subjective well-being measure: *WHO-Five Well-Being Index* (WHO-5: World Health Organisation, 1998). The well-being measure was included to provide further convergent validity evidence, to provide evidence that each resilience scale was measuring a similar psychological construct.

4.2.3.1 Revised Ego-Resiliency 89 Scale (ER-89-R: Alessandri, Vecchione, Caprara, & Letzring, 2012)

The *Revised Ego-resiliency Scale* (ER-89-R) is a ten-item trait measure of resilience scored on a seven-point Likert scale (*1=Does not apply at all; 7=Applies very strongly*). Authors of the revised ER-89-R conceptualise ER as a second order construct with two first order factors: 1) Optimal Regulation (degree to which individuals are able to control their urges and impulses); and 2) Openness to Life Experiences (adapting to novel situations and capacity for exploration). Internal consistency for the full scale was reported as r =.75 with higher values reported for sub scales (*optimal regulation*: r = .85; *openness to life experiences*: r = .79). Example items include: (a) optimal regulation: '*I get over my anger at someone reasonably quickly';* (b) openness to life experience: *"I am more curious than most people"*.

4.2.3.2 Connor-Davidson Resilience Scale (CD-RISC: Campbell-Sills & Murray, 2007)

The CD-RISC-10 is a trait measure of resilience, which is measured using a 10-item scale scored on a five-point Likert scale (*0=Not true at all; 4=True nearly all of the time*). Much like the CD-RISC parent scale, the 10-item version of the CD-RISC draws its content from Kobasa's (1979) work on hardiness that represents constructs associated with challenge,

control, and commitment. Internal consistency for the full scale was reported as *r* =.85 and was also reported to correlate highly with the original CD-RISC (*r* =.92). An example item includes: '*I can deal with whatever comes my way'*.

4.2.3.3 Resilience Scale for Adults (Friborg et al., 2003)

The *Resilience Scale for Adults* (RSA) is a 33-item instrument rated on a five-point semantic differential scale (positive and negative semantic phrases at each end of the scale respectively). The RSA item pool broadly represents personal/dispositional attributes, family support, and external support systems (Garmezy, 1993; Rutter, 1999; Werner & Smith, 1982; Werner, 1993). Internal consistency for the six sub scales (perception of self, planned future, social competence, family cohesion, social resources, structured style) ranged between *r* =.76 to *r* =.87. Internal consistency for the total scale was not reported. Example items are: (a) perception of self: "*I can always come to terms with events in my life that I cannot influence*"; (b) planned future: "*My goals for the future are unclear*"; (c) social competence: "*For me thinking of good topics for conversation is easy*"; (d) family cohesion: "*In my family we like to do things on our own*"; (e) social resources: "*When needed, I have no one who can help me*"; (f) structured style: "*rules and regular routines are part of my everyday life*".

4.2.3.4 Psychological Capital Questionnaire (PCQ: Luthans, Youssef, & Avolio, 2007).

The PCQ is a 24-item state-like measure ranked on a six-point Likert scale (*1=strongly disagree; 6=strongly agree*). The PCQ is designed to measure positive coping and adaptation through assessing personal assets that influence employee outcomes. Psychological capital (PsyCap) is a positive state-like capacity that is a composite higher-order factor comprised of: self-efficacy/confidence (Parker, 1998); hope (Snyder et al., 1991); resilience (Wagnild & Young, 1993); and optimism (Scheier & Carver, 1985). The PCQ has shown good internal consistency for all four individual facets across four samples used in the development of the measure: efficacy (mean *r* =.79); hope (mean *r* =.75); resilience (mean *r* = .70); optimism (mean *r* =.74); and total scale (mean *r* =.88) (Luthans et al., 2007). To encourage state-like framing, respondents are asked to describe '*how you think about yourself right now*'. Sample items include: (a) efficacy: "*I feel confident in representing my work area in meetings with management*" (b) hope: "*Right now I see myself as being pretty successful at work*" (c) resilience: "*When I have a setback at work, I have trouble recovering from it, moving on (R)*" (d) optimism: "*I always look on the bright side of things regarding my job*".

4.2.3.5 The Brief Resilience Scale (BRS: Smith et al., 2008)

The BRS is a six-item, one-dimensional outcome measure ranked on a five-point Likert scale (*1=strongly disagree; 5=strongly agree*). It is designed to assess the ability to bounce back or recover from chronic illness or stress. Internal consistency analyses showed consistently high alpha coefficients across four samples (mean *r* =.85). Example items include: "*I tend to bounce back quickly after hard times*" and "*I have a hard time making it through stressful events*".

4.2.3.6 Who-Five Well Being Index (WHO: World Health Organisation, 1998)

The WHO-5 measures depression in terms of decreased well-being (WHO, 1998). The five-items of this self-report scale measure psychological well-being during the previous two weeks and cover mood, interests, energy, sleep and psycho-motor functioning; domains indicative of depression symptoms (Bech, Olsen, Kjoller, & Rasmussen, 2003). Responses are rated on a six-point Likert scale (*0=At no time; 5=All of the time*) and higher scores indicate increased well-being. The internal consistency of the WHO-5 has been reported in the range of *r* =.84 to *r* =.91 (Bech et al., 2003; Loewe, Spitzer, & Grafe, 2004). Example items include: *'I woke up feeling fresh and rested'* and *'I have felt cheerful and in good spirits'*.

4.3 Part One: Results

4.3.1 Internal consistency and inter-correlations

To examine whether the five scales were measuring similar psychological constructs, correlations between resilience measures and the well-being scale were calculated. As global relationships between constructs were being examined, total scores for all measures were used. Table 4.2 displays correlations between the variables in this study. Cronbach's alpha are also reported in brackets on the matrix diagonal. Conventional standards for internal consistency range from *r* =.70 to *r*=.90 (Carmines & Zeller, 1979; Nunally & Bernstein, 1994; Terwee et al., 2007), therefore all scales were in the range of acceptable internal consistency standards. Due to the number of correlations and to account for the family wise error rate, a Bonferroni correction (Field, 2009) was applied to work out the appropriate significance level to be applied to this data; which indicated a significance level of .002. All resilience measures were significantly correlated with each other ranging from *r* =.37 (ER-89-R with CD) to *r* =.68 (PCQ with CD), *p*<.001. Similarly, all measures were significantly related to the WHO-5 well-being measure (*r*=.17 to *r* =.41; p<.001). These results provide evidence that the selected resilience questionnaires measure overlapping constructs and also have acceptable construct validity since all five are positively correlated with psychological well-being.

Table 4.2: Intercorrelations among resilience questionnaires and related constructs (N=361)

Scale	BRS	CD-10	ER-89-R	PCQ	RSA	WHO-5
BRS	1(.88)					
CD-10	.57*	1(.85)				
ER-89-R	.38*	.37*	1(.72)			
PCQ	.51*	.68*	.43*	1(.93)		
RSA	.47*	.49*	.42*	.54*	1(.84)	
WHO-5	.17*	.28*	.30*	.29*	.41*	1(.87)

*p<.01.

Note: BRS=Brief Resilience Scale; CD-10=Connor-Davidson Resilience Scale-10 item; ER-89-R=Revised Ego-resiliency-89 Scale; PCQ=Psychological Capital Questionnaire; RSA = Resilience Scale for Adults; WHO-5=World Health Organization 5-item Well-Being Index.

4.3.2 Joint factor analysis

To examine the factor structure of the combined item pool (85 items), all the items from the five resilience measures included in this study were combined into a single data set. Combining all items from these measures into a single data set provides the opportunity to examine whether items from each of these measures share similar underlying factor structures or represent different underlying dimensions of resilience. This approach is a broad-based empirical analysis of the way resilience is currently operationalised much like approaches taken to understand other related psychological constructs such as mindfulness and personality (Baer et al., 2006; Ferguson, 2001).

Using Sample 1 (n = 361), the combined data set for the five resilience questionnaires (BRS, CD-RISC-10, ER-89-R; PCQ, RSA) included 85 items. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was calculated at .89, indicating the data was suitable for EFA (Field, 2009). Bartlett's Test of Sphericity (Bartlett, 1937) was significant (χ^2 = 6763.58, p <.001) indicating that variables included in the analysis were adequately correlated and independent.

In order to achieve a clear factor structure and discard items explaining little variance, an iterative process of parallel analyses using *rawpar* syntax (O'connor, 2000) followed by principal axis factoring (EFA) were performed on the data. Parallel analysis was chosen for the iterative factor extraction process as this method is thought to reduce ambiguities associated with sampling error and is one of the most accurate factor retention methods (Henson & Roberts, 2006; Zwick & Velicer, 1986). A promax rotation was chosen to allow factors to correlate and to obtain a factor solution that is maximally distinguishable (Comfrey

& Lee, 1992). The following four criteria were used to evaluate the strength of factor loadings (guided by recommendations of Costello & Osborne, 2005; Kline, 1994; Matsunaga, 2010; Tabachnick & Fidell, 2001) and are listed in order of priority:

Criterion 1: Item loadings greater than .32 were considered salient loadings
Criterion 2: Cross-loading items greater than .32 or above on two or more factors were removed
Criterion 3: Cross-loading items must have a difference of less than .20 to be retained
Criterion 4: Each retained factor has a minimum of at least three items greater than .50[9].

Numerous iterations of the factor analysis were carried out to obtain simple structure by removing one item (based on criteria 2, 3, and 4) per iteration (Silvester, Wyatt, & Randall, 2014). In the first parallel analysis on all 85 pooled items from the five resilience measures, the 95th percentile as a criterion for selection was used; nine components exceeded the corresponding values from the random data set, thus nine factors were extracted. Consequently, a forced nine-factor solution was performed on the data. Of the 85 items analysed, 40 items in total did not meet the abovementioned criteria: fifteen had items cross-loading greater than .32 on more than one factor; and a further 25 items did not reach the minimum loading cut-off of .32. Therefore an item-reduction approach was performed where each of the 40 items were deleted at each iteration (i.e. parallel analysis followed by principal axis factoring). In the final iteration, following a parallel analysis that indicated a nine-factor solution, a forced nine-factor extraction was performed on the remaining 45 items resulting in a model with all loadings above .50 and no cross loadings. Table 4.3 shows the resulting nine-factor model which includes each item and the measure from which it originates. A description of the nine factors that emerged is outlined below:

- Factor 1 was defined by items from the *Psychological Capital Questionnaire* (PCQ) sub scales of *hope, resilience* and *optimism*. Item content for this factor pertained to optimism, success reaching work goals, and ability to handle challenges at work. Ten items (highest loading items) were retained and accounted for almost half (23.17%) of total variance. Cronbach's α =.89.

[9] This cut-off is chosen to maximise the amount of variance explained in the model. It also minimizes the difference between the estimated and observed matrices in CFA analyses (Schreiber, Nora, Stage, Barlow, & King, 2006).

- Factor 2 consisted of items entirely of items from the RSA *family cohesion* sub scale. Seven items accounting for 8.04% of total variance represented the quality of familial relationships related to the individual. Cronbach's α =.83.
- Factor 3 was comprised of five items from the *Brief Resilience Scale* (BRS). Item content reflected the ability to bounce back and recover from setbacks in life. This factor represents resilience as an outcome and accounted for 5.60% of total variance. Cronbach's α =.86.
- Factor 4 comprised four items from the *self-efficacy* sub scale of the PCQ. Items explicitly refer to confidence in one's ability to reach job targets, analyse problems, and participate in developing organizational strategy. This factor accounted for 4.50% of variance. Cronbach's α =.85.
- Factor 5 consisted of five items from the *10-item Connor-Davidson Resilience Scale* (CD-RISC-10). Items represented components of *hardiness,* describing the ability to: see life's challenges as controllable; face stressful events rather than avoid or deny them; discern what can be done to turn adversity into opportunity; attain goals to achieve positive outcomes. This factor accounted for 4.30% of total variance. Cronbach's α =.80.
- Factor 6 comprised four items from the RSA *social resources* sub scale. These items represent the availability of supportive relationships from friends and significant others, and ability to adeptly manage social relationships. This factor accounted for 3.85% of total variance. Cronbach's α =.74.
- Factor 7 was represented by four items from the RSA *planned future* subscale. Items on this factor referred to the ability to plan and realise goals and having confidence in one's decisions. This factor accounted for 3.60% of variance. Cronbach's α =.75.
- Factor 8 represented items from the *Revised Ego-resiliency-89 scale* Items represented an ability to regulate impulsive behaviour and general disposition toward novel experiences. Four items were retained and accounted for 3.32% of variance. Cronbach's α =.70.
- Factor 9 was comprised of items from the RSA *structured self* sub scale. Three items were retained. Items represented a tendency to plan and organise activities and time management skills. This factor accounted for 2.96% of variance. Cronbach's α =.52.

Table 4.3: Factor structure of combined items from five resilience measures

Source of item and content	*Component*								
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
Factor 1: Psychological Capital (Hope, Optimism, Resilience)									
PCQ 8: At the present time, I am energetically pursuing my work goals (H)	**.82**	-.02	-.16	.07	-.21	-.01	.01	.24	-.07
PCQ 10: Right now I see myself as pretty successful at work (H)	**.76**	-.17	-.04	.15	-.08	-.03	.06	.23	.01
PCQ 11: I can think of many ways to reach my current work goals (H)	**.71**	-.02	-.02	.21	-.08	-.10	.03	.27	-.14
PCQ 9: There are lots of ways around any problem (H)	**.70**	.21	.04	.02	-.03	-.09	.00	-.09	-.05
PCQ 14: I usually manage difficulties one way or another at work (R)	**.69**	.18	.00	.01	.08	-.03	-.10	-.22	.12
PCQ 12: I am meeting the work goals that I have set for myself (H)	**.65**	.02	-.09	.16	-.06	-.02	.08	.15	.00
PCQ 21: I always look on the bright side of things regarding my job (O)	**.62**	-.02	.11	-.13	.12	.00	.02	.16	-.16
PCQ 22: I'm optimistic about what will happen to me in the future as it pertains to work (O)	**.61**	-.09	.01	-.03	.05	.08	-.05	.25	-.09
PCQ 7: -If I should find myself in a jam at work, I could think of many ways to get out of it (H)	**.61**	.10	.02	.30	.00	.02	-.09	-.13	.05
PCQ 24: I approach this job as if every cloud has a silver lining (O)	**.52**	.06	.06	-.24	-.00	-.00	.14	.10	-.28
Factor 2: Resilience Scale for Adults – Family Cohesion									
RSA 20: I feel very happy with my family	.08	**.82**	-.08	-.02	-.02	.04	.05	.01	-.06
RSA 21r: My family is characterized by disconnection	-.00	**.82**	.05	.01	.03	.05	.03	.00	.15
RSA 19r: My family's understanding of what is important in life is quite different to mine	-.12	**.72**	-.01	.09	-.02	-.11	.03	.08	.05
RSA 23r: In front of other people, my family acts unsupportive of one another	.08	**.72**	.08	.06	-.03	.09	.05	-.06	.02
RSA 22: In difficult periods my family keep a positive outlook on the future	-.00	**.70**	.10	.07	-.11	.16	.02	.01	-.19
RSA 24r: In my family we life to do things on our own	.01	**.61**	.15	.00	.00	.04	-.02	-.03	.16
Factor 3: Brief Resilience Scale – Bounce back ability									
BRS 4: It is hard for me to snap back when something bad happens	-.04	.09	**.92**	-.02	-.05	.05	.02	-.01	-.08
BRS 6: I tend to take a long time to get over set-backs in my life	.04	.11	**.78**	-.14	.04	.04	-.07	-.00	.06
BRS 2: I have a hard time making it through stressful events	-.06	.15	**.76**	-.05	-.01	-.02	.04	.10	.05
BRS 3: It does not take me long to recover from a stressful event	-.03	.16	**.74**	.08	.03	.05	-.06	-.05	-.15
BRS 5: I usually come through difficult times with little trouble	.14	.18	**.64**	-.08	-.02	.03	-.01	.06	-.09
Factor 4: Psychological Capital- Self-efficacy									
PCQ 6: I feel confident presenting information to a group of colleagues	-.05	-.01	.03	**.87**	.02	.08	-.05	.09	-.09
PCQ 2: I feel confident in representing my work area in meetings with management	.11	-.01	-.03	**.83**	.15	.02	.03	.05	-.03
PCQ 3: I feel confident contributing to discussions about the organization's strategy	.30	-.20	-.11	**.78**	.01	.03	.04	.10	-.10
PCQ5: I feel confident contacting people outside the org	.08	.12	-.07	**.71**	.06	.08	.04	-.06	-.10
Factor 5: CD-RISC-10- Hardiness									
CD 2: I can deal with whatever comes my way	-.08	.03	.12	.05	**.85**	-.01	.11	.02	.04

Source of item and content	*Component*								
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
CD 10: I am able to handle unpleasant or painful feelings like sadness, fear and anger	-.09	.01	.24	-.04	**.71**	-.07	.01	.07	.05
CD 1: I am able to adapt to change	.12	.06	.13	-.04	**.70**	.10	-.00	.06	-.04
CD 4: Stress can make me stronger	.06	-.15	.01	-.17	**.68**	-.09	.04	-.02	.06
CD 9: I think of myself as a strong person	-.16	.09	.20	.27	**.63**	-.14	-.01	.13	.05
Factor 6: Resilience Scale for Adults – social resources									
RSA 30r: When needed, I have no one who can help me	.04	.03	-.02	-.19	.03	**.81**	-.07	.17	.23
RSA 25r: I can discuss personal issues with no one	-.11	.06	-.05	-.14	.13	**.77**	-.08	.09	.05
RSA 27r: The bonds between my friends is weak	.04	.06	.02	-.13	-.07	**.73**	-.02	.03	.16
RSA 29: I get support from friends and family members	.05	.28	-.18	-.06	.26	**.62**	-.09	.07	-.06
Factor 7: Resilience Scale for Adults – planned future									
RSA 8r: My goals for the future are unclear	-.08	.02	.03	.08	-.06	-.08	**.75**	.06	.06
RSA6: I know how to accomplish my future goals	.07	.18	-.10	.13	.01	.07	**.70**	-.08	.07
RSA 5r: My plans for the future are difficult to accomplish	-.01	-.07	.16	-.06	.06	.05	**.66**	-.04	.05
RSA7: I feel that my future looks very promising	.25	.16	-.04	.07	.15	.01	**.56**	.00	-.13
Factor 8: Ego-resiliency Scale – Ego-resiliency									
ER 7: I like to take different paths to familiar places	-.07	.04	-.12	-.13	-.07	.02	-.02	**.78**	-.13
ER 11: I like to do new and different things	-.08	.10	.05	.03	-.07	.06	-.08	**.76**	.02
ER 8: I am more curious than most people	.05	-.02	-.03	-.02	-.03	.01	.02	**.67**	-.14
ER 3: I enjoy dealing with new and different situations	-.16	.16	.03	.13	.02	.03	-.00	**.64**	.12
Factor 9: Resilience Scale for Adults – structured self									
RSA12r: Rules and regular routines are absent in my everyday life	-.16	.12	-.03	-.09	.08	-.01	.06	.01	**.70**
RSA11: I am good at organising my time	.21	.20	-.01	.03	-.08	.05	-.03	-.01	**.65**
RSA 10r: When I start on new things/projects I rarely plan ahead	.01	-.02	-.09	-.10	-.09	.04	-.01	.17	**.63**
Initial eigenvalues for each factor	*10.43*	*3.62*	*2.52*	*2.02*	*1.93*	*1.73*	*1.62*	*1.50*	*1.33*
Percentage of variance accounted for after extraction	*23.17*	*31.21*	*36.81*	*41.30*	*45.61*	*49.46*	*53.04*	*56.36*	*59.32*

Because the factors appear to have distinct content yet were all derived from questionnaires designed to measure resilience, correlations of factor scores were examined. A Bonferroni correction was applied at p<.001. Therefore significant relationships are shown at p<.001. As shown in Table 4.4, correlations between factor scores were low to moderate and significant with the following exceptions: Factor 9 *(structured self)* showed no significant correlation with any of the eight factors; Factor 6 (*social resources*) had a non- significant correlation with Factor 8 (*ego-resiliency*); Factor 5 (*hardiness*) had a non-significant correlation with Factor 8 (*ego-resiliency*). In sum, factor scores appeared to represent distinct factors with little item redundancy.

Table 4.4: Correlations between factor scores

Factor	1[a]	2	3	4	5	6	7	8
Factor 1 Psychological Capital[a]	-							
Factor 2 Family cohesion	.39*	-						
Factor 3 Bounce back ability	.19*	.20*	-					
Factor 4 Self-efficacy	.53*	.29*	.14*	-				
Factor 5 Hardiness	.50*	.46*	.22*	.40*	-			
Factor 6 Social resources	.23*	.27*	.36*	.18*	.28*	-		
Factor 7 Planned future	.42*	.26*	.19*	.32*	.27*	.21*	-	
Factor 8 Ego-resiliency	.14*	.22*	.12*	.12*	.13	.09	.15*	-
Factor 9 Structured self	.07	.08	.03	.07	.07	.03	.10	.03

* p <.001

[a] comprises hope, optimism, and resilience subscales

Next, the possibility of a higher-order factor structure was tested by saving each of the nine factors as a regression variable and performing a second factor analysis using principal axis factoring and promax rotation. A parallel analysis was performed on the data, which indicated that two factors should be extracted. Two second-order factors emerged from the analysis (see Table 4.5), which were moderately correlated (r=.55, p<.001). Factors 1 (*psychological capital*), 4 (*self-efficacy*), 5 (*hardiness*), 7 (*planned future*), and 2 (*family cohesion)* loaded onto the first higher order factor. Factors 6 (*social resources*) and 3 (*bounce back ability*) loaded onto the second higher order factor. Factors 8 (*ego-resiliency*) and 9 (*structured self*) failed to load above .16 on either factor.

Table 4.5: Second-order model of resilience measures

Factor	Component	
	1	2
Factor 1: Psychological Capital (Hope, Optimism, Resilience)	**.84**	-.08
Factor 4: Psychological Capital- Self-efficacy	**.69**	-.09
Factor 5: CD-RISC-10- Hardiness	**.55**	.16
Factor 7: Resilience Scale for Adults – Planned future	**.45**	.09
Factor 2: Resilience Scale for Adults – Family Cohesion	**.42**	.13
Factor 8: Ego-resiliency Scale – Ego-resiliency	.16	.12
Factor 9: Resilience Scale for Adults – Structured self	.12	-.03
Factor 6: Resilience Scale for Adults – Social resources	-.02	**.63**
Factor 3: Brief Resilience Scale – Bounce back ability	-.05	**.58**

Overall, the findings from the joint factor analysis showed that a second-order model of resilience emerged containing five first-order factors and two higher-order factors. All correlations between the seven first-order factors were low to moderate and significant after applying a Bonferroni correction (r=.13, p<.001 to r=.51, p<.001). The correlation between the two second-order factors was also moderate and significant (r=.55, p<.001). To explore the replicability of the solution from Part One of the present study, a second investigation using confirmatory factor analysis (CFA) was examined next using a different sample.

Part Two: Confirmatory Factor Analysis

The purpose of Part Two of this study was to use a CFA to confirm the two models identified in Part One. The first CFA will examine the possibility of a nine-factor non-hierarchal model of resilience. The second analysis will explore the presence of a hierarchical model of resilience consisting of five first order factors and two second-order factors. The purpose of this part of the study is to examine which of these models best fit the data.

4.4 Part Two: Method

4.4.1 Participants

Participants were 245 UK palliative care workers with a mean age of 30.15 years (SD=12.26), 84% of which were female. The manager of the hospice research unit confirmed that the predominately female sample was representative of the available study population in terms of gender split and distribution of staff across the two participating hospices. Participants were sampled from two hospices (some staff also worked in acute wards) in the South East of England who worked in clinical roles including nursing, medical, social work, mental health, and allied health. Approximately 70% of the sample had an undergraduate or higher degree.

No other demographics were collected at the request of the participating organisations. Participants were asked to complete brief demographics and a resilience questionnaire, which was comprised of the items identified in the EFA model from Part One.

4.4.2 Measures

Measures from Part One (see 4.2.3) were used with the exception of the well-being measure (*World Health Organisation 5-item Well-Being Index*). Participants were asked to respond to items on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with the exception of the CD-RISC-10 which used a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

4.4.3 Procedure

Access to palliative care workers was granted by the hospice ethics committee. A main point of contact (for both participating hospices) was identified in the research unit of the hospice who invited palliative care employees to participate in the study through emails and departmental meetings. Of the 403 participants contacted, 245 took part in the study (61% response rate). Interested participants were subsequently sent a self-report electronic survey consisting of the same survey items used in Part One (see Appendix 1).

All participants were provided an explanation as to the purpose and nature of the research and what participation in the study entailed. They were informed that they would be asked about their thoughts and feelings about aspects of their personality and behaviour. Participants were advised prior to consenting that participation was voluntary, that all data collected would remain anonymous, and that they had the right to refuse participation and to withdraw from the study at any time. Participants provided consent prior to completing the survey. Written instructions were provided explaining how to respond to items using numerical rating scales specific to each question.

4.4.4 Analyses

In CFA, a sample size of 200 is seen as a reasonable goal for CFA research (Kenny & McCoach, 2003), therefore the sample of 245 participants was deemed adequate. To determine the fit of the model, three fit indices were used for these analyses (Hu & Bentler, 1999): 1) Chi-Square, in which non-significant results indicate good model fit, 2) comparative fit index (CFI) in which values close to .95 indicate a 'close' fit to the data; and 3) root mean square error of approximation (RMSEA) in which values lower than .05 represent a close

approximation to the data. Analyses were conducted using Mplus version 4.0, using ML estimation.

4.5 Part Two: Results

Results of two alternative models are summarized in Table 4.6. First, a non-hierarchical nine-factor model (model 1) was tested where factors were allowed to correlate (forced to equal 1.0): 1 (*psychological capital*), 2 (*family cohesion*), 3 (*bounce back ability*), 4 (*self-efficacy*), 5 (*hardiness*), 6 (*social resources*), Factor 7 (*planned future*), 8 (*ego-resiliency*), 9 (*structured self*). This model was misspecified as Factor 9 resulted in a non-positive covariance matrix due to high item collinearity. To address the high item collinearity, one of the three items from Factor 9 was deleted and the model was re-run, however this model also resulted in a non-positive covariance matrix. As outlined in section 4.3.2 in Part One of this study in criterion 4, factors were retained providing they had a minimum of three items loading above .50[10]. In light of this criterion, the model was re-run removing Factor 9 to correct for the misspecification. This eight-factor model showed a borderline fit to the data: (χ^2=1188.93, df=637, p<.001); CFI= .93; RMSEA= .05. Therefore model 1 was modified to represent an eight-factor (8F) model.

[10] This cut-off is chosen to maximise the amount of variance explained in the model. It also minimizes the difference between the estimated and observed matrices in CFA analyses (Schreiber et al., 2006).

Table 4.6: Summary of Results of Tests of Alternative Factor Structures of Resilience

	Model	χ^2	df	$\chi^{2\ diff}$	df^{diff}	CFI	RMSEA
-	Nine-factor model		Misspecifed				
1	Eight factor model	1188.93**	637	-	-	.93	.05
2	Hierarchical second-order model	1273.33**	655	86.75**	18	.90	.06

Note: Sample 2 (n=245) **P<.001

Second, the replication of the second order model (model 2) identified in the EFA (see Table 4.5) was examined. A hierarchical model was specified with two first-order factors: the first higher order factor consisted of Factors 1 (*psychological capital*), 4 (*self-efficacy*), 5 (*hardiness*), 7 (*planned future*), and 2 (*family cohesion)*; the second higher order factor comprised Factors 5 (*social resources*) and 3 (*bounce back ability*). Factors 8 (*ego-resiliency*) and 9 (*structured self*) were not included in this model as they did not load on either of the second order factors in the EFA from Part One. Results showed that this model was not a close fit to the data: (χ^2=1273.33, df=655, p<.001); CFI= .90; RMSEA= .06. A chi-square difference test however indicated this model was not a significantly better fit than model 1 (χ^{2diff}=86.75, df=18, *p*<.001). Therefore, Model 1 was retained.

Findings presented here support a 42-item non-hierarchical model of resilience (see Figure 4.1) consisting of eight factors: 1 (*psychological capital*), 2 (*family cohesion*), 3 (*bounce back ability*), 4 (*self-efficacy*), 5 (*hardiness*), 6 (*social resources*), Factor 7 (*planned future*), 8 (*ego-resiliency*).

These findings partially confirm findings from Part One as support was found for an eight-factor model but not for a hierarchical model. Factor 9 was removed from the model as this factor resulted in a non-positive covariance matrix. Overall, findings suggest a non-hierarchical model representing eight interrelated resilience factors that could be involved in the resilience process but not necessarily represent a *resilience* construct *per se.*

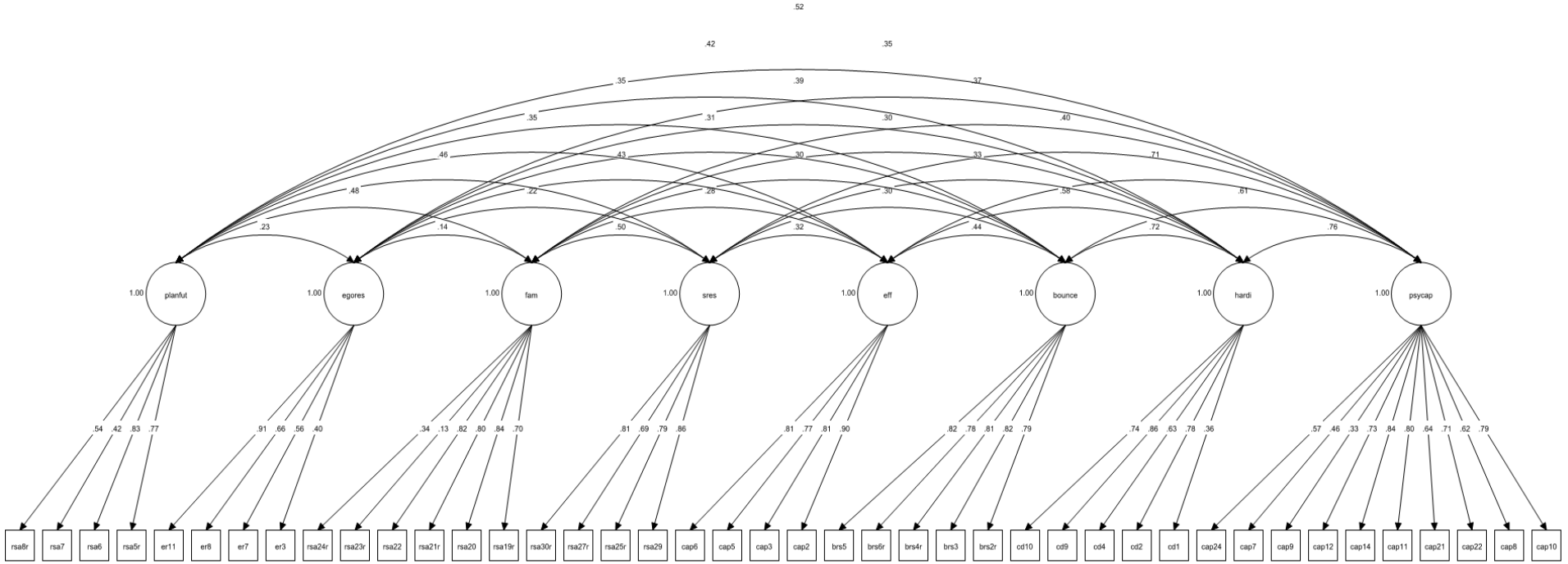


Figure 4.1: Confirmatory Factor Analysis: 8F model

4.6 Discussion

The primary aim of this chapter was to understand how existing measures of resilience are operationalising the theoretical construct of *resilience* through the joint factor analysis (JFA) of five resilience measures (BRS, CD-RISC-10, ER-89-R, PCQ, RSA). EFA results in Part One found support for a hierarchical model with five first-order and two second-order factors. However, results of a single exploratory investigation are inconclusive because they capitalize on chance or may not generalize to samples outside the one under investigation (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Therefore, a CFA using a second sample was performed in Part Two of this chapter to confirm the EFA findings from Part One. Findings from the CFA rejected the presence of a hierarchal resilience model (Model 2) and found support for Model 1, which represented an eight-factor (non-hierarchical) resilience resource (8FRR) model. Six of the eight factors were related to intrapersonal resources (*psychological capital, bounce back ability, self-efficacy, hardiness, planned future,* and *ego-resiliency*) whilst the remaining two process were indicative of interpersonal resources (*family cohesion* and *social resources*). The 8FRR model is operationalised as a 42-item resilience questionnaire and when used in the following two empirical chapters (Chapter 5 and 6) will be referred to as the eight-factor resilience resource questionnaire (8FRRQ).

Findings from the present study suggest that resilience may be best conceptualised as a set of resources that may be associated with the process of 'bouncing back' from adversity rather than a *resilience* construct comprised of a static set of factors. There are two reasons for making this claim. Firstly, in Part One of the current study, results from an EFA showed minimal item redundancy. That is, when measures were jointly factor analysed the pattern of item cluster showed little evidence of overlapping item content across measures. This finding supports criticisms in the resilience literature that there is little agreement on how to best operationalise resilience (Davydov et al., 2010; Luthar et al., 2000; Windle, 2011). A possible interpretation of this finding may be that these different approaches to measurement are indicative of different resources associated with the process of positively adapting to challenges (i.e. resilience). Second, findings from Part Two of this study explored the possibility of a higher order theoretical *resilience* construct, however results from chi-square difference tests showed that a non-hierarchical model fit the data significantly better than a hierarchical model of resilience. It is acknowledged that the results of the CFA may be due to sampling error, however it is tentatively concluded that the 8FRR model identified in the present study may represent psychological resources associated with resilience rather than representing a global *resilience* construct. This finding is consistent with Rutter (1996) who

argues that there can be no universal resilience factors because specific contexts interact with individual traits (Silberg et al., 2001) thus negating the possibility of identifying any universal resilience factors. It is also possible that each resource comprising the 8FRR model is simply a reflection of the divergent theoretical orientation adopted by respective scale authors.

Another possible explanation of this finding is that the resources identified in the 8FRR model may represent predictors of resilient functioning such as those identified in Schetter and Dolbier's (2011) taxonomy of resilience resources (see section 1.1.2.2). Indeed, as shown in Table 4.7, it is possible to map all eight resources from the 8FRR model onto three of Schetter and Dolbier's (2011) six resource categories: 1) *psychological capital, planned future,* and *hardiness* map onto the personality/dispositional resource category; 2) *ego-resiliency, self-efficacy,* and *bounce back ability* map onto the ego-related resource category; and 3) *family cohesion* and *social resources* map onto the interpersonal and social resources category. The taxonomy identifies resources that an individual may possess or access, that operate at multiple levels of analysis (e.g. intrapersonal, interpersonal, and sociocultural). Schetter and Dolbier's (2011) resilience resource framework is a content taxonomy that provides a wide array of person-situation and social-cultural resources associated with resilience. It is therefore possible to draw on resources from this content taxonomy to test theoretically derived hypothesised linkages between resources. For example, testing whether particular resources or combinations of them become stronger or weaker as a function of prior experience in confronting earlier stressors (Bonanno et al., 2010; Rutter, 2006).

Table 4.7: Mapping of 8FRR model onto Taxonomy of Resilience Resources (Schetter & Dolbier, 2011)

Taxonomy of Resilience Resources	8FRR Model
Personality and dispositional resources	*Intrapersonal resources*
Optimism Hope Positive affect Personality traits Hardiness Goal oriented disposition	Hardiness Planned future Psychological capital*
Self and ego-related resources	
Self-efficacy Self- control Personal agency Ego strength Mastery	Self-efficacy Ego resiliency Bounce back ability
Interpersonal and Social Resources	*Interpersonal resources*
Social network Social connectedness Social cohesion (work, family)	Social Resources Family cohesion

* *comprises hope, optimism, resilience subscales*

In sum, it may be possible that the current operationalisation of resilience may be best understood in terms of resources that are associated with resilience rather than universal factors comprising a *resilience* construct. The emergence of an 8FRR model consisting of both interpersonal and intrapersonal resources suggests that a range of different resources may be implicated in the process of positive adaptation to ongoing stressors or adversities (i.e. resilience). The implications of this finding are discussed next.

4.6.1 Implications

There are several implications for research and practice based on findings from the present study. The first theoretical implication relates to explaining how the findings of this study may be explained using an integrated resource theory such as Hobfoll's (1989) Conservation of Resources theory (COR), which was described in Chapter 1 (section 1.1.3.5). The second research implication is a methodological one and relates to increasing the precision of existing approaches to the measurement of resilience. These implications are discussed next followed by practical implications, study limitations, and future research directions.

4.6.1.1 Conservation of Resources Theory (COR)

To begin with, although the 8FRR model could be mapped onto Schetter and Dolbier's (2011) taxonomy of resilience resources, it represents a content taxonomy that describes resilience resources rather that explains possible resilience promoting mechanisms. One such theory that moves beyond a simple content taxonomy of resources and proposes hypothesised relationships between stress buffering resources is Hobfoll's (1989) COR theory, which has become a major explanatory theory for understanding stress processes at work (Bonanno et al., 2007). Inherent in COR theory is the idea that people are adaptive and use what resources they have to solve challenges and obtain their goals (Seligman & Csikszentmihalyi, 2000). Environmental circumstances often threaten or cause a depletion of people's resources, which may threaten people's status, position, economic stability, basic beliefs, or self-esteem (Hobfoll, 1989). COR theory supposes that resources are valued because they enable the preservation of other resources that will improve chances of successful adaptation against future challenges.

According to COR theory there are four kinds of resources whose loss and gain result in stress or well-being respectively: 1) *Object resources* refer to material resources such as socio-demographic variables (e.g. financial security, poverty), which have been shown to be important predictors of stress resistance (Hobfoll & Shirom, 2001); 2) *Conditions* are resources that are highly valued such as personal relationships, marriage, work status, and recognition for work performance (Pearlin, 1982); 3) *Personal Characteristics* resources are traits and abilities that influence environmental appraisal such as seeing challenging events as predictable and opportunities for growth. This group of resources includes the effect of social support in supporting positive self-identity, self-efficacy, optimism and stress tolerance (Cohen & Wills, 1985; Pearlin, 1982); 4) *Energies* is a resource category typified by resources such as time and knowledge. These resources aid the acquisition of further resources. As an example, if an individual was unemployed, resources would be employed in establishing social, community, or professional networks to increase chances of gaining employment and therefore increasing financial or *object resources* (Wellman, 1992).

Of all the resource categories, the *personal characteristics* set of resources is most consistent with the resources identified in the 8FRR model. This perhaps reflects the emphasis on self-report assessment of individual characteristics found in all five measures analysed in this study. *Personal characteristics* resources refer to individual traits and skills that aid stress resistance (Hobfoll, 2012). For example, Factor 5 *(hardiness),* one of the eight factors identified in the 8FRR model, refers to the ability of an individual to reinterpret threats as

challenges (Kobasa, Maddi, & Kahn, 1982; Kobasa, 1979). This characteristic helps individuals focus on what they might gain, instead of what they might lose, in light of challenges.

Resources in the *personal characteristics* category are thought to remain conceptually distinct yet are often highly correlated (Luszczynska & Cieslak, 2005). Indeed, Factor 5 *(hardiness)* (CD-RISC-10 items), Factor 1 *(psychological capital)*, and Factor 4 *(self-efficacy)* (PCQ items), were found to be highly correlated in the CFA analysis; Factor 5 *(hardiness)* and Factor 1 *(psychological capital)* had a correlation of r=.74, whilst Factor 4 *(self-efficacy)* and Factor 1 *(psychological capital)* had a correlation of r=.72. Hobfoll (1989) posits that the strength of relationships between *personal characteristics* resources indicate that they may be developing together and strengthen an individual's resource pool. Whilst no high correlations were observed between the other five factors in this particular sample, significant low to moderate correlations (ranging between r=.15 and r=.50) were observed.

Two factors in the 8FRR model, Factor 6 *(social resources/competence)/competence* and Factor 2 (*family cohesion*) comprised of items from two subscales of the RSA are worth highlighting in the context of COR resource theory. Normally, social support is seen as a key mediating variable in the resilience process (Wilks & Croom, 2008), however in COR theory a distinction is made between social support being both a beneficial and detrimental resource. For example, social support is considered beneficial so long as it is perceived adequate and is suited to the needs of a given situation (Cohen & Wills, 1985; Hobfoll, 2012). For example, support in times of crisis from a friend who encourages drinking alcohol as a coping strategy may not provide adequate support for someone looking for ways of dealing with a highly stressful workplace event. Consequently, social support is seen as harmful if an individual's perception of that support is considered inadequate or is unwarranted relative to a specific situation (Hobfoll & London, 1986; Riley & Eckenrode, 1986). Thus, social support in COR theory is considered beneficial if it is *perceived* as social support, irrespective of whether it is available to the individual.

COR theory provides a useful framework with which to understand how some resources may potentially counteract the effects of resource losses as a result of a person's interaction with their environment. Implicit in COR theory is the interactionist view that the interdependence of personal and situational factors facilitate the prediction of behavioural responses to adversity. This provides researchers with an opportunity to differentiate the optimal resources required to meet specific environmental demands. The research implication for the way

resilience is measured is that it may be useful to shift the focus of assessment efforts away from trying to measure resilience as an all-encompassing construct comprised of a set of relatively stable factors, toward a dynamic, context specific set of resources. In sum, COR is a resource theory that is capable of explaining possible resilience processes through a range of resource interactions that result from person-situation interactions. This approach is consistent with interactionism (Endler & Edwards, 1986; Murtha et al., 1996) and may be a suitable theoretical framework with which to guide future resilience measurement endeavours.

A second theoretical implication of this study is that it highlights the over-reliance on the assessment of individual characteristics due to the use of self-report scales. The measures examined in the present study explain variance associated with resilience resources irrespective of the situation in which they may be found. Therefore contrary to interactionist measurement paradigms, between-person variance is explained at the expense of within-person variance (see Endler, 1988; Murtha et al., 1996). What is lacking at present is information in the understanding of *how* resilience occurs and in *what* situations. An opportunity therefore exists for researchers to identify alternatives to self-report methods using interactionist methodologies that focus on the assessment of resilience as a person-in-context phenomenon. One such method that may be a useful avenue to explore is the use of the situational judgement test (SJT) method (Motowidlo & Beier, 2010). SJTs have been used in high stakes settings to measure a range of interpersonal skills (e.g. Patterson et al., 2012). In these instances, the SJT has been used to complement other assessment methods with promising results (see J. A. Weekley & Ployhart, 2006). Due to the focus on situational judgment, SJTs may provide an opportunity to explain variance above and beyond between-person variance often captured by the self-report method. It is possible that methods capable of examining individuals' responses to adversity in clearly defined situations may offer researchers ways of increasing the validity and reliability of existing resilience measures. Thus, the SJT method could be used as a complimentary method of measurement rather than a substitute for the self-report method which will be explored further in Chapter 6 of this thesis.

The theoretical implications raised in this discussion suggest that there are opportunities for the advancement of theory and method in relation to the way resilience is currently conceptualised and measured. In addition to this, two implications for practice can be noted.

First, the 8FRR model identified in the present study which is operationalised as a 42-item eight factor resilience questionnaire (8FRRQ) requires extensive additional validation in a

range of samples. However, findings suggest that the 8FRRQ has reasonable psychometric properties and it is currently the only model that provides a synthesis of published resilience measures. Thus, it may be useful in practice to examine the relationship between available resilience resources and relationships with performance, employee engagement, and organisational citizenship behaviours.

Second, practitioners could restructure their own resilience surveys along the dimensions uncovered in the 8FRR model. This would allow practitioners to use an empirically derived synthesis of resilience questionnaires comprised of items provided by scales' original authors. Relatedly, the 8FRR model could provide a broad framework with which to inform resilience interventions. It is possible that each of the eight resources could comprise short individual skill sessions that cover topics such as how to harness and establish social support networks in the workplace. These sessions could be delivered in a modular format in order to reduce costs associated with lengthy interventions.

The final part of this chapter highlights limitation of the present study and possible avenues for future research. These are discussed next.

4.6.2 Limitations and Future Directions

A wider range of measures could have provided a more comprehensive analysis, however restrictions were placed on the author with regards to the amount of time it would take for participants to complete the questionnaire. Nonetheless, five of the most well validated measures identified in the peer-reviewed literature identified in the previous chapter (Pangallo et al., in press; Windle et al., 2011) were chosen to increase the utility of findings for both practitioners and researchers. Other measures were considered, however a review of content and dimensionality in Chapter 3 showed that many of the underlying dimensions of resilience were captured across the five selected measures chosen for this study.

It is acknowledged that a more comprehensive measure of well-being could have been used, however the World Health Organization Wellbeing Index (WHO-5) was selected due to practical time constraints. Additionally, the WHO-5 has performed better than two other longer questionnaires (9-item Brief Patient Health Questionnaire and 12-item General Health Questionnaire) as a depression screening tool (Henkel et al., 2003). The WHO-5 therefore seemed to be a parsimonious and valid measure of well-being for use in the present study.

With regard to previous criticisms that resilience is a construct that may not be accurately measured (Kaplan, 1999; Luthar et al., 2000), this study makes an important contribution to the literature by synthesizing existing measures and identifying opportunities for improving the way resilience is measured. Further research is required to determine the relative advantage of using multi-measure approaches over mono-method approaches. This may lead to increases in explained variance in the assessment of resilience.

Opportunities also exist for measures that can differentiate between events of varying durations (short, medium, and long-term) and antecedents (resource depletion, daily hassles, acute stress, and traumatic events). Measures capable of assessing the effects of adversity on well-being should also be evaluated at different time points to understand resilience trajectories relative to context severity (Bonanno & Diminich, 2013; Davydov et al., 2010).

Finally, across a number of indices, the fit of the eight-factor model was borderline. Therefore, the structure of the eight-factor model should be re-examined in future research. The aim of this study was not to develop a resilience meta-scale that would tap into every resilience resource. Instead a ‘‘working example’’ of a resilience resource measure was developed that could be used to inform other research.

4.6.3 Conclusion

The overarching research question that guided the studies in this chapter asked how resilience is currently being operationalised. An empirical synthesis of published measures of resilience was therefore presented, which highlighted the disparate approaches to the development of resilience measures. In short, there was little item redundancy across measures which resulted in an eight factor model of resilience resources. Implications of this study suggest that it may be worth reconceptualising resilience as a series of resource interactions (consistent with COR theory) rather than as a construct *per se*. Therefore, for the purposes of clarity in the context of the current research programme, the referent term *resilience* will be used to describe a dynamic set of resources that may be drawn upon to facilitate the process of positive adaptation or ‘bouncing back’ from an adverse event or ongoing stressors.

The next chapter aims to triangulate findings from the present study using a qualitative method of data collection. By comparing findings from the present study with those that emerge from the next study, information will be gathered to assess whether existing resilience resources can be generalized to different contexts such as the palliative care environment. Thus, the 8FRR model identified here will be used in the next study in a template analysis of interviews

with palliative care workers. Results from the template analysis will provide information about the way in which resilience is operationalised by palliative care workers and lead to the identification of domain specific resilience resources.

Chapter 5: Exploring resilience in palliative care workers: a template analysis

5.1 Introduction

Given the lack of consensus in the resilience literature, Chapter 4 sought to provide an empirical rather than descriptive synthesis of self-report measures of resilience. Findings from a joint factor analysis of resilience measurement scales showed that each measure assesses resilience in a different way resulting in an eight-factor resilience resource (8FRR) model. Of the eight resilience resources identified, six resources related to intrapersonal resources (*psychological capital, bounce back ability, self-efficacy, hardiness, ego-resiliency, and planned self*), whilst the remaining two resources were associated with interpersonal resources (*family cohesion and social support*). The aim of the present chapter is to conduct a template analysis to explore the extent to which the resources identified in the 8FRR model generalize to the palliative care environment. Using the 8FRR model as a coding template, it will be possible to examine the degree of congruence between the quantitative operationalisation of resilience that resulted from the joint factor analysis of resilience measurement scales in Chapter 4, and operationalisation of resilience from the perspective of the palliative care worker. As this study was exploratory no formal hypotheses were set. Instead, the following research question was posed: *To what extent are resilience resources identified by palliative care workers consistent with the eight-factor resilience resource model?* This chapter begins by outlining the study rationale, before moving on to present an interview-based study conducted with clinical staff working in a palliative care environment.

5.1.1 Study Rationale

As discussed in previous chapters (3 & 4), the assessment of resilience is rarely measured relative to the demands of a specific situation. Rather, it is assessed as an individual trait despite empirical evidence to the contrary (Luthar et al., 1993). This may be either because resilience has traditionally been conceptualised as an individual characteristic (e.g. Block & Block, 1980) or because resilience has been, for the most part, measured using quantitative methods, which naturally lends itself to the measurement of traits. In order to move beyond the restrictions of using a quantitative approach to the study of resilience the current study adopts a qualitative method to identify salient resources associated with resilience in palliative care work. Understanding resilience from the *participant perspective* gives a relatively unconstrained account of behaviours associated with adapting to workplace stressors. Such accounts may reveal important resources that are critical to understanding resilience in providing end-of-life care and may be used to inform and refine approaches to the way in

which resilience is currently operationalised and measured. Further, a qualitative method may help in determining whether palliative care workers' accounts of resilience can be mapped onto the two 'level-one' codes (intrapersonal and interpersonal resources) comprising the 8FRR model identified in Chapter 4.

5.1.2 Qualitative interviews

Self-report quantitative measures such as questionnaires often identify generalized themes or categories to describe a vast array of resilience promoting behaviours. For example, certain quantitative measures identify social support as an important predictor of resilience (e.g. Hjemdal et al., 2011), yet little is known about the type, frequency, or quality of social support. By using qualitative research it is possible to delve into findings from quantitative methods to promote a deeper understanding of how psychological phenomena are experienced in specific contexts (Lincoln & Guba, 1990). Indeed, in other research (e.g. Randall, Griffiths, & Cox, 2005) qualitative interviews have highlighted important mechanisms which may not have been identified using quantitative methods alone. A qualitative data collection method is therefore used in the present study.

The present study begins by describing the interview process that was conducted with palliative care workers to identify resources associated with resilience. Subsequently, a description of the behavioural indicators extracted from interviews is presented. This is followed by a detailed overview of how behavioural indicators were coded using the template framework based on the 8FRR model identified in the last chapter (Chapter 4). The chapter concludes with a discussion of findings including study implications, limitations, and avenues for future research. Using template analysis it is possible to understand whether behaviours which palliative care workers associate with resilience are consistent with resources identified in the 8FRR model. Therefore, each of the eight resources from the 8FRR model will comprise the *a priori* codes for the present study.

5.2 Method

5.2.1 Participants

The present study took place within two hospices in the South East of England. Participants were recruited through a research officer who was responsible for research activities across various satellite hospices in the UK South East region. Thirty-six clinicians (12 of which also worked in acute wards) were interviewed over a four-week period. Of the 36 staff interviewed, five were male, which is representative of the hospices from which employees were sampled

according to data held by the hospice research unit. Ages ranged from 28 to 60 years (mean age 44 years, S.D. 14.6 years). Tenure ranged from 6 years to 28 years (mean 12 years). Participants comprised of palliative care workers in clinical service roles including: nurses (n=12), consultants (n=9), mental health workers (n=8), social workers (n=5), and occupational therapists (n=2). In accordance with requests from the hospice ethics committee[11], no additional demographic information was gathered as this was deemed not relevant to the study.

5.2.2 Procedure

Participation in the study was voluntary. Approval was gained from the university and hospice ethics committees. Participants were sampled from a hospice that was not included in the previous CFA conducted in Chapter 4 to avoid bias from having taken part in the survey. Hospice clinical leads invited 152 clinical staff to participate in interviews lasting approximately 60 minutes. It was stipulated that only participants who devoted 70% or more of their daily workload to end of life care were eligible for interview. Thirty-six participants responded to the invitation to participate in the survey (24% response rate) and agreed to take part. All participants were interviewed face-to-face at one of the two hospice sites. Before starting the interview, participants were asked to provide the researcher with their consent forms. Following this the format of the interview was explained fully.

All participants were informed at the beginning of the interviews that any information which could identify them would be kept in strict confidence, so as not to compromise them in any way. Remembering that much of the subject matter to be discussed was very personal, confidentiality was seen as crucial not only in terms of making participants more comfortable during interviews, but in doing so, maintaining the integrity of the results. Also, in cases where specific facts involving the individual or hospice were believed to jeopardize either in any way, details were omitted. Interviewees were also informed that their interview data would be kept completely confidential in line with the Data Protection Act (1998) and that they were free to withdraw from the study at any time.

Participants were informed that the interviews would be digitally recorded and once transcribed (without identifying information) would be destroyed. Participants were asked to sign a consent form to indicate that they understood this information and agreed to take part (see Appendix 2 for the consent form and Appendix 3 for the information sheet). Before the

[11] The hospice ethics committee was responsible for research in both hospices as the two hospices used in the present study belonged to a larger palliative care organisation

interview started participants were also given contact details of employee assistance counsellors to debrief or discuss distressing issues that may occur from interview discussions. The duration of interviews, on average, was 60 minutes each, with the shortest interview being 45 minutes and the longest being 70 minutes. Interviews were transcribed verbatim by the author within 72 hours following the interview.

5.2.3 Interview schedule

A semi-structured interview incorporating a critical incident technique (CIT) methodology was adopted for all interviews (Flanagan, 1954). Chell (2004) defines the CIT methodology as "a qualitative interview procedure which facilitates the investigation of significant occurrences (events, incidents, processes or issues), identified by the respondent, the way they are managed, and the outcomes in terms of perceived effects" (p 48). Accordingly, Chell (2004) argues that the CIT is a suitable methodology when the objective of the research is to explore an incident from the perspective of the individual, taking into account cognitive, affective and behavioural elements. Thus, questions broadly related to positive and negative examples of how participants had dealt with adversity in the workplace; what behaviours they believe helped them through the event; what obstacles (if any) stood in their way; and what role other people played in the resilience process (a full interview schedule can be found in Appendix 4; and a full transcript can be found in Appendix 5). Where appropriate, the thesis author clarified his understanding of incidents, as such, the interview schedule was used flexibly and participants were always encouraged to elaborate on their answers and provide further examples where possible.

The proposed questions were first piloted on a subset of palliative care workers (n=3) from the research unit in the participating hospices. Based on feedback, no modifications were made to the interview questions. All 36 participants were interviewed using the interview schedule in Appendix 4. One week prior to the scheduled interviews, participants were sent the interview questions to encourage reflection on prior experiences in the workplace.

The author personally interviewed all participants. During the interviews, in instances when participants spoke in general terms about resilience, they were prompted to give a specific example of an incident to illustrate their point. Within each critical incident, participants were asked to describe briefly what had happened during a specific example and their behaviours in dealing with the situation to reach a resilient or non-resilient outcome. Examples questions and prompts are given below:

- Can you tell me about a time when you were resilient at work?
  Prompts (example): What exactly did you do (rather than say)? Was there anything about the situation that made it easier for you to be resilient?
- Can you tell me about a time when you really struggled to deal with a major stress or adverse event at work and did not recover so quickly?
  Prompts (example): What was it about the event that made it hard to recover?

5.2.4 Analysis

Interview data were analysed according to the guidelines for template analysis (Crabtree & Miller, 1999; King, 2012). A template is a coding scheme within which codes are arranged in a hierarchical fashion depicting relationships between themes, with the broadest themes, or first-level themes, at the top, and more specific second or third-level themes descending from such. The analysis usually begins by identifying *a priori* themes relevant to the research question. *A priori* themes can be drawn from the literature or previous research (Crabtree and Miller, 1999). In the present study, *a priori* themes were drawn from the empirical findings (8FRR model) from Chapter 4. King (2004, 2012) warns that *a priori* themes should be seen as "provisional" and "open to modification" following successive readings of the data. Thus, template analysis was selected as the analytical technique to code all 36 CIT interview transcripts. Figure 5.1 represents this process.

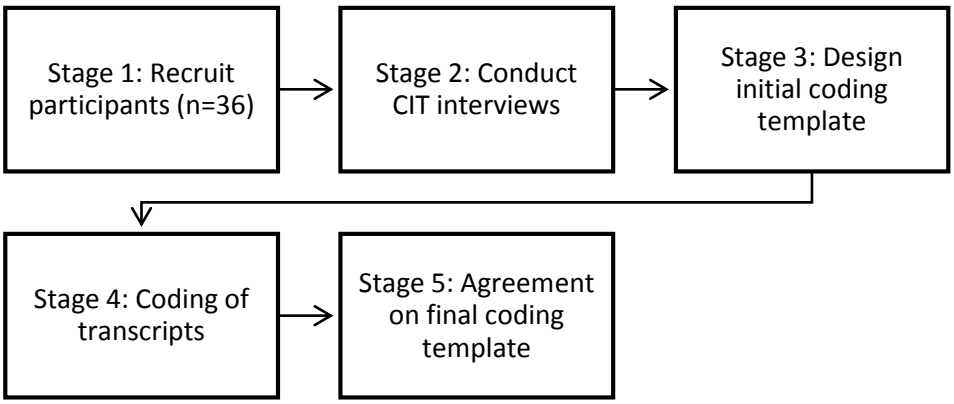


Figure 5.1: Process of conducting and coding 36 CIT interviews using template analysis

Each interview transcript was deconstructed into meaningful segments of text which conveyed clear meaning about the behaviours associated with resilience. The thesis author (who had conducted the interviews) and another occupational psychologist (CB) worked together to

extract relevant text from the data. Using highlighter pens, examples of positive and negative behavioural indicators were extracted from interview transcripts. A total of 1355 behavioural indicators were identified in total. Each indicator was then transferred onto cards and the two researchers coded the behavioural indicators using the initial coding template described in the next section. According to King (2004) it is possible to assign indicators to more than one code which is referred to as parallel coding, thus the two researchers remained open to this possibility.

5.2.4.1 Initial coding template

A template of eight level-two codes within each of the level-one codes comprised the initial coding template (see Figure 5.2) representing the 8FRR model from Chapter 4. A brief description of each code is outlined below:

1. *Intrapersonal resources* are dispositional resources consisting of relatively stable individual traits including:
    1.1. *Psychological Capital* is comprised of three lower order constructs: *hope, resilience* and *optimism*. This theme relates to having an optimistic disposition, success reaching work goals, and an ability to handle challenges at work.
    1.2. *Bounce back ability* refers to the ability to bounce back and recover from setbacks in life.
    1.3. *Self-efficacy* refers to confidence in one's ability to reach goals and perform required tasks.
    1.4. *Hardiness* describes the ability to: see life's challenges as controllable; face stressful events rather than avoid or deny them; discern what can be done to turn adversity into opportunity; and attain goals to achieve positive outcomes.
    1.5. *Planned future* referred to the ability to plan and realise goals and have confidence in decision-making.
    1.6. *Ego-resiliency* is the ability to regulate impulsive behaviour, and to have a general disposition toward novel experiences.
2. *Interpersonal resources* are resources that include having a strong support network (work/personal) and social adeptness.
    2.1. *Family cohesion* represents the degree of family support available to the individual and familial closeness.
    2.2. *Social resources* represent the availability of supportive relationships from friends and significant others, and ability to adeptly manage social relationships

Code	*Descriptor*
1	**Intrapersonal resources**
1.1	Psychological Capital
1.2	Bounce back ability
1.3	Self-efficacy
1.4	Hardiness
1.5	Planned Future
1.6	Ego Resiliency
2	**Interpersonal resources**
2.1	Family cohesion
2.2	Social resources

Figure 5.2: Initial coding template

5.2.4.2 Coding

The coding of data was an iterative process of coding, reliability assessment, codebook modification, and recoding (Huberman & Miles, 2002) and is depicted in Figure 5.3. Each iteration will be called a *coding round*. The initial coding round was conducted by the thesis author (AP) and an independent psychologist (CB) who is familiar with the resilience literature. For this initial coding round a subset of randomly chosen interview transcripts (n=10) were coded to assess the degree of coding variation between coders. A brief illustration of the coding process is given for the following extract from a participant who was talking about a time when a young man was abandoned by his family at the end of his life due to his history of drug addiction:

"It was emotionally draining, I started to see things in a negative light [1.1: psychological capital – negative indicator] but I had confidence in my abilities [1.3: self-efficacy – positive indicator] and knew I had the support of my colleagues [2.2: social resources]

Crabtree and Miller (1999) suggest that reliability is strengthened in earlier versions of the template through inter-rater discussions which reveal difficulties or discrepancies in interpretation. Therefore, following the initial coding round CB and AP met to discuss problems with applying codes, code definitions, and inclusion/exclusion criteria and to evaluate intercoder reliability. Reliability was calculated following Cohen's (1968) index: $\kappa = (p_a - p_c)/(1-p_c)$, where the proportion of agreed judgments (p_a) minus proportion of chance agreements (p_c) are divided by 1 minus the proportion of chance agreements (p_a). The following guidelines proposed by Cicchetti (1994) were used to interpret reliability estimates:

.75-1.00 = *excellent*; .60–.74 = *good*; .40–.59 = *fair*; and < .40 = *poor*. The Kappa's coefficient of agreement following the first coding round was κ=.75, which indicated *good* reliability. As depicted in Figure 5.3, a second round of coding was performed on all 36 interview transcripts to assess whether the existing template needed modification to accommodate emergent themes and to assess intercoder reliability. The Kappa's coefficient of agreement for the second round of coding was much higher κ=.84, which indicated *excellent* reliability. Of particular importance was the addition of a first-level code comprised of two second-level codes that emerged from the interview data, which is elaborated upon in the results section of this study.

To address the issue of possible *interpretive convergence* where repeated discussions about the texts can cause interpretations to converge (Hak & Bernts, 1996), an additional coder was recruited (LZ) who was not involved in any other part of the present study. It has been argued that the more coders agree on the coding of text, the more the codebook can be considered a reliable instrument for measuring the thematic content of a set of data (Hruschka et al., 2004). As such, the third independent coder (LZ) reviewed all 36 interview transcripts. Intercoder reliability between the initial coders and LZ was *excellent* (κ=.82). The main point of difference was the names given to the codes rather than the actual coding of behavioural indicators. These were discussed between the three coders to reduce intercoder variance that may result either from random variation between coders or from systematic differences in the coders' interpretive frameworks (Murphy & DeShon, 2000). In the end, the underlying meanings of the codes and behavioural indicators that generated them were resolved through discussion until a consensus was reached on the final coding template. Figure 5.4 displays the final coding template with Kappa values of agreement (between AP/CB and LZ) for each of the first-level codes (includes average of second-level codes) ranging from κ=.78 to κ=.89, indicating *good* to *excellent* levels of reliability (Cicchetti, 1994).

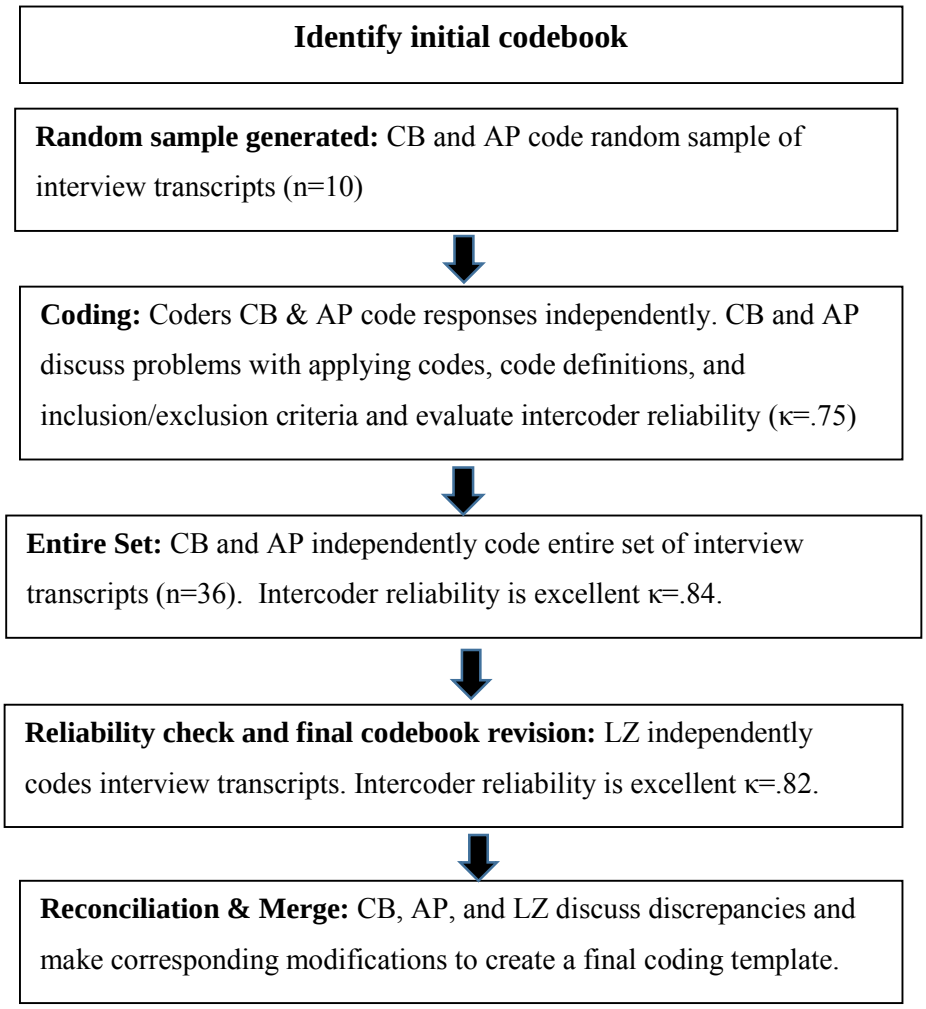


Figure 5.3: Coding process (Hruschka et al., 2004)

5.3 Results

King (2012) identified three approaches to presenting results: 1) A set of individual cases, followed by a discussion of differences/similarities between cases; 2) An account structured around the main themes identified, drawing illustrative examples from each transcript (or other text) as required; and 3) A thematic presentation of the findings, using a different individual case study to illustrate each of the main themes.

This study adopted features of the second approach—accounts were structured around themes to gain clarity around the consensual behaviours associated with resilience in the palliative care context. The results presented here are descriptive, focused on identifying and describing what kinds of behaviours were discussed by the 36 palliative care workers. Extracts were

selected on the basis that they were the most frequently discussed by participants. All extracts are quoted in italicised text, followed by the occupation of the participant in brackets.

A total of 1355 behavioural indicators describing positive and negative exemplars of behaviours associated with resilience were included in the final coding template. The final template is presented in Figure 5.4 and includes kappa values for intercoder agreement for each of the level-one codes (comprises average across level-two codes). Results from the template analysis led to two modifications of the coding template. This first modification resulted in the deletion of three level-two codes from the intrapersonal resources level-one code: bounce back ability' (1.2), 'planned future' (1.5), and 'ego-resiliency' (1.6). The second modification resulted in the addition of a level-one code (procedural knowledge [3.0]) which comprised two level-two codes (job knowledge [3.1] and experience [3.2]). These results are presented in more detail next, commencing with codes developed within each of the level-one codes associated with 'intrapersonal resources' (1), followed by 'interpersonal resources' (2) and concluding with the emergent higher order theme, 'procedural knowledge' (3).

Code	*Descriptor*
1	**Intrapersonal resources (κ=.84)**
1.1	Psychological Capital
~~1.2~~	~~Bounce back ability~~
1.3	Self-efficacy
1.4	Hardiness
~~1.5~~	~~Planned Future~~
~~1.6~~	~~Ego Resiliency~~
2	**Interpersonal resources (κ=.89)**
2.1	Family cohesion
2.2	Social resources
3	**Procedural knowledge (κ=.88)**
3.1	Job knowledge
3.2	Experience

Figure 5.4: Final coding template with kappa values

5.3.1 Intrapersonal resources (1)

Within this portion of the template, the most significant modification made was the deletion of three level-two codes: 'bounce back ability' (1.2), 'planned future' (1.5), and 'ego-resiliency' (1.6). The 'bounce back ability' code (1.2) was deleted as it was not possible for participants to cite the ability to bounce back as part of the resilience *process*; the ability to bounce back from adversity was a consequence of the behaviours being discussed in the interview, so this theme could not be coded as a resource associated with resilience. Two further codes, 'planned future' and 'ego-resiliency' (1.5 and 1.6) were also deleted as interviewees did not discuss behaviours related to these codes in interviews.

Three of the six intrapersonal factors (*psychological capital, self-efficacy, and hardiness*) originally identified in the 8FRR model emerged as salient resources associated with resilience in the palliative care setting. Considerable psychological research has demonstrated that intrapersonal resources such as psychological capital (Luthans et al., 2006), optimism (Carver et al., 2010), and hardiness (Kobasa et al., 1982) predict positive health outcomes. It has been proposed that this category of resilience resources consists of relatively stable individual traits that develop over the life course, that may have genetic components, and that remain constant over years but may vary in expression across situations (Tedeschi & Calhoun, 2004).

5.3.1.1 Psychological capital (1.1)

Psychological Capital (PsyCap), as put forward by Luthans, Youssef, et al., 2007 (p.3), refers to a construct derived from four factors: self-efficacy ('having confidence to take on and put in the necessary effort to succeed at challenging tasks'); hope ('persevering towards goals and

when necessary redirecting paths to goals'); optimism ('making a positive attribution about succeeding now and in the future'); and resilience ('when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success'). Although PsyCap is distinct from positive affect it could be argued that there is some conceptual overlap with positive affect, particularly with regards to optimism and resilience dimensions. Research on positive affect has indicated the importance of positive psychological resources as stress buffers, and in producing positive well-being and optimal health (Fredrickson & Branigan, 2003; Richman, Kubzansky, Maselko, Ackerson, & Bauer, 2009; Tugade, Fredrickson, & Barrett, 2004). Thus, PsyCap may play an important role as stress buffering components of positive adaptation to workplace challenges.

Examples consistent with the PsyCap construct were identified by interviewees. For example one participant spoke about her ability to do her job despite challenges, which was indicative of the PsyCap 'resilience' sub facet: "*I am a tough person and adapt to challenges. I often look back and see the positives of the situation. It helps me grow as a person" (consultant).* Another interviewee's experiences reflected the 'hope' sub facet, which according to Luthans et al., (2007) refers to the idea of goal perseverance: *"I am completely committed to getting a positive result. I set myself a goal and I can adapt to the situation in order to meet it" (psychologist).* The PsyCap 'optimism' sub facet was perhaps the most widely cited theme: *"I like change and I'm optimistic. It helps in the really hard times" (consultant); "I always see the positives of a situation and notice the benefits of being optimistic in those really dark hours" (nurse); "I've always been a positive person. I like to see the glass half full. Especially when in reality the glass is actually half empty" (social worker); "I appreciate life and know that everything will work out fine. If I can pass this onto others when they're suffering, I know I'm doing something right" (nurse).*

It has been reported that overall PsyCap produces higher correlations with performance outcomes than its components independently (Luthans, Avolio, Avey, et al., 2007). This mechanism is attributed to psychological resource theory (Hobfoll, 2002), which states that some constructs are indicators of broader, multidimensional 'core' factors, which aid individuals in producing favourable workplace outcomes (Winkel, Wyland, Shaffer, & Clason, 2011). Participants' identification of behaviours associated with PsyCap may indicate that the role of PsyCap in managing workplace challenges can play a part in achieving positive workplace outcomes (e.g. well-being).

The PsyCap 'self-efficacy' sub facet was also cited by many participants as a critical resilience resource, however this theme is discussed separately in the next section as it was distinctly identified as a separate factor from PsyCap in the 8FRR model (see Chapter 4).

5.3.1.2 Self-efficacy (1.2)

Individuals with a generalized sense of self-efficacy have a self-belief that they have the ability to succeed in meeting specific challenges and accomplishment of goals (Bandura, 1977; Parker, 1998). Self-efficacy has been associated with increases in positive physical and emotional well-being and has been linked to stress resistance in the face of a range of challenges (Bandura, 1997; Christensen, Stephens, & Townsend, 1998). Examples of 'self-efficacy' (1.2) were given by participants when speaking about times when they had the self-belief that they could successfully deal with a challenging workplace situation. A participant describing his actions when dealing with a psychotic patient said: "*I knew I had the skills to deal with the situation. I became more comfortable and confident in how to deal with the patient. It was so incredibly sad but I knew I could handle it" (social worker)*.

There were also several participants who highlighted the importance of believing in one's own abilities when dealing with the unique demands of end of life care. Two participants provided negative exemplars to make this point: (1) *"I had a lot of self-doubt and didn't feel confident at all doing my job. I was out of my depth and knew I couldn't succeed. Without confidence in your abilities, you have no hope of dealing with a situation like that" (occupational therapist); (2) "I couldn't speak up and ask for help as I had no confidence in myself or my ability to do the job – it was a disaster – had I been more confident, I would have dealt with that situation a lot better" (Nurse).*

5.3.1.3 Hardiness (1.3)

Hardiness is a multiple-component resource model first proposed by Kobasa (1979). Personality hardiness can be identified by three components: (a) a sense of control over one's life, (b) a sense that stressors represent challenges rather than threats, and (c) a sense of commitment to face life's challenges. There is good evidence to suggest that hardiness is related to better psychological and physical functioning, in addition to the ability to more effectively withstand daily stressors (Hystad, Eid, & Brevik, 2011).

Examples of 'hardiness' (1.3) were provided by participants in relation to control. When discussing a particularly distressing incident with a patient, a psychologist said, "*I stayed grounded. There was no change in my breathing. I felt like I was one step ahead or at least on*

top of it. In control" (psychologist). Another interviewee stressed the 'challenge' component of hardiness (1.3) as being an important resilience resource: "*This was a real opportunity for me to confront this head on. I knew this would make me a better nurse and a better person. I had to look at this as a challenge not a problem" (nurse).* The third component of hardiness (1.3) was less often discussed by participants, however one participant who was talking about a very difficult case where she was unable to manage a patient's pain said: "*I knew I could make a difference if I went in there and did my best. I needed to commit to doing my job and doing it well. I had to see this as something I could do and not shy away from it" (social worker).*

In addition to these examples of positive hardiness behaviours, there were also several negative incidents discussed which were seen as obstacles to resilience. For example, one interviewee used avoidance as a strategy to deal with adversity which is a negative example of the 'commitment' sub component of hardiness (1.3), "*I try not to think about it, but I don't think that's helpful. Sticking my head in the sand is not exactly helping me commit to dealing with the situation" (nurse).* Similarly, one participant gave a negative account of when she lost 'control', '*I had no idea how to deal with the situation, I was out of my depth and out of control' (consultant).* Another participant when discussing the hardiness 'challenge' sub facet described her experience as follows: '*I could not seem to focus in that situation. I saw it as a major threat and did not see it as a challenge I could learn from – I just wanted to run away" (social worker).*

Thus far, the focus of this section has been on the presentation of results with respect to 'intrapersonal resources' (1) including 'PsyCap' (1.1), 'self-efficacy' (1.2), and 'hardiness' (1.3). The discussion now turns to 'interpersonal resources' (2) which were also the subject of many participant interviews.

5.3.2 Interpersonal resources (2)

The level-two codes of this part of the template did not require any modification. Due to the fact that palliative care workers are always working as part of a multi-disciplinary team, it is understandable that the most frequently identified behaviours recalled by participants fell within this level-one code. Nearly all participants cited various types of 'support' as critical resilience resources which was represented by two lower order codes, 'family cohesion' (2.1) and 'social resources' (2.2). Interpersonal resources include being socially integrated, having extensive social contacts, a strong social network, and perceived support. Many studies

indicate the importance of interpersonal resources in adapting positively to stressors (S. Cohen & Wills, 1985; House et al., 1985; Pietrzak et al., 2010; Taylor, 2007)

5.3.2.1 Family cohesion (2.1)

For adults, social support and meaningful relationships with at least one peer or family member are consistent with previous empirical research on resilience (Flach, 1988; Richardson, 2002; Tusaie & Dyer, 2004). Empirical studies have shown that family closeness and bonds between family members have a stress buffering effect (Berkman & Kawachi, 2000; Miller et al., 2000). These relationships provide opportunities for communication and support and are important not only in their existence, but also within the context that the individual perceives them as being sufficiently helpful (Tusaie & Dyer, 2004).

'Family cohesion' (2.1) was succinctly described by one participant as: *"the warmth of family and significant others who can help me whenever I need it" (psychologist).* This interviewee also made the distinction between family support and colleague support and made it clear that her support network consisted solely of her family members. Another interviewee spoke about the importance of family gatherings as a means of personal support: *"I have loads of family dinners. We all get together and thrash out our problems. I know they will always catch me if I fall. They have always got my back and that gives me a tremendous amount of strength" (nurse).*

Several participants described their families as sources of guidance and wisdom. One participant commented that: *"My sister is the first person I turn to when I need help dealing with something significant at work. She is smart, logical and knows exactly what to say to help me cope. Without her I'm not sure how well I'd cope with some of the situations at work" (occupational therapist).* Similarly, another participant remarked: *"When I had a major incident at work and didn't know whether I wanted to keep on working in palliative care, I went straight home to mum and dad to get some advice. They didn't tell me what to do but they knew exactly how to help me find peace with the situation and move forward" (consultant).*

5.3.2.2 Social resources (2.2)

Social resources (2.2) are protective factors that involve: social connectedness (Berkman & Kawachi, 2000; House et al., 1985); available (perceived) support (Cohen & Wills, 1985; Cundiff, Smith, Uchino, & Berg, 2013; Sarason, Sarason, Shearin, & Pierce, 1987); and high quality close relationships (Reich, Zautra, & Stuart, 2010). The presence of others who can be

confided in and whose caring is deemed important is the most salient type of social resource (Sarason et al., 1987). Individuals who have social resources have been shown to be more stress resistant, resulting in better physical health outcomes (Cohen & Wills, 1985; Vaux, 1988). Effective co-worker communication and workplace support have also been associated with a reduction of stress in palliative care workers (e.g. Searle, Bright, & Bochner, 2001); nurses, for example, are observed to have better health and job satisfaction where support groups are provided (Bradley & Cartwright, 2002).

Examples of 'social resources' (2.2) were given in both work and personal domains. Many participants cited the importance of colleague support, particularly from the perspective of nurses: *"Workplace debriefings after the incidents made all the difference" (nurse); "I needed help, so we had regular discussions and opportunities to talk about the case" (nurse); "There was an acceptance at work that nobody should handle these things alone" (nurse).*

Other participants emphasised the social connectedness aspect of the 'social resources' (2.2) theme (2.2). One participant who had been working for many years in the palliative care sector remarked: *"Even if you're hurting, yourself, and you find someone that needs your help…something you say, might help somebody else….and something they say might help you…it's critical to stay connected with others. It has always helped me to be resilient in the past" (social worker)*.

One consultant highlighted the importance of high quality relationships in relation to 'social resources' (2.2): *"As I reflected on the situation, I think having others really hold me helped me deal with the situation in some kind of way. In a way, it gave me some kind of strength. When friends and colleagues know you inside out, you can afford to be yourself and rely on them in times of need. Being that vulnerable helps you handle things in a resilient way" (consultant).*

In sum, the first-level interpersonal resources (2) code and constituent second-level codes, 'family cohesion' (2.1) and 'social resources' (2.2) were the most frequently discussed resilience resources. Virtually all participants cited family and social support as critical resources in the process of 'bouncing back' from workplace challenges. Next, interview results are presented in relation to the emergent theme, 'procedural knowledge' (3).

5.3.3 Procedural knowledge (3)

Within this section of the template, the most significant modification made to the coding template was through the insertion of two second-level codes: 'job knowledge' (3.1) and 'experience' (3.2). Participants spoke about both the importance of experience (personal and professional) and job knowledge to deal with the challenges and emotional demands of palliative care work. For example, one participant with 20 years' experience expressed the following: *"People do best in palliative care with life and on-the-job experience. You can use your experience to learn from mistakes. It makes you better equipped to deal with the emotional demands of our job" (social worker).* Another interviewee highlighted the benefits of experience with regard to self-care: *"A long time ago I would have worked myself into the ground and burnt out. Nowadays I know from experience and from learning the hard way that you have to look after yourself first" (psychologist).* This view echoed many sentiments from other participants who also emphasised the importance of experience and job knowledge, hence justifying this modification to the coding template.

Upon reflection, it became apparent that both 'job knowledge' (3.1) and 'experience' (3.2) could be conceptually linked to 'procedural knowledge' (3), which was added to the coding template as a level-one code. Motowidlo, Hooper, and Jackson (2006) suggest that procedural knowledge includes a component of general knowledge (e.g. personal or professional experiences) and specific job knowledge component that together influence workplace behaviour. The 'procedural knowledge' (3) theme has not been explicitly associated with the operationalisation of resilience in previous workplace resilience research (e.g. McLarnon & Rothstein, 2013); nor was this code part of the initial coding template (see Figure 5.2).

Motowidlo, Hooper, and Jackson (2006) suggest that procedural knowledge includes a component of general knowledge about costs and benefits of expressing various personality traits in a range of workplace situations. The authors also suggest that procedural knowledge comprises a specific job knowledge component about what types of behaviour will be effective (or ineffective) in a particular job. Drawing on Anderson's (2013) distinction between general experience and job specific knowledge, experience can be considered a subset of life-relevant knowledge that is drawn primarily from personal experience rather than formal instruction. By contrast, specific knowledge about a job is formed through the application of specific tasks that is learnt from education or explicit learning in the workplace (Koedinger & Corbett, 2006). Specific job knowledge is normally context dependent (King & Zeithaml, 2003). For instance, in a palliative care context, a consultant may train in end of life care, however this knowledge would not be applicable to paediatric health care. Hence, 'experience' (3.1) and

'job knowledge' (3.2) were seen as two distinct second-level codes and comprised the first-level code 'procedural knowledge' (3).

Examples of 'job knowledge' (3.1) were given by participants who often highlighted the negative impacts of a lack of formal training and job-related knowledge. One interviewee said, "*I could have done more to help her, but I didn't know how to do my job. I had not been on a respiratory ward before and didn't know what the protocols were…it made it more difficult for me to deal with the situation" (nurse)*. Another senior consultant referring to her lack of job knowledge said, *"This was my first consultant post. I was very green and did not have any real experience working on an acute ward. I didn't have the competence to do the job because I didn't have the knowledge or experience to deal with what was in front of me" (consultant)*. Positive examples of specific job knowledge were also given by employees, for example one social worker commented, *"I've built up a knowledge base which gives me the confidence and competence to handle any situation that I'm presented with" (social worker)*. One interviewee also said, "*At the time, I had a very good understanding of the physiology, of where it comes from, why it happens, and how you manage it – it's that stuff that helps you get through the hard times" (occupational therapist).*

The second 'procedural knowledge' (3) component, 'experience' (3.2), is characterised by general everyday experiences. Sternberg and Hedlund (2002) state that this type of knowledge is tacit because it is not readily articulated by the individual, often referred to as professional intuition or instinct. Moreover, everyday experiences lead to the unconscious acquisition of knowledge as there is no intention to learn and no awareness of learning at the time it takes place (Reber & Squire, 1994).

Participants reported 'experience' (3.2) as an important component of withstanding challenges. One interviewee commented, *"I think if I had taken that job and I had only been doing it for a year, I would not have been able to cope with the situation. You've got to have some experience of life to deal with death" (nurse).* Similarly another participant referred to life experience as important and said, *"I've done the job for eight years, [so] I suppose I had the ability to deal with that awful experience quite well. But I believe that it was also the experiences I've had in my life that helped me in that situation. I think maturity and experience goes a long way in helping you deal with the more extreme challenges around here" (consultant)*. Other participants emphasised the role of life experiences as important in dealing with workplace challenges. For example, one participant remarked, *"People do best in palliative care with life experience. You can't face the emotional demands of our work without some idea of what life's about" (nurse)*. Similarly, another interviewee stressed the resources

required for success in the palliative care environment, *"You need self-awareness, experience, maturity and other life experiences. We can't expect to be able to deal with grieving relatives if we haven't gone through a few of our own challenges in our life time" (psychologist).* These results suggest that role of procedural knowledge may be an important resource in the ability to adapt to challenges in the palliative care context.

5.4 Discussion

The study presented in this chapter has found that resilience resources identified by palliative care workers are partially consistent with the 8FRR model identified in Chapter 4. A key finding from the present study was the emergence of the 'procedural knowledge' resource comprised of 'experience' and 'job knowledge'. This discussion explores the theoretical and practical implications of this study's findings by reviewing the convergence between findings from the 8FRR model from Chapter 4 and the template analysis presented in this study. The discussion of findings focuses first on the research question for the study before moving on to briefly consider other emergent findings. The research question for this study was: *To what extent are resilience resources identified by palliative care workers consistent with the eight-factor resilience resource model?*

Five of the eight resources identified in the 8FRR model (*psychological capital, self-efficacy, hardiness, family cohesion, and social resources*) were identified as key resilience resources in the present study. The remaining three resources (*bounce back ability, planned future, and ego-resiliency*) were not discussed by participants in any significant detail and were deleted from the initial coding template. A possible explanation for this might be that the *bounce back ability* resource identified in the 8FRR model was seen as an outcome synonymous with resilience itself. It is possible that participants equated the notion of *bouncing back* with *resilience* and as such *bounce back ability* was seen as the result of effectively using resilience promoting behaviours. Whilst this explanation remains open to speculation, there is some anecdotal evidence to support this assertion. For example, when participants were asked to describe their understanding of the term resilience, several participants remarked that it signified 'bouncing back from adversity/tough times'. The remaining two resources (*planned future and ego-resiliency*) that were identified in the 8FRR model comprised of items associated with two measures designed for use in clinical populations. It is possible that these resources may have more utility in clinical settings, which perhaps restricted their relevance to an occupational context. The immediate conclusion that can be drawn from this finding is that the 8FRR model may not be an accurate representation of the resilience resources

associated with resilience in the palliative care domain; rather, five of the eight resilience resources are applicable to this sample of palliative care workers.

One of the main research implications from the previous study in Chapter 4 was that the resources identified in the 8FRR model may be explained using an integrative theory such as Hobfoll's (1989) Conservation of Resources (COR) theory. It is possible that the same research implication applies to the present study. To illustrate, the resources that emerged from the template analysis in this chapter can be mapped onto Hobfoll's (1989) Conservation of Resources (COR) theory. Table 5.1 shows how in the broadest sense, resources identified in the present study and five of the eight resources from the 8FRR model might both map onto the four higher order categories of the COR model: *objects, conditions, personal characteristics*, and *energies*. Especially relevant for the present study findings are the last three categories: *conditions, personal characteristics*, and *energies.*

- *Conditions* are resources which include family and work resources, employment, social status, and personal (romantic) relationships .The higher order theme, 'interpersonal resources' (2) maps onto this resource category due to the emphasis on interpersonal resources that are external to the individual. It should be noted that COR theory considers social support as a process (e.g. Barrera, 1986) that may lead to future resource loss or resource gains. COR theory proposes that social support increases during times of stress, however support becomes salient when it is received from valued others such as partners or confidants (Sarason et al., 1987).
- *Personal characteristic* are dispositional resources which buffer one against stress such as optimism, self-efficacy, and self-esteem. Themes relating to this category are trait characteristics represented by the higher order theme, 'intrapersonal resources' (1).
- *Energies* includes resources such as time, money, and knowledge—these resources facilitate the acquisition of further resources. Of the themes that emerged from the template analysis, 'procedural knowledge' (3) was most aligned with the *Energies* category, specifically the knowledge aspect of this resource category.

Table 5.1: Mapping of template analysis themes and five of the eight resources from the 8FRRM model onto COR model

COR model	Template analysis	8F Resilience Resources
Personal characteristics	***Intrapersonal resources***	***Intrapersonal resources***
Self esteem Positive orientation toward the world Seeing events as predictable Personality traits Positive sense of self Mastery.	Hardiness Psychological Capital Self-efficacy	Hardiness Self-efficacy Psychological capital
Conditions	***Interpersonal resources***	***Interpersonal resources***
Family and work resources Tenure, Seniority, job status Marriage/ partnerships	Social Resources Family cohesion	Social Resources Family cohesion
Object resources		
Socio demographic variables Financial security Employment	-	-
Energies		
Time Money Knowledge	Life experience Job knowledge	-

The theoretical implication of using COR theory to explain this study's findings warrants further discussion. This will be discussed later in this chapter (section 5.4.1). Before moving onto the broader implications of these findings, a noteworthy observation can be made with regards to the emergent theme, 'procedural knowledge' in the context of palliative care.

Research has shown that novice workers in palliative care often report feeling overwhelmed by their patients' complex needs (Medland, Howard-Ruben, & Whitaker, 2004). In addition to this is the added potential for stress associated with establishing professional relationships and learning 'how to do their job' (Jackson, Firtko, & Edenborough, 2007). It is highly likely that more experienced workers use their procedural knowledge to cope with their job demands. In addition, more experienced workers may have well established support networks that novice workers are yet to create. It is therefore reasonable to suggest that procedural knowledge may have an impact on other intrapersonal and interpersonal resources. Due to the emotionally charged nature of palliative care that often leads to emotional and physical distress (e.g. Medland et al., 2004; Pendry, 2006), the combination of job knowledge and experience may be an important area of investigation for future research on resilience in the palliative care context.

To summarise, the behaviours identified in the present study partially support findings from the 8FRR model identified in Chapter 4. The modifications made to the initial coding template indicate that the behaviours associated with resilience in palliative care workers may be unique to this work domain and potentially other healthcare domains. The implications of these findings are discussed next.

5.4.1 Implications

Several broad implications can be drawn from this study. First, as shown in Table 5.1, the themes identified in the present study, which extend findings from Chapter 4, can be mapped onto Hobfoll's (1989) COR resource framework. COR theory is useful in examining the findings from this study and has much explanatory potential in describing processes by which resource interact to promote adaptive functioning/resilience. As briefly outlined in the previous chapter (Chapter 4), according to COR theory, resources are seen as the essential elements of people's stress resistance capacity, as such, the acquisition and facilitation of resources is a central motivator for stress resistance. Hobfoll (1989; 2002) posits that COR theory: (a) looks at resources broadly, rather than focusing on a specific resource; (b) views resource change in the face of stressful challenges as a key operating mechanism by which well-being is influenced; and (c) views the possession of reliable resource reservoirs as critical in promoting and maintaining well-being. Empirical support for COR theory has been strong and received support in workplace burnout (Grandey & Cropanzano, 1999; Hobfoll & Shirom, 2001) and exposure to traumatic events such as terrorist attacks (Bonanno et al., 2007). COR theory is a complex resource theory and not only explains the mechanisms by which resources influence adaptive responses which infer resilience but also considers those mechanism in terms of life span development and sociocultural context.

It is possible that interactionist theoretical frameworks such as COR may advance resilience research by testing theoretical models using a wide range of resilience resources such as those identified in the present study. The acceptance of an interactionist view of resilience may enable a representative study of resilience in a more constrained way. In relation to the measurement of resilience, identifying person-environment resources that are thought to infer resilience in a specific situation may enable more systematic approaches to the operationalisation and measurement of resilience. Using methods such as structural equation modelling, COR theory provides researchers with an opportunity to test causal relationships between resources such as those identified in the present study (Bonanno, Rennicke, & Dekel, 2005). This marks an exciting step forward for resilience measurement research.

A second implication of this study relates to the emergence of the 'procedural knowledge' resource in the current study (comprised of 'specific job knowledge' and 'general experience'), which has not been associated with resilience in previous studies. According to Motowidlo and Beier (2010), procedural knowledge contains information about what is effective behaviour in a given situation and is drawn from specific job knowledge, general experiences, and traits (personality and ability). One theory that offers important insights into procedural knowledge is that of implicit trait policy (ITP: Motowidlo & Beier, 2010). ITP refers to an individual's judgement (which draws on procedural knowledge) about the relative costs and benefits of trait expression in certain situations. For example, in a situation where one is expected to console parents after the death of their child, irrespective of whether an individual is high on the trait of agreeableness, they will judge that being agreeable will be a more successful strategy for dealing with the situation than being disagreeable.

Efforts to measure ITPs have been realised through the use of the situational judgment test (SJT) (Motowidlo & Beier, 2010). SJTs have been successfully used to measure ITPs in a range of psychological constructs including emotional intelligence (Sharma, Gangopadhyay, Austin, & Mandal, 2013), integrity (de Meijer, Born, van Zielst, & van der Molen, 2010), empathy, and interpersonal skills (Patterson et al., 2012). The ITP theory starts from the assumption that SJTs predict work behaviours because they measure procedural knowledge, which include a component of general domain knowledge about the costs and benefits of expressing particular personality traits in job-related situations (Oostrom, Born, Serlie, & van der Molen, 2012). A second assumption made by ITP theory is that ITPs are influenced by prior experience. Motowidlo et al. (2006) argued that SJT performance includes both a component of specific knowledge about effective behaviour in a particular job and a component of general knowledge about costs and benefits of expressing particular personality traits in job-related situations. SJTs scores indeed have been found to be related to prior job experience (Clevenger, Pereira, Wiechmann, Schmitt, & Harvey, 2001; McDaniel & Nguyen, 2001; J. A. Weekley & Ployhart, 2006). People can acquire specific job knowledge only through exposure to a particular job. Yet, general knowledge about trait effectiveness (ITPs) can be acquired by experience in relevant situations both inside and outside the job. To date, with one exception known to the author (e.g. Patterson et al., 2012), the assessment of resilience using the SJT method has been relatively unexplored. Therefore the development of an SJT to measure resilience resources associated with palliative care work may make a useful contribution to the resilience literature. As such, the application of SJTs in the measurement of resilience resources in palliative care workers will be explored in the next empirical chapter.

In addition to the above mentioned theoretical implications, three implications for practice emerge from the present study. First, experiences described by participants in critical incident technique interviews could be used as a basis of discussion focused around learning from others experiences' similar to the approach taken in *Schwarz Center Rounds* (Lown & Manning, 2010). This approach adopts a reflective learning approach which focuses on the patient-health professional relationship. For example, the emotional impact of distressed patients who often have complex needs is acknowledged and not denied or pushed away because their distress is unbearable. Moreover, organisations that value a reflective learning approach are much more likely to promote an organisational culture in which resilience resources are harnessed rather than inhibited. Intervention strategies like these may benefit those new to the palliative care domain as well as more experienced staff.

A second implication for practice is that procedural knowledge may not only be an important resource associated with individual resilience but may also facilitate other resources more broadly at the organisational level. For example, knowledge may extend its value beyond physical resources because knowledge is a resource that can be used at all times across all parts of the organisation and is not depleted with use (Itami & Roehl, 1991). In addition to this, some types of implicit knowledge such as that associated with general experience cannot always be obtained through formal structured education. As such, mentoring, shadowing, and other similar socialisation processes may be central to the flow of procedural knowledge (Nissen, 2006). One of the primary benefits of informal knowledge transfer is that knowledge is contextualised and related to personal experience allowing the knowledge to have richer meaning and applicability (Foss, 1996). This may increase the comfort level associated with sharing personal experiences. It also enables employees to gain intimate knowledge of "who knows what" in the organisation (King & Zeithaml, 2003). This broad range of knowledge resources may provide individuals and in turn, the organisation, access to further resources to buffer against the challenges of day-to-day palliative care work.

Lastly, a main finding of the present research is that social resources emerged as an important behaviour associated with resilience. This is consistent with findings from empirical research showing the importance of social support in a range of situations (Wilks & Croom, 2008). Creating structures in the workplace where support is readily available and a part of organisational culture may be a step forward for creating an environment that fosters a resilient workplace.

5.4.2 Limitations and Future Directions

There are a number of limitations of this research that should be noted. First, it is important to note that the employees interviewed as part of this study were identified by the hospice research unit and as such the sample was not randomly selected. This is often an issue inherent in applied research as operational requirements often compromise the ability to carry out representative sampling (Robson, 2012). To account for this limitation, a range of clinical roles that were represented in the CIT interviews were compared with the range of clinical roles usually represented in a multi-disciplinary team in end of life care. Whilst there were more nurses that took part in the interviews than other professions, a selection of clinical staff working across the palliative care domain were fully represented by interviewees.

Secondly, in the coding rounds, Cohen's (1960) Kappa (coefficient of agreement) was used to calculate inter-coder reliability rather than percentage of agreement which inflates reliability estimates due to chance alone. However, Cohen's Kappa has been criticised for being overly conservative and in some cases it is not possible to reach 100% agreement (Iacobucci, 2001). To determine what impact using Kappa has on the accuracy of inter-coder reliability calculations, future research may benefit from the use of more than one reliability index. For example, inter-code reliability could be calculated using Kappa and also Perreault and Leigh's (1989) index which it has been argued may be suitable to fit a range of circumstances (Iacobucci, 2001). Notwithstanding the possible limitation of using Cohen's Kappa to calculate inter-coder-reliability, Kappa addresses the basic concern that percentages do not take into account the likelihood of chance agreement between raters and low degrees of freedom on each coding choice (i.e., few coding categories).

It is also acknowledged that one further step could have been taken to cross-validate the decisions made by the team of coders. After agreeing on a final coding template, some researchers (e.g. Randall et al., 2005) have employed a *recaptured item technique* (Ferguson & Cox, 1993) where independent coders (to those that coded the data) are presented with interview data arranged in the categories in which they appeared in the final template. The names of the categories are then supplied to the raters who are asked to match the category names with the clusters of data extracted from interviews. This process is repeated for the other half of the data to ensure that interview data is appropriately coded. In the present research programme the thesis author had limited resources to perform this process, however other quality checks were performed to address potential issues with reliability and validity. First, King (2004) suggests that a final template may be satisfactory when: (a) no sections of the transcripts that are relevant to the research question remain uncoded; (b) all data have been

read through and the coding checked at least twice by independent raters. Both of these criteria were satisfied. With respect to criterion (a), all data had been coded three times before reaching the final template, thus leaving no section of any of the transcripts uncoded. With respect to criterion (b), in addition to CB reading through the interview data, another independent psychologist (LZ) who was familiar with the resilience literature and experienced in coding qualitative data also read through the interview data. In light of these quality checks, it was concluded that the final coding template was a valid representation of the interview data.

Finally, this study does not make strong claims for generalizability. Specifically, this study does not make any claims about the statistical generalizability of findings, which was compromised by the purposeful selection of the research sample and by the orientation of the study. The purpose of the present study was to explore the unique palliative care resilience perspective. Nevertheless, it can be said that other researchers with research parameters similar to the parameters of this study may find some of the findings useful (Marshall & Rossman, 2010).

5.5 Conclusion

The study presented in this chapter was designed to assess the degree of congruence between the quantitative operationalisation of resilience represented by the 8FRR model, and the qualitative conceptualisation of resilience by palliative care workers. The themes resulting from the template analysis partially support the 8FRR model resulting in the identification of five of the eight resources comprising the 8FRR model. Additionally, the higher order theme 'procedural knowledge' emerged from analyses. Research implications suggest that resilience based on COR theory may be operationally defined by the resources identified in the present study. The present study also raises implications for the way in which resilience is measured. There are exciting opportunities for new ways of measuring resilience resources, in particular the inclusion of the SJT method. The possibility of using such a method measure for the assessment of resilience resources in palliative care workers is explored in the final empirical chapter of this thesis.

Chapter 6: A new method of measuring resilience in palliative care workers

6.1 Introduction

In Chapter 4, an eight-factor resilience resource model (operationalised as the eight-factor resilience resource questionnaire: 8FRRQ) was identified from the joint factor analysis of five resilience measurement scales. To confirm whether the eight-factor resilience resource (8FRR) model could be applied to the assessment of resilience in palliative care workers, a template analysis using the 8FRR model as a coding template was conducted in Chapter 5. Findings from the template analysis showed support for five of the eight resources: three intrapersonal resources (*psychological capital, self-efficacy,* and *hardiness*); and two interpersonal resources (*family cohesion* and *social support*). In addition, one higher order emergent resource was identified, *procedural knowledge* consisting of *job knowledge* and *experience*. Given that situational judgment tests (SJTs) have been used in previous research to measure procedural knowledge (Motowidlo & Beier, 2010), this presents an opportunity to explore whether the same method could be applied for use in the palliative care context. Moreover, SJTs are designed to provide a context to test-takers so that they can imagine themselves in a particular situation and make judgments about what actions they might take in response to the situation (Richman-Hirsch, Olson-Buchanan, & Drasgow, 2000). The SJT is therefore grounded in interactionism as response options are contingent upon how test-takers perceive and make judgments about how they would behave in a hypothetical job-related situation. As argued throughout this thesis, interactionism may be a useful measurement paradigm as the person-in-context is the unit of analysis and as such it is possible to explain variance associated with both person (e.g. trait) and situational variables (Campion & Ployhart, 2013; Mischel & Shoda, 1995). Therefore, the aim of the present study is to develop and validate a situational judgment test (SJT), which is designed to measure a resilience resource associated with procedural knowledge in palliative care workers. Therefore the following research question is posed: *How can resilience measurement be extended to the palliative care context?*

It is anticipated that the SJT could compliment self-report measures of resilience such as the 8FRRQ from Chapter 4, which together would be able to assess the effectiveness of expressing specific trait resilience characteristics when responding to situational dilemmas. To date, no such 'multi-measure' of resilience has been developed for the unique demands of palliative care work. It is for this reason that the development of an SJT for use in palliative care settings may be an important step towards the assessment of resilience in palliative care workers. This final empirical chapter presents results from the development and validation of an SJT

designed to measure a procedural knowledge resilience resource. Before doing so, the next section reviews the evidence relating to SJTs.

6.2 Why use Situational Judgment Tests?

Over the past two decades, Situational Judgment Tests (SJTs) have repeatedly been shown to predict job performance (J. A. Weekley & Ployhart, 2006). SJTs assess knowledge, skills, values, and attitudes by presenting test-takers with hypothetical scenarios or situational dilemmas. Respondents are required to make a judgement as to the most effective action to take in response to the situation and asked to identify appropriate responses from a list of alternatives (Lievens, Peeters, & Schollaert, 2008).

The increased interest in SJTs in recent years has been almost entirely focused on selection assessment and may be due to several factors. First, SJT validity has approached the validity of cognitive ability tests (McDaniel, Morgeson, Finnegan, Campion, & Braverman, 2001) and in some cases shown incremental validity beyond cognitive ability and personality (e.g. Clevenger et al., 2001; J. A. Weekley & Ployhart, 2006). Secondly, the SJT is a standardised method of assessing psychological constructs that has shown very little adverse impact on test-takers. For example, observed subgroup differences (e.g. ethnic group differences) in SJT test scores have shown less adverse impact than those seen in cognitive ability test scores (Hough, Oswald, & Ployhart, 2001; Motowidlo & Tippins, 1993). Relatedly, interviews have been criticised for their inherent affinity biases which results in treating candidates differently during interviews (Clevenger et al., 2001; McDaniel, Whetzel, Schmidt, & Maurer, 1994), however due to the standardisation of the SJT method, there is evidence to suggest that SJTs show less bias than interviews (Motowidlo & Tippins, 1993; Weekley & Jones, 1999). The final reason for the increase in popularity of SJTs may be related to face validity. Personality assessments have been criticised for their lack of face validity (Steiner & Gilliland, 1996). SJTs however have shown good face validity, which increases their relevance and applicability to specific work domains with the added advantage of providing test-takers with a realistic job preview (e.g. Patterson, et al., 2009).

Until recently, little theoretical advancements have been made about antecedents of knowledge that are captured by SJTs. However, Motowidlo et al., (2006) have proposed a theory that may be instructive in distinguishing these antecedents. This theory is discussed next.

6.2.1 A theoretical basis for SJTs: Implicit Trait Policy (ITP)

Prior research has consistently shown that when individuals judge others, their judgments are influenced by their own standing on characteristics they are judging (e.g. Dunning & Hayes, 1996; Lambert & Wedell, 1991; Markus, Smith, & Moreland, 1985). As outlined in Chapter 5, Motowidlo et al., (2006) used the term *implicit trait policy* (ITP) to describe an individual's belief about the effectiveness of different behaviours in line with their basic traits. For example, if a person possesses a particular characteristic such as emotional stability, that characteristic will have an influence on how effective it is to express emotional stability when responding to the demands of a situation, in particular, stressful situations.

ITP authors (Motowidlo et al., 2006) propose that individuals can develop implicit beliefs about the importance of any personality trait for effective action through experience in situations. That is, prior experience can inform individuals whether or not behaviours that express high levels of a specific trait produce consequences that are more effective than behaviours that express low levels of the same trait. In other words, implicit beliefs about relations between expressions of personality traits and effectiveness in specific situations can be learnt irrespective of an individual's standing on a given personality trait. When these beliefs are accurate, that is, the appropriate course of action is taken in response to a given situation, then this is a representation of general knowledge.

Motowidlo, Hooper, and Jackson (2006) maintain that a measure developed to assess ITP is an implicit measure, distinguished from explicit measures such as personality inventories (e.g. McCrae & Costa, 1989). Explicit measures ask participants to rate their level of agreement with statements describing their general temperament or personality. By contrast, implicit measures assess individual responses to a stimulus scenario. For example, the 8FRRQ identified in Chapter 4 represents an explicit measure of resilience resources, while the SJT developed in the present chapter represents an implicit measure of resilience resources. An added advantage of using implicit measures to assess psychological constructs is that the use of implicit and explicit measures may explain unique components of the same general construct (Bornstein, 2002). It is based on this idea that a 'multi-measure' of resilience was proposed earlier in this chapter (section 6.1).

The measurement of ITPs via the SJT method essentially assesses individuals' procedural knowledge of effective behaviours within a particular workplace situation (Motowidlo & Beier, 2010; Motowidlo et al., 2006). For example, in the palliative care context, a nurse engaging in a conversation with a patient about the end of her/his life requires the nurse to

judge the effectiveness of expressing a particular emotional response in that situation. Thus, ITPs are situation-dependent and as such should be assessed by measurement approaches (e.g. SJTs) that can explain person-situation variance. Indeed, it has been noted in previous chapters that there is a need to approach the measurement of resilience from an interactionist or person-in-context approach. The SJT may therefore represent an interactionist method of measurement through the measurement of ITPs associated with resilience in palliative care workers.

This brief overview of ITPs brings a theoretical perspective to the discussion of SJTs and in particular, outlines how implicit measures such as SJTs may extend current approaches to the measurement of resilience. The next section has a more practical focus and discusses approaches taken to the development of SJT content.

6.3 Research on SJT Development and Validation

6.3.1 SJT-item content development

Approaches to the development of SJTs have been described in several studies (Motowidlo, Dunnette, & Carter, 1990; Motowidlo, Hanson, & Crafts, 1997; Patterson et al., 2012).
In most cases, subject matter experts (SMEs) play an integral role in the development of both item content (referred to as item-stems) and the scoring key. It should be noted that the use of SMEs to develop SJT item-stems and their respective scoring keys rests on the assumption that SMEs know what actions are most effective in response to situational dilemmas, presumably because they are experienced with the job in question.

SJT items can be divided into item-stems and item-responses. The item-stem (e.g. the scenario or situational dilemma that is being evaluated by the participant) is the portion of the question that presents the situation to the respondent. Item-stem content is derived either from theory or interviews using the critical incident technique (CIT) method (Flanagan, 1954). The CIT method is the most common approach used to develop item-stems (Motowidlo et al., 1997) and was used to develop item-stem content in the present study.

The development of SJT situational dilemmas begins with exemplars of situations taken from CIT interviews in which job incumbents report significant events in the workplace. The advantage of using the CIT method in the development of SJT items is that job incumbents are able to identify realistic, applicable job-related situational dilemmas. These situational dilemmas must be sufficiently clear to allow an impartial observer to make inferences about

an activity or outcome associated with the event being described (Flanagan, 1954). The collection of critical incident data for SJT item development usually requires four phases of data collection (e.g. McDaniel & Nguyen, 2001; Motowidlo et al., 1990; Patterson, Ashworth, & Good, 2013; J. A. Weekley & Ployhart, 2006). In the first phase, behaviours associated with critical incidents are identified through CIT interviews with job incumbents. In the second phase, SMEs are requested to review critical incidents to ensure they are relevant to the target population and are relatively common in the workplace setting. These critical incidents are then categorised and edited by test developers to create descriptions of representative scenarios. In the third phase, SMEs are presented with the scenarios developed in phase one and invited to describe and evaluate actions they would consider if confronted with the described situations. In the fourth phase of data collection, scoring keys are developed. This requires the analysis of scenarios to develop consensus on the best course of action to take in response to the proposed scenarios (McDaniel and Nyguyen, 2001).

Unlike conventional knowledge tests, which are fact driven, SJT items necessarily contain ambiguity to simulate real workplace situations. For example in Table 6.1, a situational dilemma is presented to the test-taker in which there is no *absolute* correct answer, rather a choice of responses that could be more effective than others. Legree at al. (2006) identify two caveats with respect to the ambiguity in SJT item content that are noteworthy. First, the actions and consequences described in a critical incident must be linked with a high degree of certainty otherwise situational dilemmas become too vague. Secondly, the critical incidents describe observable events that must be inferred by test-takers and so it is important that the CIT method focuses on easily identified relationships between a situation and a suitable course of action.

Table 6.1: Example SJT item

Marion McNally is approaching the end of her life. You have grown very fond of Marion. During your shift one day, you hear Marion's boyfriend telling her that this illness is God's revenge" because he had left the priesthood.
From the list below, select the **three most effective** actions to take in this situation. 1. Examine whether this is any of your concern 2. Ask someone else to speak with the couple 3. Speak to a Chaplain about the situation 4. Explore with Marion any concerns she has about her boyfriend's comment 5. Explain to Marion that God wouldn't do this 6. Explore the boyfriend's comment with him 7. Adopt a non-judgemental position and accept the situation

In a similar fashion to the development of an SJT item-stem is the development of SJT scoring keys. Both processes involve several iterations and the use of SMEs. The literature on SJT scoring keys is discussed in the next section including the different types of scoring instructions and their relative effects on SJT validity.

6.3.2 SJT scoring keys

Response formats of SJTs are typically classified into one of two format types (McDaniel & Nguyen, 2001) according to whether they are knowledge-based (i.e. 'What is the best option') or refer to a behavioural tendency (i.e. 'What would you most likely to do?'). SJTs with knowledge instructions tend to have higher correlations with cognitive ability, whilst behavioural tendency instructions show higher correlations with personality constructs (McDaniel, Hartman, Whetzel, & Grubb, 2007). Response alternatives can be presented in either a written (low-fidelity) or a video-based (medium-fidelity) format (Lievens et al., 2008). As with item-stem development, scoring keys are typically developed by SMEs who agree on a predetermined scoring key. However other scoring keys have been used with SJTs such as empirically derived scoring keys (see Lievens, 2000). In SME developed scoring keys, the degree of similarity between test-takers' and SME judgments indicates how well an individual has performed on the SJT where higher scores indicate a high degree of similarity with SME judgments (Clevenger et al., 2001; McDaniel & Nguyen, 2001; Motowidlo et al., 1997; J. A. Weekley & Jones, 1999). In order to ascertain the degree of agreement with SMEs, test-takers

must make inferences about the situational dilemma they are presented with and judge the most effective behaviour in a given situation.

Despite the involvement of SMEs in the development of SJT scoring keys it should be noted that no one choice is completely wrong. A close inspection of the example in Table 6.1 illustrates this unusual characteristic of SJT response items; all the responses may be correct given reasonable interpretations of the scenario and therefore no one choice is categorically wrong. On the other hand, it is possible that all response options may be incorrect given other interpretations. While conventional knowledge tests may be deductively scored by using factual sources, developing scoring standards for SJTs require consideration of the ambiguities in the item-stem scenario and response options, as well as the complexity of the instruction sets provided to the test-taker.

A review of different methods for scoring SJTs indicates that in most cases, it advisable to use SMEs to generate response options for item-stems (e.g. J. A. Weekley & Ployhart, 2006). For instance, in a broad work domain such as palliative care, a group of SMEs comprised of clinicians would be suitably qualified to develop a range of appropriate response options for the demands of providing end-of-life care within community, hospice, or hospital settings. Moreover, the use of SMEs may also help to ensure that organisational values and best practices such as high levels of patient care and ethical practices are reflected in the scoring key. Therefore, the study reported here will use SMEs' effectiveness judgments in the development of the scoring key.

6.3.3 SJT validity

The *Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999) offer professional guidance on the concept of validity. The *Standards for Educational and Psychological Testing* consider validity as a unitary concept and varying sources of evidence can contribute to an understanding of the inferences that can be drawn from a test score. There are two primary types of evidence related to the validity of SJT scores; construct validity and criterion-related validity. These two types of evidence are presented below.

6.3.3.1 Construct validity

Evidence from meta-analytic studies (McDaniel et al., 2007, 2001; McDaniel & Nguyen, 2001) show SJTs to be valid measures of procedural knowledge. A particularly interesting

finding in these studies is that SJT construct validity is influenced by different types of test instructions. For example, McDaniel et al (2007) manipulated two types of response instructions (behavioural tendency and knowledge) and correlated each with cognitive ability and personality measures. They found that SJTs correlate in varying degrees with measures of the Big 5 personality traits (Digman, 1990) and with cognitive ability measures. The magnitude of these correlations was moderated by SJT response instructions. SJTs with behavioural tendency instructions had higher correlations with personality than SJTs with knowledge instructions. Conversely, SJTs with knowledge instructions showed higher correlations with cognitive ability than SJTs with behavioural tendency instructions.

Whetzel and McDaniel (2009) suggest that it is possible to change the construct validity of an SJT by altering its response instructions. The authors explored this conclusion in further studies by controlling for SJT content, and varying response instructions (i.e., the same SJT items were administered twice, once with knowledge instructions and once with behavioural tendency instructions). Findings showed that SJTs with knowledge instructions had substantially larger correlations with cognitive ability than the same SJTs administered with behavioural tendency instructions. SJTs with behavioural tendency instructions had larger correlations with the Big 5 than the same SJTs administered with knowledge instructions. McDaniel and colleagues (2001, 2007) observed positive correlations with agreeableness, conscientiousness, and emotional stability. The authors concluded that when administering the same SJT with varying response instructions, one can, in fact, change the construct validity of a SJT.

Given that the SJT developed in the current study will use knowledge based instructions, it is expected that SJT scores will be correlated with education and (job related) experience. Indeed, prior research has reported a correlation of r=.20 between SJT scores and job experience (J. A. Weekley & Jones, 1997) in addition to several other studies showing similar trends (e.g., Clevenger, Pereira, Wiechmann, Schmitt, & Harvey, 2001; McDaniel & Nguyen, 2001; Weekley & Jones, 1999). Similarly, SJTs have shown criterion-related validity in the prediction of academic performance (Lievens, Buyse, & Sackett, 2005). At the request of the organisation, it was not possible to collect cognitive ability data, thus education and experience were used as proxy measures for cognitive ability. Accordingly, the following hypothesis will be tested:

Hypothesis 1. The SJT will show a significant correlation with education and experience.

Further, the SJT is designed to measure a procedural knowledge resilience resource and as such would be expected to be correlated, at least to some degree, with a measure of resilience resources. Whilst the 8FRR model is ostensibly a combination of five measures of resilience that is operationalised as an eight factor resilience resource questionnaire (8FRRQ), only five resources from the 8FRR model were identified as being key resilience resources by palliative care workers in the previous study. In light of this finding items comprising five resources from the 8FRR model which will be henceforth referred to as the 5FRRQ, will be used as a measure of resilience resources in the present study. Thus, the following hypothesis will be tested:

Hypothesis 2. SJT scores will show a significant correlation with each 5FRRQ resource.

Given that the SJT developed in the current study is designed to measure a procedural knowledge resilience resource, the following research question is posed:

Research Question 1. Is the SJT a one-dimensional measure representing a procedural knowledge resilience resource or is it a multidimensional measure representing more than one resilience resource?

6.3.3.2 Criterion-related validity

Having reviewed the first primary type of validity evidence (construct), the second primary type of validity evidence (criterion-related) will be discussed. Large-scale studies have shown that SJTs have significant criterion-related validities (McDaniel et al., 2001) and have incremental validity over and above cognitive ability and personality tests (Chan & Schmitt, 2002; Clevenger et al., 2001; Patterson et al., 2009; Patterson et al., 2012). For example, studies have shown that SJTs explain incremental variance in performance when controlling for the effects of cognitive ability, job experience, and conscientiousness (e.g. Chan & Schmitt, 2002; McDaniel et al., 2001, 2007). Patterson et al. (2009) compared the validity of three shortlisting methodologies for selection into postgraduate training and found that SJTs showed incremental validity over application form scores and clinical problem-solving tests. Other researchers (e.g. McDaniel et al., 2007) has found that SJTs show incremental validity over various composites of cognitive ability. In particular, McDaniel and colleagues (2007) found that SJTs provided incremental validity over cognitive ability ranging from .03 to .05, with the largest incremental validity for SJTs with behavioural tendency instructions (.05 vs. .03). Such SJTs have the lowest correlations with cognitive ability and thus have a higher probability of predicting over and above cognitive ability. Because SJTs with behavioural

tendency instructions have more personality saturation than SJTs with knowledge instructions, it is reasonable that SJTs with behavioural tendency instructions offer lower incremental validity (.06) over the Big 5 than knowledge instruction SJTs (.07). McDaniel et al. (2007) note that the incremental values are small, but contend that there are few predictors that offer incremental prediction over a composite of six variables (i.e., cognitive ability and the Big 5).

In an effort to understand the relationships among ability, experience, and personality with SJTs, Weekley and Ployhart (2006) used path analysis to identify alternative models showing antecedents and relationships with performance. In their study within a large retail organisation, they found that SJTs scores mediated the effects of ability and experience on performance and partially mediated the effects of personality on performance. Their results suggest that the SJT assesses general forms of knowledge (rather than job-specific knowledge). Importantly, the SJT showed incremental validity above cognitive ability, personality, and experience measures. Similar evidence that SJTs may be assessing general forms of knowledge is provided by Lievens and Patterson (2011) in a study situated in the context of a high-stakes selection setting of general practitioners with substantial domain-specific knowledge (e.g. medical education). The authors explored the relationship between knowledge tests, high fidelity assessment methods (e.g. assessment centres) and low-fidelity assessment methods such as SJTs. Findings showed that both SJTs and assessment centres had incremental validity over knowledge tests and that SJTs fully mediated the effects of knowledge tests on job performance (i.e. supervisor ratings).

The empirical evidence discussed above provides evidence of the SJT's predictive capacity and incremental validity above personality, cognitive ability, and job experience. Almost all of these studies used performance measures (e.g. academic performance or job performance) as criterion measures. However, access to performance data was not made available for use in the present study due to restrictions by participating organisations. Therefore, the present study uses three organisational attitude variables as criterion measures for three reasons.

Firstly, little is known about the relationship between SJTs and employee attitudes. This is important because attitudes have been shown to predict corresponding behaviours. For example, job satisfaction has been linked to various performance indicators such as productivity and turnover (Harter, Schmidt, & Hayes, 2002). Hulin (1991) suggest that job dissatisfaction leads to a general withdrawal construct that is manifested in various behaviours such as absence and turnover. Thus, for some employees, reduced performance may be a manifestation of withdrawal. Given the costs associated with outcomes such as absence and

turnover (see section 1.1) it will be useful to explore the capacity of the SJT in predicting outcomes such as job satisfaction, turnover intention, and organisational commitment.

Second, a meta-analysis of correlations between employee satisfaction and job performance noted an estimated significant correlation of r=.30, which qualified as having a moderate effect size (Judge, Thoresen, Bono, & Patton, 2001).

Third, contrary to previous SJT validity studies that explore the predictive potential of SJTs in selection contexts (see Weekley & Ployhart, 2006), the SJT in the present study is designed for use in a development capacity to prevent negative health outcomes in the workplace such as burnout. As discussed in Chapter 2, burnout is a real threat to the health of palliative care workers (Pereira et al., 2010), which has been associated with an increase in turnover intentions and a decrease in organisational commitment (Lee & Ashforth, 1996) and job satisfaction (Griffin, Hogan, Lambert, Tucker-Gail, & Baker, 2009). Thus, using organisational attitude criterion measures to examine the validity of the SJT may be more useful in the context of the present study. Therefore, to examine whether the SJT that will be developed in this study predicts attitudinal outcomes, a two-wave longitudinal analysis will be used to test the following hypotheses:

Hypothesis 3: SJT scores will at Time 1 significantly predict job satisfaction, turnover intention, and organisational commitment at Time 1.
Hypothesis 4: SJT scores at Time 1 will significantly predict job satisfaction, turnover intention, and organisational commitment at Time 2.
Hypothesis 5: Controlling for education and experience, SJT scores at Time 1 will explain significant incremental variance over 5FRRQ resources and personality variables in predicting job satisfaction, turnover intention, and organisational commitment at Time 1.
Hypothesis 6: Controlling for education and experience, SJT scores at Time 1 will explain significant incremental variance over 5FRRQ resources and personality variables in predicting job satisfaction, turnover intention, and organisational commitment at Time 2.

A two-part method was used in the present study to develop and then validate the SJT. The next section describes Part One of the present study, which includes the development of item-stems and scoring keys. Following on from this, Part Two will present evidence of construct validity, criterion-related validity, and test reliability.

Part One: SJT development

6.4 Part One: Method

6.4.1 Participants (Sample 1)

A sample of 36 UK hospice employees aged between 28 and 60 years (Mean age 44 years, S.D. 14.6 years) voluntarily took part in the study. Participants were asked to recall significantly challenging experiences they had encountered in the workplace. These participants were the same participants used in the previous study reported in Chapter 5. Of the 36 employees interviewed five were male, however this was representative of the sampling frame. Employees had worked in their respective organisations between 6 years and 28 years (mean 12 years) and worked in the following clinical service roles: nurses (n=12), consultants (n=9), mental health workers (n=8), social workers (n=5), and occupational therapists (n=2). No additional demographic information was gathered at the request of the hospice ethics committee[12] as this was not deemed relevant to the study.

6.4.2 Procedure

6.4.2.1 Extraction of behavioural indicators (Steps 1-3: SJT development process)

Table 6.2 depicts the eleven steps involved in the SJT development process. Step 1 began with CIT interviews with 36 palliative care workers. Interviews were conducted in two UK hospices with employees working in clinical services (nurses, consultants, social workers, occupational therapists, and psychologists). Interviewees were asked to recall a time when they dealt with a substantially challenging situation successfully; and a time when they were *unable* to deal with a similarly challenging situation successfully. No guidance was provided by the interviewer on the topic however participants were probed to elicit specific behaviours relative to the events they were describing (see Appendix 4). In total, 1355 critical incidents were identified.

Step 2 of the SJT development process involved a review of the data (by the thesis author) collected from the CIT interviews to identify duplicate or similar incidents. For example, there were many common incidents related to the management of distraught family members. Thus, all indicators with similar content were grouped into one overall theme relating to managing

[12] The hospice ethics committee was responsible for research in both hospices as the two hospices used in the present study belonged to a larger palliative care organisation

difficult emotions. Such a procedure according to McDaniel and Nguyen (2001) allows one to tap a range of scenarios in a content domain by removing redundant information. This step involved the deletion of 1099 critical incidents resulting in 256 remaining incidents.

Table 6.2: SJT item-stem development and scoring process

Process	Activity	Input	Output
Item-stem content development			
Step 1	CIT interviews conducted with 36 palliative care workers	Thesis author	1355 behavioural indicators extracted from CIT interviews
Step 2	Duplicate behavioural indicators removed; similar indicators grouped together or subsumed into one category – removal of n=1099 incidents.	Thesis author	256 remaining incidents
Step 3	Item stems (scenarios) written based on 256 behavioural indicators and interview content	Thesis author	106 item stems
Step 4	Review of item stems (n=106)	SME Group 1	Suggestions for review; deletion of 46-items
Step 5	Item stem edits (n=60)	Thesis author	60 amended item stems
Step 6	Review of remaining item stems (n=60)	SME Group 2	Suggestions for review; deletion of 12 items
Step 7	Item stem edits (n=48)	Thesis author	48 amended item stems
Step 8	Final review of item stems (n=48)	SME Group 1; SME Group2	Suggestions for review; deletion of 10 items
Final number of item stems (n=38)			
Scoring key			
Step 9	Identification of appropriate actions in response to item-stems.	SME Group 1; SME Group 2	N/A
Step 10	Inter-rater reliability between SMEs	SME Group 1; SME Group 2	Kappa coefficient κ=.85. Low agreement items deleted (n=6).
Step 11	Final sign-off on items and response key and weighting of response options.	Plenary SME Group.	20 items deleted due to inability to identify and/ or agree on suitable response options (n=12 remaining)
Final number of SJT items (n=12)			

For practical reasons due to the limited availability of operational staff, neither job incumbents nor SMEs were available for Step 3 of the development process. Instead, the thesis author transformed the remaining 256 incidents into 106 item-stems that represented scenarios that hospice workers were likely to encounter in the workplace. Item-stems were kept fairly short (typically 45-70 words and no more than 80 words) but detailed enough to provide some type of dilemma and reasonable degree of complexity. All draft item-stems were reviewed by the thesis author to ensure that each item had similar lengths and format prior to the SME review stage. Examples are shown in Table 6.3.

Table 6.3: Examples of item-stems

Item	Item-stem	Word count
1	You have recently had several significant deaths around you and feel 'full of death'. You have just met with your manager who is concerned about your performance at work. You are aware that your attitude to work has changed. You have been intentionally avoiding difficult situations at work and becoming overly attached to your patients and their families.	58
2	Danny is an 18yr-old decorated soldier reaching the end of his life. You have cared for him for the last 14 months and have become very close to his family. After Danny passes away, his family invite you to his funeral. You normally do not attend funerals as you try and keep your boundaries firmly in place. You find yourself unable to let go of Danny and his family.	69
3	Raj has complex needs involving a cancer that requires two teams of specialists. Whilst in your care, Raj's complex needs prevent you from successfully managing his pain symptoms. In the last hour he has had a psychotic episode which further complicates matters for prescribing appropriate pain medication. He is frightened and in an extraordinary amount of pain. There is nothing more you can do for him but wait for his death.	71

6.4.3 Participants (Sample 2)

Two groups of subject matter experts (SMEs) volunteered to take part in the SJT development working groups. Group 1 consisted of 14 SMEs from a UK hospice (South of England) consisting of six nurses, two consultants, three social workers, and three psychologists. Group 2 consisted of seven SMEs from a London hospice comprising of two nurses, three consultants, and two psychologists. None of the participants that comprised Groups 1 and 2 were used in any other studies in this thesis. Specific prior test design, assessment or marking/rating experience was not a prerequisite. It was recommended by the hospice ethics committee that all SMEs have at least ten years' experience, as this was considered sufficient for a subject matter expert in palliative care. Thus, in Group 1, participants had been working in palliative care on average for 12.25 years (SD=2.50); in Group 2 participants had been working in palliative care for a mean of 13.50 years (SD=4.68). No further demographic data was collected at the request of the hospice ethics committee.

6.4.4 Procedure

6.4.4.1 Item-stem development (Steps 4-8 of the SJT development process)

A total of three item-writing workshops were organised with palliative care SMEs. Prior to the workshops participants completed a confidentiality and code of conduct agreement. The thesis author facilitated all three workshops. Table 6.2 presents the development and review process undertaken including the number of items written, reviewed, rejected and refined at each stage of the process.

Step 4 of the item-stem development process consisted of a workshop to review the 106 draft item-stems, which was attended by SMEs from Group 1. The SMEs were asked to comment on each scenario and provide feedback with regards to the following: applicability of each scenario to the hospice context; wording of situational stem; and realistic representation of actual experiences in hospices/acute wards/community settings. For example, one item-stem referenced a situation where a staff member had difficulty managing a patient's extreme pain (see Table 6.3, item 3). In this instance, the item was rejected as this was only relevant to those with prescribing responsibilities, therefore had limited generalizability across clinical services. The item-stem was consequently amended to describe a situation in which an employee has difficulty managing emotions associated with patients in extreme pain; a situation that was applicable to a wider range of individuals involved in end-of-life care.

In Step 5 of the SJT development process, the thesis author made edits to the item-stems as suggested by SMEs from Group 1. This involved the deletion of 46 item-stems due to issues either with relevance or fidelity. In addition, 15 item-stems were reworded. In Step 6, the remaining 60 item-stems were reviewed by SMEs from Group 2. After the second group of reviewers convened, a further 12 item-stems were deemed unsuitable as they were not generic enough scenarios relevant to a range of palliative care clinicians. Thus, after this second round of reviews 48 item-stems were retained in Step 7. Finally, Step 8 of the development process involved submitting the final 48 item-stems to both groups of SMEs for final review. This resulted in a further 10 deletions leaving a total of 38 stem-items.

6.4.4.2 Creation of scoring key (Steps 9-11 of the SJT development process)

For the final phase of the item development process, Step 9 of the development process, SMEs were convened in the same groups as the item-writing workshops (Group 1 and Group 2) and asked to describe the *most effective* actions that could be taken in response to the situational dilemmas presented in the item-stems. In Step 10 of the process, a subsequent workshop was

convened to assess SME inter-rater reliability of scoring key response options. Members from Group 1 were asked to indicate their level of agreement of response options created by Group 2; similarly, members of Group 2 were asked to indicate their level of agreement with response options created by Group 1. All SMEs used a dichotomous rating system (effective or ineffective) for each item-response. Inter-rater reliability was calculated per response. For example, if agreement was indicated with four of the eight response options on a particular test item, then a score of .5 was given. Alternatively, if there was no agreement for a test item, a score of zero was allocated. Each item was compared across the two groups. It was found that inter-rater reliability (for calculation of inter-reliability see section 5.2.4.1) between Groups 1 and 2 was very high (κ= .85). SJT items that had very little agreement between groups were deleted resulting in a further six deletions. Thus 32 items were retained.

Step 11 of the process involved a plenary discussion involving Groups 1 and 2 to consensually agree and develop the final scoring key for the remaining 32 items. Of the 32 items, 20 were deemed unsuitable for further analyses for two reasons. Firstly, it was concluded that there were no discernible actions that would be more effective than others unless extreme response options were identified (leading to possible ceiling effects). Secondly, there was some difficulty reaching agreement on best courses of action in the item-stems. Thus, following this phase of scoring development, 12 SJT-items were retained for the validation phase. Finally, SMEs were asked to weight each response on each of the SJT-items to develop an overall score for each test item. A forced-choice method was selected where SMEs assigned between one and three points per response using the following four criteria (see Table 6.4):

1. If a response option was seen as *the best* course of action to take in the situation by 90% or more of SMEs, the response option was awarded three points.
2. If the response option was seen as *the best* action to take in the situation by 75%-90% of SMEs, the response option was awarded two points.
3. If the response option was seen as *the best* action to take in situation by 60-75% of SMEs, the response option was awarded one point.
4. If the response option was a distracter, no points were allocated.

The development of an overall SJT score has been used successfully in several studies and was therefore deemed suitable for use in the present study (e.g. Patterson et al., 2013; Stevens & Campion, 1999). Thus after weighting each response option for each of the SJT-items (see Table 6.4), each item was given a total possible score of 7 points. It should be noted that the scoring of the SJT is not 'right or wrong', rather it is based on how close the response is to the key, which is an approach taken by other STJ developers (e.g. Patterson et al., 2013).

For example, up to 7 points is available for each item. For each of the response options a mark of between 1-3 is available depending on the weighting of the response option. Therefore a test-taker does not need to select all of the correct response options for a given SJT item to obtain a good score.

Table 6.4: Criteria for weighting SJT response options

Points	SME agreement criterion
0	Distractor chosen
1	60-75% agreement
2	75-90% agreement
3	90% + agreement

Note: maximum of 7 points allocated per SJT-item

The development phase of SJT items culminated in 12 items. Part Two of the present study describes the psychometric analyses of each of the SJT to determine item quality, construct validity, criterion-related validity, and reliability, which are described next.

6.5 Part Two: Method

6.5.1 Participants (Sample 3)

Sample 3 comprised 284 UK palliative care workers (29 males, 255 females) who volunteered to take part in the study and were recruited through a NHS professional health and social care directory. The gender split for Sample 3 was representative of the gender split in the sampling frame of the previous studies in the present thesis and was therefore not a methodological issue for the purposes of the present study. The mean age was 48.53 (SD = 9.35) with a range between 18 and 54 years. Over half of participants (50.3%) held post-graduate degrees, 27.5% held undergraduate degrees, 11.3% were educated up to A-levels, and 7.7% were educated to GCSE level. The remainder of the sample (3.2%) did not provide details about their education. Participants had been working in palliative care for an average of 11.36 years (SD 5.65 years). The distribution of occupation comprised mainly of nurses (52.8%) followed by consultants (20.3%), social workers (15.3%), mental health professionals (7.5%), and occupational therapists (4.1%). Many of the participants worked in more than one palliative care domain. Almost half of participants (47.9%) worked in a hospice setting, 59.9% worked in the community, and 71.8% of participants worked in acute wards.

6.5.2 Measures

Four measures were included in this study: Michigan Organizational Assessment Questionnaire (MOAQ), Single-Item Measures of Personality (SIMP), items representing five

of the eight-factors from the 8FRR questionnaire (5FRRQ: five factor resilience resource questionnaire), and the SJT developed in Part One of this study. The SIMP and 5FRRQ were included to establish construct validity evidence for the SJT. The MOAQ was included in the study to provide criterion-related validity evidence. As outlined in section 6.3.3.2, no performance related data was made available to the thesis author[13], as such, employee organisational attitudes (measured by the MOAQ) were used instead of job performance outcomes. Demographic information was also collected in order to calculate group differences based on demographic variables. The following demographic data was collected: education, occupation, experience, gender, and age. All of the abovementioned measures are included in Appendix 6.

6.5.2.1 Michigan Organizational Assessment Questionnaire (MOAQ; Cammann, Fichman, Jenkins, & Klesh, 1983)

The Michigan Organizational Assessment Questionnaire (MOAQ; Cammann et al., 1983) is a 7-item measure of organisational attitudes including job satisfaction, organisational commitment, and turnover intention. It was selected for use in this study due to its valid and reliable properties (see Bowling & Hammond, 2008). The MOAQ uses a 7-point agree–disagree scale (1=*strongly disagree*, 7=*strongly agree*). Higher scores indicate more favourable attitudes. The MOAQ had a reported Cronbach's alpha of α=.79, and α=.84 in the present study.

6.5.2.2 Five-factor Resilience Resource Questionnaire (5FRRQ).

The 5FRRQ is a 29-item measure derived from the 8FRRQ identified in Chapter 4; a product of a joint factor analysis of five published resilience measures (see Chapter 3 for a detailed review of each measure). The resilience scales that comprise the 5FRRQ are: (a) *Family cohesion* and *Social resources* from the Resilience Scale for Adults (RSA: Friborg, Hjemdal, Rosenvinge, & Martinussen, 2003); (b) *Psychological capital* and *Self-efficacy* from the Psychological Capital Questionnaire (PCQ: Luthans et al., 2007); and (c) *Hardiness* from the 10-item Connor Davidson-Resilience Scale-10 (CD-RISC-10: Campbell-Sills & Stein, 2007). The 5FRRQ had a Cronbach's alpha of α=.86 in the present study. The 5FRRQ uses a 7-point agree–disagree scale (1=*strongly disagree*, 7=*strongly agree*). Higher scores indicate a higher number of resilience resources.

[13] Due to restrictions from the hospice ethics committee.

6.5.2.3 Single Item Measure of Personality (SIMP: Woods & Hampson, 2005)

The SIMP is a five single-item measure constructed to measure the Big Five personality dimensions. Responses are rated on a nine-point graded line which is placed between two descriptions and participants are asked to indicate the extent to which the poles describe them by marking a point on the line. Marks on the graded line are recoded into values between 1 and 9 to represent the participant's score on each Big Five factor.

More widely-used measures of personality such as the 240-item NEO Personality were considered too long to complete because it takes 45 minutes to complete. A lengthy measure such as this was considered impractical in this research setting because brevity of the questionnaire was a key concern to this sample.

The SIMP demonstrates generally good reliability, with test-retest coefficients up to r =.78. Woods and Hampson (2005) showed that the SIMP had a mean convergence of r = .61 with longer Big Five measures (Big Five Inventory [BFI], John & Srivastava, 1999; Trait Descriptive Adjectives, Goldberg, 1992); for example convergence between the SIMP and the BFI was r =.62 for Conscientiousness, r =.57 for Emotional Stability and r =.61 for Openness, which show acceptable levels of convergence for one-item scales. In fact, other researchers (e.g. Burisch, 1984) suggest that the benefits of shorter scales in terms of economy outweigh any psychometric disadvantages encountered with single-item measures, and provide an acceptable balance between practical needs and psychometric concerns. Thus, all things considered, the SIMP was deemed acceptable for use in this study.

6.5.2.4 Situational Judgment Test

The SJT was developed in Part One designed to measure a procedural knowledge resource associated with resilience in palliative care workers (see Appendix 6 for all 12 items). Test respondents are asked to select three responses from a possible eight response options, which represent the *most effective* actions they would take in response to a specific situation dilemma. Each response option is differentially weighted (0-3) resulting in a maximum sum score of seven. Higher scores indicate a higher level of agreement with the SME developed scoring key. See Table 6.5 for an SJT item-stem and corresponding response options.

Table 6.5: SJT item-stem and corresponding response options

Summary of Item (one sentence)
Sharif in extreme pain and asking for his family.
Scenario
Sharif is a 20-year old man with a history of drug abuse. He is not responding to pain medication and is an enormous amount of pain. Sharif pleads with you to contact his family. Upon doing so, his family inform you that they cannot bring themselves to see him, despite the fact that he is dying. As he reaches the end of his life, he cries out for his mum and dad.
Response Instructions: Choose the **three most effective** actions you would take in this situation.

A	Provide the usual care to Sharif
B	Make excuses for his family not being there
C	Arrange for someone to be with Sharif all the time
D	Explore with family any way of getting to his bedside
E	Let Sharif know you are in contact with his family
F	Accept the situation for what it is; there is only so much you can do
G	Tell Sharif his family are on their way
H	Remind yourself that Sharif brought this on himself
Key	***3 points (D); 2 points (C, E); 1 point (A,F); 0 points (G, H, B)***

6.5.3 Procedure

The questionnaires were sent out online to 486 UK palliative care professionals. A paper and pencil version of the questionnaire was also sent out to 65 community palliative care professionals. In total, 284 questionnaires were returned (58% response rate). Of the 65 paper and pencil versions, 44 were returned (67% response rate). Of the online questionnaire, 240 were returned (49% response rate). The first page of the questionnaire requested participants' informed consent, after which participants were informed they could withdraw at any time and that information was kept confidential and anonymous. In addition to this participants were informed that all data would be aggregated and analysed at group level so that no one individual could be identified in the analysis or results of the study.

Participants were asked to voluntarily provide a unique reference number only known to themselves so that SJT and MOAQ data could be collected at two time points. Of the 284 participants who completed the survey at Time 1 (T1), 133 also completed the survey at Time 2 (T2), representing a 47% response rate. The interval between test administrations was four weeks.

6.6 Results

The aim of this validation study was to examine the psychometric properties of the SJT to establish the validity and reliability of the measure. In total, three sets of analyses were performed on the data. Firstly, an item analysis was performed on the SJT to examine how well each item facilitates different responses and is able to discriminate respondents according to whatever the questionnaire is measuring (Rust & Golombok, 2009). In addition, group differences were examined on demographic variables. Second, the reliability of the SJT was examined for internal consistency. Test re-test reliability was examined by correlating SJT scores at T1 and T2. Finally, the construct and criterion-related validity of the SJT were examined. Construct validity evidence was shown by the degree of convergence between the SJT, SIMP, and 5FRRQ. Criterion-related validity evidence was shown by examining the ability of the resilience-SJT to predict organisational attitudinal outcomes at T1 and T2 and incremental validity over both the 5FRRQ and SIMP (controlling for education and experience) in predicting organisational attitudinal outcomes at T1 and T2.

6.6.1 Item analysis

Item analysis is a close examination of individual tests or test items, which helps to discover which items best measure the construct the test was designed to measure (Rust & Golombok

2009). A test may sometimes be limited in its reliability and validity because it contains items that are poorly worded or that do not actually measure the content domain that the test is designed to measure. Item analysis therefore involves analysing two characteristics of each test item: item difficulty and item discrimination (how well does the item differentiate between high and low scorers).

6.6.1.1 Item Difficulty

The difficulty of an item is important to analyse, as each item should discriminate between respondents. If an item is answered correctly by too many respondents it is either too easy or too obvious; similarly, if an item is answered incorrectly by too many respondents it is either too difficult or too ambiguous. The difficulty of the SJT-items was assessed by finding the difficulty index (the number of respondents who got the item correct divided by the total number of respondents).

The difficulty index of the 12-items lay between 0.45 and 0.73 (higher indices indicate easier items), which is acceptable according to guidelines by Rust and Golombok (2009). As shown in Figure 6.1, all items had a negative skew suggesting that test-takers tended to score relatively highly on the SJT-items. This range restriction was expected given the fact that test-takers were experienced in palliative care work.

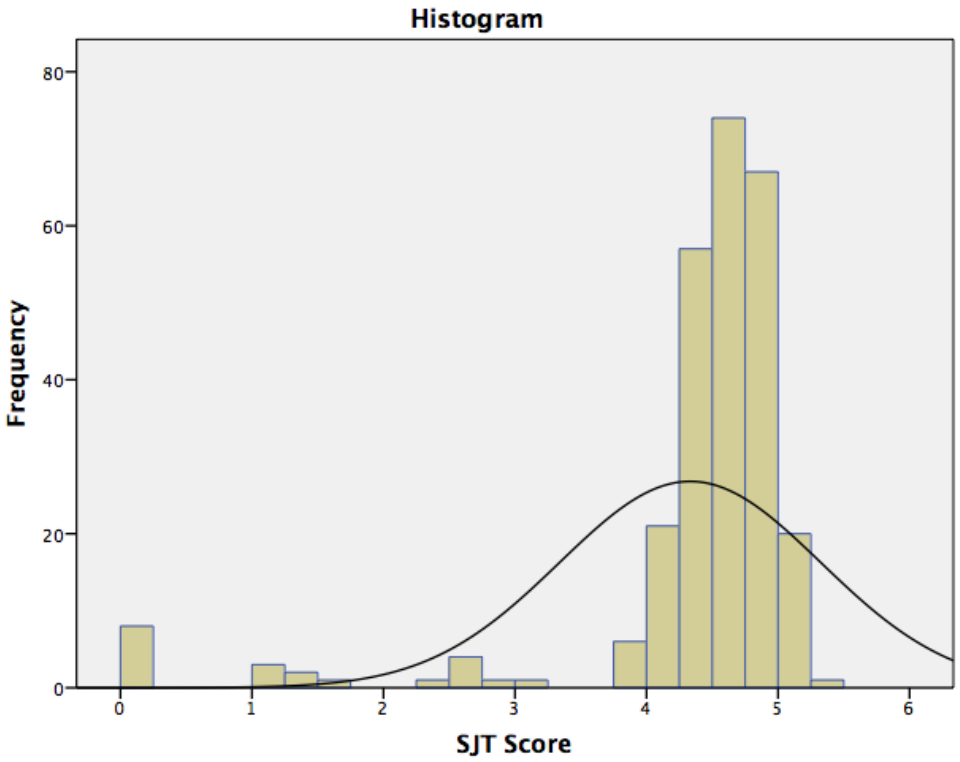


Figure 6.1: Distribution of SJT scores

Standard deviations for items were all over 1.0 indicating acceptable dispersion of scores around the mean. Table 6.6 summarises the results of these analyses (note: difficulty indices are expressed in percentages for easier interpretation) and shows the following:

1. For items 4, 5, 9, and 10 (highlighted in blue), 53% of respondents (on average) chose the correct response options. Mean scores[14] for items ranged from 3.69 to 3.75 (mean=3.73). Difficulty indices ranged between 53% and 54%.
2. For items 1, 2, 3, and 7 (highlighted in orange), 63% of respondents (on average) chose the correct response options. Mean scores for items ranged from 4.25 to 4.51 (mean=4.40). Difficulty indices ranged between 61% and 64%.
3. For items, 12, 11, 8, 6 (highlighted in green), 69% of respondents (on average) chose the correct response options. Mean scores ranged from 4.66 to 5.37 (mean=4.86) indicating that these items may have been the easiest items on the resilience-SJT. Difficulty indices ranged between 67% and 77%.

Table 6.6: SJT item-level statistics (n=284)

Item no.	Mean Score	Difficulty index (%)	Skew	SD	Min Score	Max score
1	4.51	64%	-2.60	1.40	3.00	6.00
2	4.25	61%	-0.52	1.84	2.00	7.00
3	4.41	63%	-1.33	1.63	3.00	6.00
4	3.77	54%	-2.02	1.27	2.00	5.00
5	3.69	53%	-1.45	1.36	1.00	5.00
6	4.67	67%	-1.62	1.23	3.00	6.00
7	4.42	63%	-1.04	1.25	3.00	6.00
8	4.72	67%	-2.04	1.18	3.00	6.00
9	3.73	53%	-2.20	1.06	2.00	5.00
10	3.75	54%	-1.50	1.22	1.00	5.00
11	4.66	67%	-2.61	1.24	3.00	6.00
12	5.37	77%	-2.81	1.40	3.00	6.00

6.6.1.2 Item discrimination

In this study, discrimination was measured by examining the correlation coefficient between the total scores for each item and total scores for all the other items in the SJT. The higher the correlation coefficient, the more discriminating the item is. A high correlation means that

[14] Total possible score of 7

people who do well on the question also do well on the test. Rust and Golombok (2009) suggest that a minimum *r* value of .20 is usually required for an item to be deemed satisfactorily discriminating. All SJT items demonstrated item-total correlations of above .20, therefore all 12 items were deemed as having good psychometric properties with regards to item discrimination.

6.6.2 Demographics

In order to examine the 12-item resilience-SJT for bias effects, group differences in performance were calculated based on education, gender, and age. Univariate analyses showed significant differences between levels of education. Participants who were educated to degree level scored significantly higher on SJT scores than those who were not educated to degree level, $F(1, 261) = 27.30$, $p < .001$. However the effect size was very small (partial eta squared = .10) for these group differences. There were no other significant differences found for the remaining two demographic variables, gender and age.

6.6.3 Reliability

With regards to reliability for the SJT, Cronbach's alpha for the SJT was α=91. Test stability was assessed using a test-retest method. Of the 240 (only online surveys were re-sent due to time lags associated with postal surveys) invitations to complete the survey, 133 participants (response rate 55%) completed the SJT, with a four-week interval between administrations. The correlation between T1 and T2 test scores was ρ=.71 (p<.01) which is considered an acceptable test-retest value (Anastasi, 1998).

6.6.4 Validity

The *Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999) consider validity as a unitary concept and varying sources of evidence can contribute to an understanding of the inferences that can be drawn from a test score. There are two primary types of evidence related to the validity of test scores. The first evidence relates to the constructs measured by a test score. The second is evidence that concerns the prediction of outcome variables. These two types of evidence are presented below.

6.6.4.1 Construct validity evidence

Factor Analysis

To examine construct validity evidence of the SJT, an exploratory factor analysis (EFA) was conducted on 50% of randomly selected cases from Sample 3 (referred to forthwith as Sample 3a and 3b) with 142 participants. To test the factorial validity of the EFA, a confirmatory factor analysis (CFA) was subsequently performed using Sample 3b (n=142). These analyses used separate samples as it is suggested that confirmatory analyses are not valid unless they are performed on independent samples (Kline, 1994).

For Sample 3a, The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was calculated at .87, indicating the data was suitable for EFA (Field, 2009). Bartlett's Test of Sphericity (Bartlett, 1937) was significant (χ^2 = 667.34, p <.001) indicating that variables included in the analysis were adequately correlated and independent. In order to achieve a clear factor structure and discard items explaining little variance, parallel analyses using *rawpar* syntax (O'connor, 2000) followed by principal axis factoring (PAF) were performed on the data. A promax rotation was chosen to allow factors to correlate and to obtain a factor solution that is maximally distinguishable (Comfrey & Lee, 1992).

The first parallel analysis on all 12 items indicated that one factor should be extracted. A forced one-factor solution was performed on the data and is shown in Table 6.7. The pattern of item cluster showed that all 12 items loaded above .32 on the one Factor.

Table 6.7: SJT exploratory factor analysis

	Component
Item	1
Item 1	**.80**
Item 4	**.76**
Item 11	**.73**
Item 5	**.72**
Item 3	**.68**
Item 12	**.67**
Item 9	**.67**
Item 2	**.64**
Item 10	**.57**
Item 8	**.49**
Item 6	**.45**
Item 7	**.38**
Initial eigenvalues	*4.95*
% variance accounted	*41.26*

Next, a CFA was conducted using Sample 3b. To determine the fit of the model, three fit indices were used for these analyses (Hu & Bentler, 1999): 1) Chi-Square, in which non-significant results indicate good model fit, 2) comparative fit index (CFI) in which values

close to .95 indicate a 'close' fit to the data; and 3) root mean square error of approximation (RMSEA) in which values lower than .05 represent a close approximation to the data. Analyses were conducted using Mplus version 4.0, using ML estimation. Hu and Bentler (1999) also suggest that a combination of all these fit indices should be considered in order to reduce both Type I and Type II errors.

In the CFA analysis, the final solution fit-indices reasonably approximated Hu and Bentler's (1999) combinational rules and suggested an acceptable fit for the 12-item, 1-factor model: (χ^2=109.07, df=54, p<.001); CFI= .94; RMSEA= .05. The internal consistency for the scale was Cronbach's alpha α=.91. In responding to research question 1, it was concluded that the SJT has a unidimensional factor structure and therefore may be tapping into a single construct, quite possibly procedural knowledge, associated with resilience in palliative care workers.

Convergent validity

Given that the SJT has been shown to explain variance associated with procedural knowledge (e.g. Motowidlo & Beier, 2010), the SJT was expected to correlate with job experience and education. As depicted in Table 6.8, a small significant correlation was found between the SJT and higher levels of experience (r=.31, p<.001) and education (r=.18, p<.001). This finding supports Hypothesis 1.

To test whether the SJT shows convergent validity with a measure of resilience resources, SJT total scores were correlated with the subscales comprising the 5FRRQ. Positive correlations were found between the SJT and the *psychological capital* subscale (r=.42, p<.001), the *hardiness* subscale (r=.34, p<.001), and the *self-efficacy* subscale (r=.47, p<.001). There were no significant correlations found between the SJT and either *social resources* or *family cohesion* subscales. The results of these analyses show partial support for Hypothesis 2. However, to some degree these findings suggest that the intrapersonal resources from the 5FRRQ (*psychological capital, self-efficacy, and hardiness*) and the SJT are measuring a somewhat similar set of *resilience* resources.

It should be noted that despite the similar trend of convergence observed between Time 1 and Time 2 SJT scores and experience, education, and 5FFRQ resources, SJT Time 2 correlations were somewhat smaller than those at Time 1. It is hypothesised that due to the smaller sample of SJT time 2 scores (n=133) this may have diminished the observed correlations.

Table 6.8: Correlations between Time 1 and Time 2 study variables in Sample 3

Variable	Edu	Exp	PC	Hardi	SE	Fam	Socres	E	A	ES	C	O	SJT_T1	SJT_T2	OC_T1	TO_T1	JS_T1	OC_T2	TO_T2
Education	-																		
Experience	.15	-																	
PC	.02	.10	-																
Hardi	.02	.02	.53*	-															
SE	.04	.08*	.67*	.48*	-														
Fam	.06	.10	.13	.13	.11	-													
Socres	.10	.17	.17	.18*	.23*	.40*	-												
E	-.1	-.13	-.07	-.05	.15	-.07	.49*	-											
A	-.11	.00	.08	-.13	-.04	.03	-.06	.21*	-										
ES	-.04	-.05	.24*	.20*	.12	.09	-.13	.30*	.24*	-									
C	.08	-.06	-.13	-.08	-.11	-.11	-.09	.05	.31*	.11	-								
O	.09	.03	.074	-.03	.09	-.08	-.06	.07	.34*	.06	.36*	-							
SJT_T1	.18*	.31*	.42*	.34*	.47*	.03	.03	.11	.17*	.32*	.18*	.14*	-						
SJT_T2	.16*	.25*	.36*	.27*	.43*	.10	.07	.02	.07*	.10*	.09*	.13*	.71*	-					
OC_T1	.08	.06	.13	.19*	.09	.20	.22	.14	-.11	.10	.11*	.04	.52*	.15*	-				
TO_T1	-.10*	-.14*	-.28*	.08	-.16*	.14	.18	-.08	.13*	-.00	-.15*	-.18*	-.44*	-.11*	-.47*	-			
JS_T1	.17*	.18*	.46*	.17	.23	.02	.13*	.02	.15*	.12	.11*	.04	.56*	.29*	.46*	.55*	-		
OC_T2	.06	.09	.22	.14*	.05	.08	.13	.09	.01	-.08	.08*	.01	.47*	.26*	.52*	-.43*	.47*	-	
TO_T2	-.11*	-.13*	-.17*	.02	-.09*	.04	.11	-.13	.11*	.04	-.16*	.15	-.41*	-.25*	-.41*	.51*	-.54*	.39*	-
JS_T2	.14*	.12*	.34*	.07	.18	.03	.09*	.03	.09*	.13	.11*	.06	.49*	.54*	.52*	-.49*	.56*	.54*	-.67*

Note: Edu=Education; Exp=Experience; PC=Psychological Capital; Hardi=Hardiness; Fam=Family Cohesion; Socres=Social Resources; SE=Self-efficacy; E=Extraversion; A=Agreeableness; ES=Emotional Stability; C=Conscientiousness; O=Openness; SJT_T1=Situational Judgment Test at Time 1; SJT_T2=Situational Judgment Test at Time 2; OC_T1=Organisational Commitment at Time 1; OC_T2=Organisational Commitment at Time 2; TO_T1=Turnover Intention at Time 1; TO_T2=Turnover Intention at Time 2; JS_T1=Job Satisfaction at Time 1; JS_T2=Job Satisfaction at Time 2. Numbers in parentheses indicate alpha reliability coefficients.

* Bonferroni correction p<.001. T1(n=284), T2(n=133); T1 and T2 correlations report Spearman's rho. .

6.6.4.2 Criterion-related validity evidence

Predictive validity

Findings from meta-analytic studies have shown that SJTs are strong predictors of job performance (e.g. McDaniel et al., 2001, 2007). In addition to this, a large body of work (see Whetzel & McDaniel, 2009) has shown that SJTs add incremental variance over the Big 5 (McCrae & Costa, 1999) and measures of cognitive ability. To date, SJT criterion-related validity studies have focused on SJTs as predictors of job performance in selection research (Patterson, Carr, et al., 2009; J. A. Weekley & Ployhart, 2006), however less attention has been paid to the relationship between SJTs and organisational attitudinal outcomes. Therefore, the following regression analyses described below will explore whether the present SJT is predictive of three organisational attitudinal outcomes at Time 1 and Time 2: turnover intention, organisational commitment, and job satisfaction. In all analyses (1-3), education and experience were entered as control variables. Table 6.8 shows correlations for all Time 1 and Time 2 study variables:

1) The SJT at Time 1 was entered as a predictor of Time 1 scores for turnover intention, organisational commitment, and job satisfaction, respectively
2) The SJT at Time 1 was entered as a predictor of Time 2 scores for turnover intention, organisational commitment, and job satisfaction, respectively

To assess whether the SJT added incremental variance above and beyond personality and the 5FRRQ resources in predicting organisational attitudinal outcomes at Time 1 and Time 2[15] (described below), two further analyses were conducted:

3) Using each of the T1 organisational attitudinal outcomes as the DV: personality was entered into the first step of the analysis; the 5FRRQ was entered in Step 2; and the SJT was entered in Step 3.
4) Using each of the T2 organisational attitudinal outcomes as the DV: personality was entered into the first step of the analysis; the 5FRRQ was entered in Step 2; and the SJT was entered in Step 3.

[15] Personality and 5FRRQ data was not collected at Time 2 as these were trait variables and therefore considered relatively stable constructs.

Prior to presenting the results for these studies, pre-analysis checks were performed on these data and are described next.

Pre-analysis checks

Pre-analysis checks of the data were performed to determine whether the data were suitable for regression (Field, 2013). For the assumption of independent errors, the Durbin-Watson statistic was checked to ensure it was close to 2. The variance inflation factor (VIF) and tolerance statistics were checked to ensure that there was no multi-colinearity in the data. Plots of standardised residuals against standardised predicted values were checked to ensure that the assumptions of linearity and homoscedasticity were met. Finally histogram and normal probability plots were checked to ensure that residuals were normally distributed. All these assumptions were met, indicating that the data were suitable for regression.

Additionally, the number of cases needed to be checked to ensure that there were enough to run these regression analyses. Field (2013) suggests 10 cases for each predictor. For regression analyses 1 and 2 examining the predictive validity of the SJT, three predictors were used, and therefore 30 cases would have been sufficient. For analysis 3, a total of 13 predictors were used and thus 130 cases would have been sufficient. On the other hand, (1991)suggests 104 + k cases where k equals the number of predictors: with three predictors this would be 107 cases; and with 13 predictors this would be 117 predictors. Using both these rules of thumb, the number of cases was sufficient to run regression analyses.

SJT and T1 organisational attitudinal outcomes

Table 6.9 shows the results of three regression equations:

1) The first regression analysis showed that the SJT at Time 1 was a significant negative predictor of turnover intention, R^2=.18, F(1,247)=52.91, p<.001; explaining 18% of variance in T1 turnover intention
2) The second regression analysis showed that the SJT at Time 1 was a significant positive predictor of organisational commitment, R^2=.24, F(1,247)=78.92, p<.001; explaining 24% of variance in T1 organisational commitment
3) The third regression analysis showed that the SJT at Time 1 was a significant positive predictor of job satisfaction, R^2=.26, F(1,247)=84.14, p<.001; explaining 26% of variance in T1 job satisfaction

SJT and T2 organisational attitudinal outcomes

Table 6.9 shows the results of three regression equations:

1) The first regression analysis showed that the SJT at Time 1 was a significant negative predictor of turnover intention, R^2=.12, F(1,132)=41.70, p<.05; explaining 12% of variance in T2 turnover intention
2) The third regression analysis showed that the SJT at Time 1 was a significant predictor of organisational commitment, R^2=.18, F(1,132)=52.73, p<.05; explaining 18% of variance in T2 organisational commitment
3) The second regression analysis showed that the SJT at Time 1 was a significant predictor of job satisfaction, R^2=.21, F(1,132)=72.57, p<.01; explaining 21% of variance in T2 job satisfaction

The SJT as was a significant predictor of turnover intention, organisational commitment, and job satisfaction at Time 1 and 2 and therefore, Hypotheses 3 and 4 were accepted. Next, to demonstrate further evidence of criterion-related validity the results of three hierarchical regressions using Time 1 data are presented (see Table 6.10).

Table 6.9: Regression equations for T1 and T2 organisational attitudinal outcomes regressed onto SJT at Time 1 test scores

	B	SE B	β
T1 Turnover Intention, R^2 = .18	-1.45	.30	-.29**
T1 Organisational Commitment, R^2 = .24	1.59	.18	.49**
T1 Job Satisfaction, R^2 = .26	1.57	.17	.51**
T2 Turnover Intention, R^2 = .12	-.01	.00	-.21*
T2 Organisational commitment, R^2 = .18	.01	.00	.28*
T2 Job satisfaction, R^2 = .21	.01	.01	.37*

Note. N = 284; * p<.05 ** p <.01

Incremental validity (T1 turnover intention)

Using T1 turnover intention as the dependent variable, experience and education were entered into the regression equation as control variables, this first step predicted 7% of the variance in turnover intention, beta-weights were significant for experience (β = -.24, *p* <.001) but not for education (β = -.09, *p* =.16).

Table 6.10 shows that the addition of personality in Step 2 added to the overall prediction of turnover intention, ΔR^2 = .08, *F* (7, 220) = 26.32, p <.001. This shows that, after the control variables, personality explains an additional 8% of the variance in turnover intention. Beta-weights were significant for Agreeableness (β = -.19, *p*=.02), and Conscientiousness (β = -.15, *p* <.05), suggesting that people high on Agreeableness and Conscientiousness had lower turnover intentions.

The addition of the 5FRRQ resources in Step 3 added to the prediction of turnover intention, ΔR^2 = .07, *F* (12, 215) =23.01, p<.001; the beta-weights for *Psychological Capital* (β = -.36, *p* <.001) and *Self-efficacy* (β = -.21, *p* <.05) were significant and explained an additional 7% of variance in turnover intention. This suggests that people who had greater *Psychological Capital* and *Self-efficacy* resources tended to have lower turnover intentions.

Finally, the addition of the SJT in Step 4 significantly added to the prediction of turnover intention, ΔR^2 = .09, *F* (13, 214) = 28.04, p<.001. This shows that, after personality, and two of the five 5FRRQ resources, SJT scores explain an additional 9% of variance in turnover intention. The beta-weight for the SJT was also significant (β = -.46, *p* <.001), suggesting that higher scores on the SJT predict lower turnover intentions.

Incremental validity (T1 organisational commitment)

A hierarchical regression equation was calculated with T1 organisational commitment as the dependent variable. Education and experience were entered into Step 1 as control variables; personality variables were entered in Step 2; the five 5FRRQ resources were entered into Step 3; and the SJT was entered into Step 4.

Step 1 variables were entered into the regression equation as control variables but were not significant predictors of organisational commitment. Table 6.10 shows that the addition of personality in Step 2 also did not add to the overall prediction of organisational commitment, ΔR^2 = .05, *F* (7, 220) = 14.11, p=.06. However, the beta-weight for Conscientiousness (β =

.18, p <.05) was significant, suggesting that people high on Conscientiousness had higher levels of organisational commitment.

The addition of the 5FRRQ resources in Step 3 added to the prediction of organisational commitment, ΔR^2 = .07, F (12, 215) = 22.71, p<.01; the beta-weights for the *Hardiness* resource was significant (β = .21, p <.01), suggesting that people who had greater *Hardiness* resources tended to have higher levels of organisational commitment.

Finally, the addition of the SJT in Step 4 significantly added to the prediction of organisational commitment, ΔR^2 = .20, F (13, 214) = 71.01, p<.001; the beta-weight for the SJT was significant (β = .67, p <.001). This shows that, after personality, and the 5FRRQ Hardiness resource, SJT scores explained an additional 20% of variance in organisational commitment.

Incremental validity (T1 job satisfaction)

Using T1 job satisfaction as the dependent variable, experience and education were entered into the regression equation as control variables, this first step predicted 7% of the variance in job satisfaction, the beta-weight for experience (β = .22, p <.01) and education (β = .15, p <.05) were both significant. This indicates that more experienced and educated people tend to have higher levels of job satisfaction.

Table 6.10 shows that the addition of personality in Step 2 significantly added to the prediction of job satisfaction, ΔR^2 = .06, F (7, 220) = 15.72, p<.001; beta-weights for Agreeableness (β = .18, p <.05) and Conscientiousness (β = .14, p <.05) were significant. This indicates that higher levels of Agreeableness and Conscientiousness tend to predict higher levels of job satisfaction.

The addition of the 5FRRQ resources in Step 3 added to the prediction of job satisfaction, ΔR^2 = .06, F (12, 215) = 14.98, p<.001; the beta-weight for *Psychological Capital* (β = .26, p <.01) and *Social Resources* (β = .18, p <.05) were both significant. This suggests that those that have higher levels of *Social* and *Psychological Capital* resources tend to have higher levels of job satisfaction.

Finally, the addition of the SJT in Step 4 significantly added to the prediction of job satisfaction, ΔR^2 = .21, F (13, 214) = 72.25, p<.001; the beta-weight for the SJT was significant (β = .69, p <.001). This shows that, after personality, and the 5FRRQ *Social* and

Psychological Capital resources, SJT scores explained an additional 21% of variance in job satisfaction.

All three hierarchical regressions showed that SJT scores at Time 1 significantly predicted Time 1 organisational attitudinal outcomes: turnover intention, organisational commitment, and job satisfaction over and above education, job experience, personality, and four of the five 5FRRQ resources (*Social Resources, Psychological Capital, Hardiness, and Self-efficacy*); Hypothesis 5 was thus supported.

Table 6.10: Hierarchical regression for control variables, personality, 5FRRQ resources, and SJT on T1 organisational attitudinal outcomes

	B	***SE B***	***β***
DV Turnover Intention			
Step 1, $R^2 = .07$			
Constant	11.92	1.12	
Education	-.35	.25	-.09
Experience	2.10	.56	.24***
Step 2, $\Delta R^2 = .08$			
Extraversion	-.14	.10	-.09
Agreeableness	.31	.12	-.19*
Emotional stability	.04	.12	.02
Conscientiousness	-.24	.11	-.15*
Openness	-.36	.13	-.20**
Step 3, $\Delta R^2 = .07$			
5FRRQ Psychological Capital	-1.48	.37	-.36***
5FRRQ Hardiness	-.10	.40	-.02
5FRRQ Self-efficacy	-.83	.34	-.21*
5FRRQ Social Resources	.25	.28	.07
5FRRQ Family Cohesion	.22	.22	.07
Step 4, $\Delta R^2 = .09$			
SJT	-4.78	.88	-.46***
DV Organisational Commitment			
Step 1, $R^2 = .02$			
Constant	2.11	.44	
Education	-.18	.23	-.05
Experience	-.38	.21	-.12
Step 2, $\Delta R^2 = .05$			
Extraversion	.06	.04	.11
Agreeableness	-.09	.05	-.15
Emotional stability	.03	.05	.04
Conscientiousness	.10	.04	.18*
Openness	-.00	.05	-.01
Step 3, $\Delta R^2 = .07$			
5FRRQ Psychological Capital	.26	.14	.18
5FRRQ Hardiness	.41	.15	.21**
5FRRQ Self-efficacy	.02	.13	.01
5FRRQ Social Resources	.16	.11	.12
5FRRQ Family Cohesion	.15	.08	.13

	B	***SE B***	***β***
Step 4, $\Delta R^2 = .20$			
SJT	2.50	.32	.67***
DV Job Satisfaction	B	SE B	B
Step 1, $R^2 = .07$			
Constant	2.70	.40	
Education	.49	.21	.15*
Experience	.63	.19	.22**
Step 2, $\Delta R^2 = .06$			
Extraversion	.04	.03	.09
Agreeableness	.10	.04	.18*
Emotional stability	.06	.04	.11
Conscientiousness	.08	.04	.14*
Openness	.06	.04	.11
Step 3, $\Delta R^2 = .06$			
5FRRQ Psychological Capital	.36	.13	.26**
5FRRQ Hardiness	.19	.14	.10
5FRRQ Self-efficacy	.12	.12	.09
5FRRQ Social Resources	.23	.10	.18*
5FRRQ Family Cohesion	.03	.07	.03
Step 4, $\Delta R^2 = .21$			
SJT	2.40	.27	.69***

Note. N = 284. * p < .05; **p<.01; ***p<.001

In the following section the final set of analyses to establish the criterion-related validity of the SJT are presented.

Incremental validity (T2 turnover intention)

Using T2 turnover intention as the dependent variable, experience and education were entered into the regression equation as control variables, this first step predicted 4% of the variance in turnover intention, beta-weights were significant for experience (β = -.14, *p* <.001) but not for education (β = -.03, *p* =.12).

Table 6.11 shows that the addition of personality in Step 2 added to the overall prediction of turnover intention, $\Delta R^2 = .03$, F (7, 126) = 7.89, p <.001. This shows that, after the control variables, personality explains 3% of the variance in turnover intention. Beta-weights were significant for Agreeableness (β = -.07, *p*=.04), and Conscientiousness (β = -.11, *p* =.02), suggesting that people high on Agreeableness and Conscientiousness had lower turnover intentions.

The addition of the 5FRRQ resources in Step 3 added to the prediction of turnover intention, $\Delta R^2 = .03$, F (12, 121) =6.12, p<.001; the beta-weight for *Psychological Capital* (β = -.16, *p* <.001) was significant and explained an additional 3% of variance in turnover intention. This

suggests that people who had greater *Psychological Capital* resources tended to have lower turnover intentions.

Finally, the addition of the SJT in Step 4 significantly added to the prediction of turnover intention, $\Delta R^2 = .14$, F (13, 120) = 32.01, p<.001. This shows that, after personality, and one of the five 5FRRQ resources, SJT scores explain an additional 14% of variance in turnover intention. The beta-weight for the SJT was also significant (β = -.26, p <.01), suggesting that higher scores on the SJT predict lower turnover intentions.

Incremental validity (T2 organisational commitment)

A hierarchical regression equation was calculated with T2 organisational commitment as the dependent variable. Education and experience were entered into Step 1 as control variables; personality variables were entered in Step 2; the five 5FRRQ resources were entered into Step 3; and the SJT was entered into Step 4.

Step 1 variables were entered into the regression equation as control variables but were not significant predictors of organisational commitment. Table 6.11 shows that the addition of personality in Step 2 also did not add to the overall prediction of organisational commitment, $\Delta R^2 = .03$, F (7, 126) = 7.87, p=.08. The addition of the 5FRRQ resources in Step 3 added to the prediction of organisational commitment, $\Delta R^2 = .03$, F (12, 121) = 6.71, p<.01 and explained 3% of the variance in organisational commitment; the beta-weight for the *Hardiness* resource was significant (β = .24, p <.05), suggesting that people who had greater *Hardiness* resources tended to have higher levels of organisational commitment.

Finally, the addition of the SJT in Step 4 significantly added to the prediction of organisational commitment, $\Delta R^2 = .18$, F (13, 120) = 67.01, p<.01; the beta-weight for the SJT was significant (β = .45, p <.001). This shows that, after personality, and the 5FRRQ Hardiness resource, SJT scores explained an additional 18% of variance in organisational commitment.

Incremental validity (T2 job satisfaction)

Using T2 job satisfaction as the dependent variable, experience and education were entered into the regression equation as control variables, this first step predicted 4% of the variance in job satisfaction, the beta-weight for experience (β = .14, p <.05) and education (β = .18, p <.05) were both significant. This indicates that more experienced and educated people tend to have higher levels of job satisfaction.

Table 6.11 shows that the addition of personality in Step 2 significantly added to the prediction of job satisfaction, $\Delta R^2 = .06$, F (7, 126) = 14.72, p<.001 and explained 6% of the variance in job satisfaction; beta-weights for Agreeableness (β = .12, p <.05) and Conscientiousness (β = .16, p <.01) were significant. This indicates that higher levels of Agreeableness and Conscientiousness tend to predict higher levels of job satisfaction.

The addition of the 5FRRQ resources in Step 3 added to the prediction of job satisfaction, $\Delta R^2 = .05$, F (12, 121) = 12.28, p<.01 and explained 5% of the variance in job satisfaction; the beta-weight for *Psychological Capital* (β = .21, p <.05) and *Social Resources* (β = .10, p <.01) were both significant. This suggests that those that have higher levels of *Social* and *Psychological Capital* resources tend to have higher levels of job satisfaction.

Finally, the addition of the SJT in Step 4 significantly added to the prediction of job satisfaction, $\Delta R^2 = .19$, F (13, 120) = 68.25, p<.001; the beta-weight for the SJT was significant (β = .55, p <.001). This shows that, after personality, and the 5FRRQ *Social* and *Psychological Capital* resources, SJT scores explained an additional 19% of variance in job satisfaction.

All three hierarchical regressions showed that SJT scores at Time 1 significantly predicted Time 2 turnover intention, organisational commitment, and job satisfaction over and above education, job experience, personality, and four of the five 5FRRQ resources (*Social Resources, Psychological Capital, Hardiness, and Self-efficacy*); Hypothesis 6 was thus supported.

Table 6.11: Hierarchical regression for control variables, personality, 5FRRQ resources, and SJT on T2 organisational attitudinal outcomes

	B	***SE B***	***B***
DV Turnover Intention			
Step 1, $R^2 = .04$			
Constant	11.14	1.12	
Education	-.05	.25	-.03
Experience	-1.14	.54	-.14***
Step 2, $\Delta R^2 = .03$			
Extraversion	-.14	.11	.03
Agreeableness	.31	.10	-.07*
Emotional stability	.06	.13	.05
Conscientiousness	-.23	.12	-.11*
Openness	-.12	.11	-.22
Step 3, $\Delta R^2 = .03$			
5FRRQ Psychological Capital	-1.45	.24	-.16***
5FRRQ Hardiness	-.13	.35	-.04

	B	*SE B*	*B*
5FRRQ Self-efficacy	-.76	.32	-.18
5FRRQ Social Resources	.26	.31	.08
5FRRQ Family Cohesion	.25	.29	.09
Step 4, $\Delta R^2 = .14$			
SJT	-3.56	.86	-.26**
DV Organisational Commitment			
Step 1, $R^2 = .01$			
Constant	2.13	.41	
Education	-.14	.18	-.02
Experience	-.26	.19	-.13
Step 2, $\Delta R^2 = .03$			
Extraversion	.03	.03	.13
Agreeableness	-.04	.04	-.13
Emotional stability	.05	.06	.05
Conscientiousness	.13	.05	.16
Openness	-.03	.06	-.05
Step 3, $\Delta R^2 = .03$			
5FRRQ Psychological Capital	.16	.12	.15
5FRRQ Hardiness	.39	.13	.24*
5FRRQ Self-efficacy	.05	.11	.03
5FRRQ Social Resources	.18	.12	.16
5FRRQ Family Cohesion	.18	.05	.16
Step 4, $\Delta R^2 = .18$			
SJT	2.36	.33	.45***
DV Job Satisfaction	B	SE B	B
Step 1, $R^2 = .04$			
Constant	2.69	.32	
Education	.46	.18	.18*
Experience	.75	.19	.14*
Step 2, $\Delta R^2 = .06$			
Extraversion	.05	.02	.11
Agreeableness	.13	.03	.12*
Emotional stability	.05	.04	.15
Conscientiousness	.09	.03	.16**
Openness	.07	.04	.12
Step 3, $\Delta R^2 = .05$			
5FRRQ Psychological Capital	.39	.11	.21*
5FRRQ Hardiness	.23	.12	.11
5FRRQ Self-efficacy	.14	.11	.12
5FRRQ Social Resources	.24	.12	.10**
5FRRQ Family Cohesion	.06	.11	.05
Step 4, $\Delta R^2 = .19$			
SJT	2.26	.35	.55***

Note. N = 284. * p < .05; **p<.01; ***p<.001

6.6.5 Summary of findings

Findings from Part Two provide evidence for the SJT's reliability, construct validity, and criterion-related validity. The SJT had high internal consistency and showed moderate test-retest reliability. With respect to construct validity, factor analytic studies (EFA/CFA) found

support for a one-factor model. Further analyses showed that the SJT was positively correlated with three of the five 5FRRQ resources (*Psychological Capital, Self-efficacy,* and *Hardiness*), job experience, and education. Based on these findings it is speculated that the SJT developed here may be measuring a procedural knowledge resilience resource. It is speculated that the SJT may therefore be saturated with construct variance associated with procedural knowledge and resilience in the context of the palliative care setting.

To examine the criterion-related validity of the SJT, two sets of hierarchical regression analyses were performed. In the first set of analyses, three organisational attitudinal outcomes; turnover intention, organisational commitment, and job satisfaction were regressed onto SJT scores at Time 1. Results showed that the SJT was a significant predictor of all three Time 1 variables; individuals who scored higher on the SJT had lower turnover intentions and higher levels of organisational commitment and job satisfaction. The same analyses were performed using Time 2 variables; turnover intention, organisational commitment, and job satisfaction which were regressed onto SJT scores at Time 1. Results showed that the SJT was a significant predictor of Time 2 variables; individuals who scored higher on the SJT had lower turnover intentions and higher levels of organisational commitment and job satisfaction four weeks later (Time 2).

In a second set of regression analyses, evidence of the SJT's incremental validity over experience, education, personality, and the 5FRRQ resources was explored with Time 1 and Time 2 organisational attitudinal outcomes. Results showed that the SJT explained incremental evidence over and above education, experience, personality and four of the five 5FRRQ resources (*Psychological Capital, Self-efficacy, Hardiness,* and *Social Resources*) for all three attitudinal outcome measures (turnover intention, job satisfaction, and organisational commitment) at Time 1 and four weeks later at Time 2. These results provide initial evidence that the SJT developed in this study has acceptable construct and criterion-related validity.

6.7 Discussion

The aim of the present study was to develop and validate an SJT to measure resilience in palliative care workers; more precisely, a procedural knowledge resilience resource. The research question that guided this study asked whether it was possible to advance current approaches to resilience measurement specifically for use in the palliative care context. The next section discusses findings from each part of this chapter, followed by study implications, study limitations and future directions.

6.7.1 SJT development

In Part One of this chapter the development of the SJT was described. Following best practice (e.g. Patterson, Ashworth, & Good, 2013; Weekley, Ployhart, & Holtz, 2005) item-stems and scoring keys were developed by SMEs working in the palliative care domain. The final output of the development process resulted in a 12-item Situational Judgment Test (SJT). In Part Two, all 12 SJT items were subject to an item analysis to establish whether they have sufficient psychometric properties. In terms of item difficulty, item indices were in the acceptable range, suggesting that respondents chose responses that were between 53% and 77% in agreement with the SME scoring key. Item discrimination analyses were also satisfactory as all item-total correlations were above the minimum cut-off (.20), suggesting that the SJT was capable of discriminating between high and low scorers. Next, the reliability and validity of the SJT was examined.

6.7.2 SJT reliability

The SJT developed in the present study showed good internal consistency (α= .91), and moderate test stability (ρ=.71, p<.01). One possible explanation for the moderate test-retest value may have been due to sampling variability owing to the small number of participants (n=133). Overall, the reliability of the SJT measure developed here shows generally good reliability, however this study is a preliminary step towards exploring the possibility of using SJTs in the palliative care domain, hence further reliability studies are necessary.

6.7.3 SJT validity

Also in Part Two of the current study, the construct validity and criterion-related validity of the SJT was examined. To explore the construct validity of the SJT an EFA and subsequent CFA was performed on the 12 items comprising the SJT. Findings from these analyses showed that the SJT had a unidimensional structure, representing a unitary construct. Further support for the unifactorial model was shown by the high internal consistency of the SJT (α= .91) particularly given the small number of items and high inter-item correlations. It is acknowledged that SJT scenarios and response options may be measuring multiple components of a given construct; as such, some have argued that interpretation of SJT factor structures is rendered hazardous (Clause, Mullins, Nee, Pulakos, & Schmitt, 1998). Therefore, it is proposed that the unitary factor structure of the SJT developed in this study may *possibly* represent a resilience resource related to procedural knowledge. This is not an unreasonable assumption to make given the empirical evidence to support ITP theory (outlined in section 6.2.1) that proposes the SJT is a measure of procedural knowledge about what is effective behaviour in a given situation (e.g. Motowidlo & Beier, 2010).

Additional construct validity evidence for the SJT was explored by examining the relationship between the SJT and other study variables including resources from the 5FRRQ, personality, education, and job experience. The SJT showed moderate correlational convergence with four of the five 5FRRQ resources, suggesting to some degree at least, the SJT is measuring a set of similar resilience resources as the 5FRRQ. SJT scores also showed weak yet significant correlations with Agreeableness, Emotional Stability, Conscientiousness, and Openness. This result is somewhat consistent with prior meta-analytic research which has shown weak yet significant correlations ranging from r=.06 to r=.31 between SJT scores and personality characteristics (McDaniel & Nguyen, 2001). The SJT was also significantly correlated with job experience. This finding is in line with prior research which has reported a correlation of r=.20 between SJT scores and job experience (J. A. Weekley & Jones, 1997) in addition to several other studies showing the same relationship (e.g., Clevenger, Pereira, Wiechmann, Schmitt, & Harvey, 2001; McDaniel & Nguyen, 2001; Weekley & Jones, 1999).

Findings from criterion-related analyses showed that the SJT was a significant predictor of Time 1 and Time 2 organisational attitudinal outcomes, including job satisfaction, organisational commitment, and turnover intention. A second set of criterion-related analyses showed that when controlling for education and experience, the SJT explained incremental variance over the four of the five 5FRRQ resources and personality in predicting organisational attitudinal outcomes at Time 1 and Time 2. Given that the SJT was developed with knowledge based response options designed to judge the effectiveness of various behaviours in response to situational dilemmas (drawing on procedural knowledge), it is reasonable to expect that the SJT may be assessing a cognitive component of resilience that would explain incremental variance over and above 5FRRQ resources and personality.

Taken together, these findings indicate that the SJT is a valid and reliable measure which shows incremental validity over job experience, personality and four of five 5FRRQ resources. In view of these findings, the SJT method may provide a novel means of measuring a procedural knowledge resilience resource associated with palliative care work. The identification of procedural knowledge as a key resilience resource and introduction of a new method such as the SJT to measure resilience resources makes an original contribution to the resilience literature. It is acknowledged however that these are preliminary findings and that further validation studies are required. The remainder of this chapter concludes with a discussion of the theoretical and practical implications of this study.

6.7.4 Implications

The findings outlined in this study have a number of important implications relating to both research and practice. First, in relation to research, the item difficulty indices showed a negative skew indicating wide agreement of correct response options resulting in fewer differences in how individuals respond to situational dilemmas. A research implication of this finding is that SJT situational dilemmas could be systematically manipulated by researchers to understand the extent to which situational characteristics influence variability in test scores. For example it may be possible to use more generic situation descriptions (e.g., "A patient is extremely agitated, what's the best response?") or use single-response SJTs (Crook et al., 2011; Motowidlo, Martin, & Crook, 2013), which have shown to be valid predictors of performance (Crook et al., 2011). In single-response SJTs, each item consists of one or two brief sentences describing one critical incident. Test-takers are therefore judging the effectiveness of the behaviour shown in the response option (Krumm et al., 2014). It is possible that manipulating specific factors (e.g., type of constructs measured, type of items, type of sample) may potentially moderate the extent to which judgment in SJTs is contextualized or decontextualized (see Krumm et al., 2014) which may in turn influence the variability of test scores.

Second, the SJT developed in the present chapter was intended to assess *judgment* in relation to the effectiveness of drawing on resilience resources in response to situational dilemmas situated in the palliative care environment. As such, it is speculated that the SJT is to some degree at least, *saturated* with resources associated with resilience. *Saturation* refers to the extent to which a particular construct affects a measure such as the SJT (Christian, Edwards, & Bradley, 2010; Roth, Bobko, McFarland, & Buster, 2008). For example, in the present study SJT item-stems were developed using behavioural indicators associated with the use of the procedural knowledge resource in bouncing back from hypothetical challenging workplace situations. It is possible that selecting domain specific behaviours from CIT interviews associated with coping under pressure may represent a way of *saturating* SJTs with resilience-like constructs domains.

A third research implication of this study introduces the possibility of an interactionist multi-measure of resilience resources specifically designed for those working in palliative care. Figure 6.2 depicts this proposed multi-measure of resilience resources based on findings from Chapter 4 and the template analysis presented in the previous chapter. Intra/inter personal resources (e.g. self efficacy/social support) could be assessed using the 5FRRQ, while the SJT could be used to measure intrapersonal resources (including personality) such as procedural knowledge (e.g. Motowidlo & Beier, 2010; Schmitt & Chan, 2006) and situational characteristics. It is important to note that if an SJT item-stem presents a situational dilemma in which interpersonal resources are available to the individual, then it follows that variance associated with interpersonal resources would be explained by both self-report and SJT methods. The use of a person–situation interactionist measure of workplace resilience resources specifies the situational characteristics (SJT) under which intra/interpersonal resources (5FRRQ + SJT) will predict positive adaption to workplace stressors. Moreover, the multi-measure of resilience resources is likely to increase explained variance compared with mono-method measures; the self-report method will explain variance associated with intra/interpersonal resources, while the SJT method will explain variance associated with behavioural responses to situational demands..

Template analysis	5FRR Model
Intrapersonal resources Hardiness Psychological Capital Self-efficacy *Interpersonal resources* Social Resources Family cohesion	*Intrapersonal resources* Hardiness Self-efficacy Psychological capital *Interpersonal resources* Social Resources Family cohesion
Procedural knowledge Life experience Job knowledge	

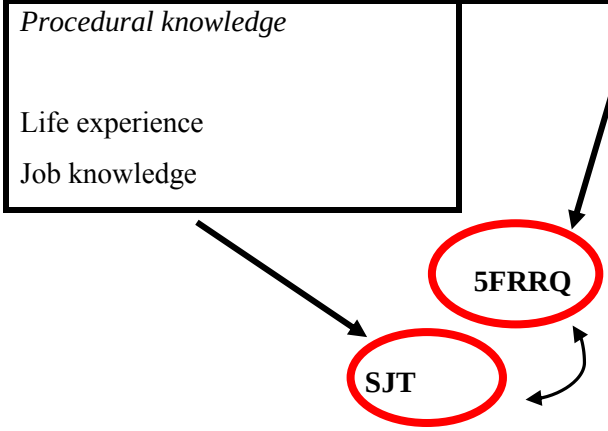


Figure 6.2: Multi-measure of resilience resources

At the conceptual core of the multi-measure is the interactionist process by which situational variables impact upon the expression of intrapersonal resilience resources consistent with implicit trait policy (Motowidlo et al., 2006) and trait activation theory (Tett & Burnett, 2003). It is acknowledged that the proposed multi-measure of resilience resources is paradigmatic in nature —it is an example pointing toward the kinds of resource interactions that could be explored, rather than a complete account of all resource interactions associated with resilience in palliative care. In principle, the multi-measure of resilience resources advocates the assessment of resilience from an interactionist perspective in that it considers trait resilience as well as judgments about effective behaviours in response to specific workplace situations. This is an important methodological advancement because it sidesteps the biases in self-reports and may be considered as a starting point for adopting new approaches to the assessment of resilience resources in palliative care workers.

A fourth research implication of the present study relates to the application of Conservation of Resources (COR) theory (Hobfoll, 1989) to further understanding of resilience. Abundant resilience theories and models have been proposed (see section 1.1.3) emphasising the need

for an all-inclusive resilience theory such as COR theory, which considers resources as the single unit for the understanding of psychological stress (Westman et al., 2004). It is possible that the multi-measure described in the preceding paragraphs may be used empirically to test components of COR theory in relation to resilience in the palliative care context. For example, job demands, resilience resources and their correlates could be explored to understand their relative effects on adaptive behaviours in the face of ongoing workplace stressors. Indeed, empirical applications of COR theory have explored these relationships in relation to burnout (Leiter & Maslach, 2003). It is highly likely that studies of this nature would reveal threshold effects where the demands of a specific situation inhibits or facilitates the effectiveness of resilience related resources. Research of this kind could potentially provide important information about mechanisms behind key COR principles such as resource loss spirals and resource gains (see Lee & Ashforth, 1996).

Fifth, an implication for practice is that in the present study a low fidelity SJT format was employed (Ployhart, Schneider, & Schmitt, 2006). However recent advances in multimedia technology has prompted test developers to create SJT formats presented in video formats (Olson-Buchanan & Drasgow, 2006) or 3D animation for presenting the situations in a way that bears closer resemblance to actual job situations (e.g. Tippins & Adler, 2011). The advantage of using multimedia SJTs have been noted by Drasgow and Olson-Buchanan (2014) and include increased understanding of how participants interpret verbal and nonverbal behaviours, heightened participant interest, and greater standardisation in test administration.

A final implication for practice is that it may be possible that data collected from both CIT interviews and SME focus groups in the present study may contribute to the knowledge elicitation stage of data collection in the design of risk management stress prevention interventions (Cox, Griffiths, & Randall, 2003; Griffiths, Randall, Santos, & Cox, 2003). Risk management interventions use a methodology for conducting assessments for psychosocial hazards in the workplace, and for reducing them. The risk management approach emphasises workers as "experts" in relation to their own jobs who actively participate in the design of the stress prevention intervention (Cox, Griffiths, & Randall, 2003. Employees are therefore involved in the identification of workplace psychosocial risks associated with job content/context (see Cox, 1993) and take ownership of reducing those risks (Cox, Griffiths, & Randall, 2003). This approach has been used extensively in a wide range of occupational settings with a great deal of success (Cox, Randall, & Griffiths, 2002).

6.7.5 Limitations and Future Directions

There are a number of potential limitations of the present study that should be noted. Firstly, it is acknowledged that a single-item measure of personality (SIMP) was used to measure personality in this study. Therefore, the use of this single-item measure as opposed to a longer measure of the Big Five may have had an impact on the study findings. However, as noted earlier, there were time constraints that prevented the use of a longer personality questionnaire in this research setting and therefore the SIMP was chosen as it provided a balance between practical needs and psychometric concerns. Future research should aim to use longer, more fine-grained measures of personality to explore more specific associations between SJTs and personality constructs.

Second, compared with other occupations, there were a large number of nurses comprising the SME workshops in the SJT development phase. While this may limit the study in terms of sampling, this was representative of the participating hospices as the majority of employees were employed as nurses. Despite this limitation, there were no sub group differences found between occupational professions. This may have been mitigated by the fact that there was a sufficient breadth of occupations represented in the SME groups used to develop the SJT.

Third, it was not possible to use objective performance data in the criterion-related validity analyses performed in the present study due to restrictions on data collection made by the hospice ethics committee. Future research may benefit from the use of self-evaluations of performance as proxy measures of performance to circumvent possible restrictions on data collection efforts (Randall, Ferguson, & Patterson, 2000). Whilst this approach may be somewhat unconventional in criterion-related validity studies, it may yield interesting relationships with other variables of interest such as organisational attitudinal outcomes, which have been linked to workplace stress (e.g. Lee & Ashforth).

Fourth, a methodological limitation of the present study relates to the sample size used to assess the factorial validity of the SJT. Both the EFA and CFA had less than 200 cases per analysis. The findings from these analyses must therefore be interpreted with caution. Further validation analyses are required in able to confirm the factor structure of the SJT developed in the present study.

Finally, during the SJT development phases, only a small number of items were retained following the several item reviews conducted by SMEs. It is possible that in some cases, in particular, where the groups of SMEs did not agree on the content or scoring keys for

individual items, that these items could have been retained and piloted with test-takers to examine their item quality. On the other hand, this was a preliminary study to assess the feasibility of using the SJT method in the assessment of resilience resources in palliative care workers. Further research could build on these findings to develop a more comprehensive set of items prior to use in an operational setting.

6.7.6 Summary

This chapter presents the development and validation of an SJT designed to assess a procedural knowledge resilience resource associated with palliative care work. The SJT showed acceptable psychometric properties, however extensive validation is required to confirm these findings. The development of an SJT with resilience construct saturation is an important advancement in the assessment of resilience as at present there are no such interactional measures available in the palliative care domain.

The rationale for developing an additional measure that adds to the existing arsenal of resilience measures was twofold: firstly, there have been no measures of resilience that have specifically assessed a procedural knowledge resilience resource; and second, to provide a preliminary step toward a multi-measure of resilience resources (SJT and self-report) designed to measure different aspects of behaviours associated with resilience. The multi-measure approach provides a starting point for future conceptual and methodological approaches to the study of resilience in other related healthcare samples.

The next chapter turns to a discussion of the whole research programme and explores the theoretical and practical implications of the research, considers its limitations and finally presents future research directions.

Chapter 7: General Discussion

This thesis has explored the measurement of resilience in palliative care workers, and specifically set out to answer the following research question: *"How can resilience be measured in palliative care workers?"* In addressing the research question, each of the four studies presented in this thesis answered the following specific research questions:

1. *How is resilience currently operationalised by existing measures of resilience?*
2. *What resources are associated with resilience in palliative care workers?*
3. *Are current approaches to resilience measurement applicable to the palliative care setting?*
4. *How can resilience measurement be extended to the palliative care context?*

Figure 7.1 presents the framework that was used as a means to explore the measurement of resilience in palliative care workers within this research programme. As can be seen from this diagram, an inductive, mixed method research design was adopted to understand how resilience can be measured in palliative care workers.

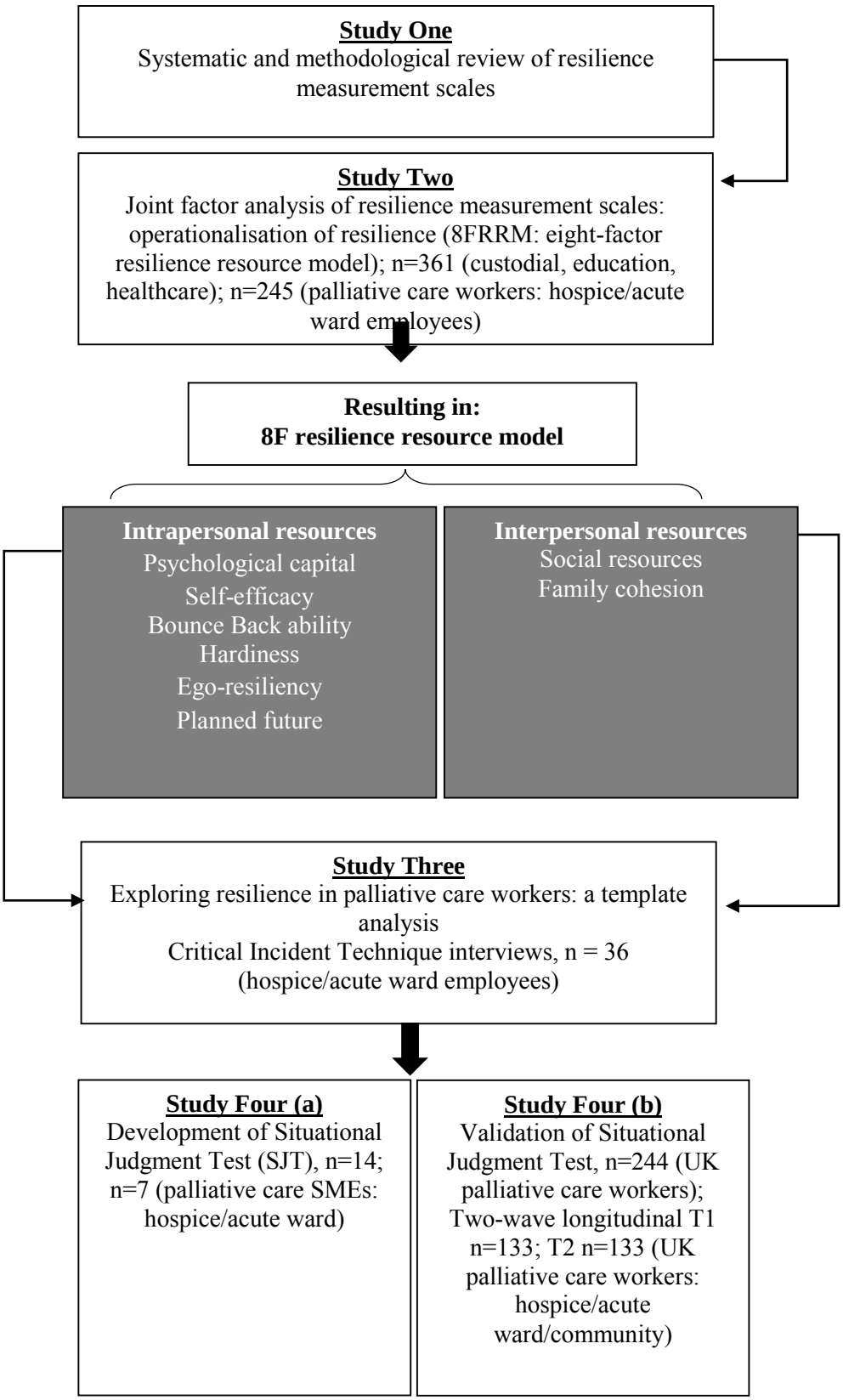


Figure 7.1: Framework for the exploration of resilience measurement addressed by the studies within this thesis

A basic premise of this thesis has been to address the confusion associated with how to conceptualise, operationalise, and ultimately measure resilience. As such, this thesis has aimed to provide a greater understanding of how resilience could be measured in palliative care workers. Despite evidence that resilience in palliative care workers can have an important impact on employee well-being and patient care (Ablett & Jones, 2007), surprisingly little progress has been made in efforts to develop interactionist measures specifically designed for use in the palliative care work domain. Interestingly, very few researchers in the palliative care field have sought to operationalise resilience either for assessment purposes or to inform interventions to develop skills in managing the unique demands of end-of-life care.

In responding to calls for greater clarity in the measurement of resilience (Cicchetti & Garmezy, 1993; Davydov et al., 2010; Kumpfer, 1999; Luthar et al., 2000), the first aim of this thesis was to synthesise what is currently known about the conceptualisation and operationalisation of the resilience construct. In brief, findings from this programme of research showed there is little agreement on how resilience is conceptually defined and operationalised. Since the assessment of resilience is inherently intertwined with definitional issues, it has been difficult for researchers to reach agreement on how resilience should be measured. Indeed, this was confirmed in Study 2 where a joint factor analysis of published resilience measures revealed that each scale author operationalised resilience in a different manner, resulting in an eight-factor model comprised of the following resources: *psychological capital, self-efficacy, bounce back ability, hardiness, ego-resiliency, social resources,* and *family cohesion*. Based on these findings it was concluded that the theoretical construct of resilience may be better conceptualised as a set of resources associated with the ability to bounce back from adversities or ongoing stressors.

A second aim of this thesis was to explore whether the eight-factor resilience resource model from Study 2 would generalise to the palliative care context. A template analysis of CIT interviews with palliative care workers was performed in Study 3 to explore this possibility. Results revealed that five of the eight resources from Study 2 emerged as important resilience resources for palliative care sample of employees. Yet, the main finding from Study 3 was that procedural knowledge was identified as a key resilience resource associated with the ability to positively adapt to the emotional demands of end-of-life care. In light of this finding, an interactionist measurement method using the SJT was developed and validated in Study 4 to assess a resilience resource associated with procedural knowledge.

Before moving on to a more general discussion of findings, there are several personal reflections that may provide some context for the conclusions drawn from this research

programme. Firstly, in the introductory paragraphs of this thesis, a question of some theoretical significance was posed. Should resilience be construed as a theoretical construct in its own right? Or, should resilience be used as a referent term for resources which facilitate the process of adaptation to adversity? From Study 2 onwards, the idea that resilience should be conceptualised as a theoretical construct did not seem to 'fit' with the findings of the empirical studies in this thesis. Rather, a resource view of resilience was favoured, which could also be explained using the ubiquitous COR theory (Hobfoll, 1988).

The decision to commit to a resilience resource perspective was also fuelled by a good deal of research that suggests that resilience is possible only up to a certain point. The ability to be *resilient* declines with increased stressor intensity and continued exposure to adversity (Norris, 2010). As stressors mount, it may not be possible to invest resources to resist the effects of adversity (e.g. Hobfoll, 1998, 2012). This begs the question, if in some cases resilience is not possible, then does it actually exist as a construct in its own right?

The other issue that casts doubts over the existence of a resilience construct is the fact that *resilience* is a relative term and in the view of the author cannot be construed to mean one thing. For example, in the empirical research various outcomes are shown to infer resilience such as the absence of psychopathology (Bonanno, 2005), the ability to thrive in spite of adversity (Tedeschi & Colhoun, 1994), an ability to return to pre-stressor levels of functioning (Richardson, 2002), and functional competence such as personal relationships or academic pursuits (Werner & Smith, 1992). In short, there are a myriad of outcomes that are referred to as *resilience*—so the question still remains, what actually is it?

Upon reflecting on the critical review of literature presented in Chapter 1, it was obvious that an empirically validated well established theoretical framework for resilience is still lacking. Probably, a single general and valid theory of resilience will always remain an illusion in view of the complexity of the phenomenon, however it is possible that there is some value in using Conservation of Resources (COR) theory as an organising framework for the study of resilience (Hobfoll, 1989, 1998). Rethinking resilience from a COR perspective suggests that resilience has an inverse relationship with the loss of resources. Under periods of major stress, a 'domino effect' occurs where resource loss begets further resource loss. Because COR theory lends itself to a range of stressors (catastrophic, major, and minor) it can be used as a framework to bridge the many areas of trauma, adversity, and daily hassles in resilience research and make sense across these complex stressors. One of the key aspects of COR theory is its focus on resources as changing and dynamic. This was a key motivator for proposing the use of this theory in this research programme. Another appeal of COR theory is that it has

practical significance. For example, COR suggests ways of accumulating resources through practices such as adequate respite and work-life balance as ways of building resource reservoirs to cope with workplace stressors (Leiter & Maslach, 2003).

From the onset of this programme of research, the idea that resilience culminates from a constellation of fixed traits was rejected in favour of resilience conceived as a person-in-context phenomenon. This clearly established a bias toward using an interactionist paradigm to gain a more integrated, dynamic and situated understanding of resilience. According to interactionist principles behaviour is an outcome of the continuous and reciprocal interaction between the person and the situations they encounter (e.g. Endler & Parker, 1992). From this perspective, it is not possible to explore person factors independent of situation factors and *vice versa*. This leaning toward interactionism in this research programme not only connects with social psychology but is also aligned with developments occurring in other areas of psychology where more dynamic models of the person are being embraced and investigated (e.g., social cognition and neuroscience).

Finally, the idea that gained momentum as each empirical chapter unfolded was that resilience may not exist as a construct *per se* but has to be studied as a person-in-context phenomenon. There is no magic formula that leads to resilience. Mechanisms associated with how individuals continue to function normally despite adversity depend on many variables. Questions still remain unanswered such as what is considered to be a sufficiently stressful event to infer resilience? How can we really know what resources are being used when a person is experiencing adversity? What cumulative influence do everyday stressors have on resilience? Granted, these questions cannot be answered by a single research programme but they can be pieced together using theories such as COR. In one sense the strength of COR is in its simplicity and yet, it accounts for mechanisms that might explain the limitless range of resources that could be drawn upon in the process of adapting to a range of adversities.

The abovementioned personal reflections highlight some of the more salient issues that emerged as this research programme progressed. A more detailed and somewhat systematic account of findings that led to these reflections is provided in the next section which will briefly outline the four studies that were carried out in this research programme. This is followed by a general discussion of the theoretical implications of this thesis; next, the practical implications are presented; followed by a summary of the main limitations of this research programme. Finally, the chapter ends with some suggestions for future research directions.

7.1 Summary of results from empirical chapters

In total, four studies were carried out:

1. A systematic and methodological review of resilience measurement scales;
2. Operationalising resilience: a joint factor analysis of resilience measurement scales;
3. Exploring resilience in palliative care workers: a template analysis;
4. A new method of measuring resilience in palliative care workers.

The following sections briefly review the studies reported in this thesis, summarising key findings.

7.1.1 Study one: A systematic and methodological review of resilience measurement scales

This study is a systematic review which presents findings from a conceptual and methodological review of resilience measures. The main findings in this study were:

Part One:

- 17 resilience measures were extracted following a systematic literature search; measures conceptualised resilience as either a process, trait, state, or outcome.
- Virtually all measures assessed resilience as a global construct indicative of trait resilience, with no consideration given to within-person variation
- A thematic analysis of all 17 scale items revealed 24 themes organised under two rubrics: intrapersonal and external resources. Intrapersonal themes with the highest frequency count in descending order were *adaptability, self-efficacy, active coping, positive emotions, mastery,* and *hardiness*. In the external resources category, two themes were identified, *social support* and *structured environment*.

Part Two:

- 17 measures were evaluated using a construct validation framework. Five measures met over 70% of the quality assessment criteria: *Psychological Capital Questionnaire, Resilience Scale for Adults, Revised Ego Resiliency-89 Scale, Connor-Davidson Resilience Scale-10 item, Brief Resilience Scale.*
- Overall findings indicated that there was an over-reliance on self-report methods of assessment which emphasised the assessment of intrapersonal resilience resources, with a limited focus on interpersonal resources. No one measure approached assessment from an interactionist perspective, thus measures could not explain variance associated with situational characteristics. Further, there was great disparity in the way scale authors conceptualised and operationalised the resilience construct.
- This study was important for three main reasons: 1) the study adds to the literature by updating previous systematic reviews of resilience measures; 2) findings provided a conceptual and methodological synthesis of resilience measures that has not been done before; 3) the study demonstrates that resilience is not being assessed as a person-situation phenomenon despite empirical evidence to the contrary

7.1.2 Study two: Operationalising resilience: a joint factor analysis of resilience measurement scales

Study 2 sought to provide an empirical synthesis of the five highest rated measures from the methodological review in Study 1. A joint factor analysis approach was used to explore how the theoretical construct of resilience is currently being operationalised. The main findings of this study were:

- Using Sample 1 (custodial, healthcare, and education professionals); a second-order factor model emerged from an exploratory joint factor analysis of the following five measures: *Psychological Capital Questionnaire, Resilience Scale for Adults, Revised Ego Resiliency-89 Scale, Connor-Davidson Resilience Scale-10 item, Brief Resilience Scale.*
- Using Sample 2 (palliative care workers); following the exploratory joint factor analysis, a confirmatory factor analysis was performed on a second dataset. No support was found for a second-order factor model, however support was found for an eight factor (non-hierarchical) resilience resource (8FRR) model comprised of the following resources: *psychological capital*, *family cohesion*, *bounce back ability*, *self-efficacy*, *hardiness*, *social resources*, *ego-resiliency*, and *planned future.*
- The pattern of item cluster from the joint factor analyses showed little evidence of overlapping item content suggesting minimal redundancy across measures. Resilience was being measured in different ways by different scale authors.

- The findings from this study were important for three main reasons: 1) no previous studies have explored the operationalisation of resilience through a joint factor analysis of published resilience measures; 2) findings indicate that the non-hierarchical model may represent eight interrelated resilience resources that could be involved in the process of bouncing back from adversity but not necessarily represent a *resilience* construct *per se;* 3) reconceptualising resilience as a series of dynamic resources may indicate alignment with an established theoretical framework such as Conservation of Resources theory (Hobfoll, 1989). Indeed, the resources identified in this study were mapped against resources featured in the COR resource model. This may provide resilience with a much needed explanatory theoretical framework to guide future research.

7.1.3 Study three: Exploring resilience in palliative care workers: a template analysis

This qualitative study used the 8FRR model identified in Study 2 as an initial coding template for the exploration of resilience in palliative care workers. The main findings in this study were:

- Five of the eight resources identified in Study 2 emerged as key resources associated with resilience in a sample of 36 palliative care workers:
    - Intrapersonal resources—*psychological capital*, *self-efficacy*, and *hardiness*
    - Interpersonal resources—*family cohesion* and *social resources.*
- An emergent resource, *procedural knowledge*, was also identified.
- These findings are important because: 1) the evidence presented in this study provides an initial step toward operationalising resilience in palliative care workers, which has not been attempted before; 2) the role of procedural knowledge has not been previously identified in earlier research and suggests that this may be an important resilience resource in the palliative care work context; 3) findings suggest that current approaches to resilience measurement are not fully applicable to the palliative care context, providing opportunities for new approaches to resilience measurement; 4) this study provides evidence that resilience must be operationalised as a context specific phenomenon. As such, measurement efforts should adopt a person-in-context approach to assessment; 5) study findings reiterate the research implication noted in Study 2 that the resources identified in this study may be consistent with those outlined in Conservation of Resources theory (Hobfoll, 1989).

7.1.4 Study four: A new method of measuring resilience in palliative care workers

Study 4 builds on findings from the template analysis in Study 3. The emergence of the procedural knowledge theme in Study 3 provides an opportunity to introduce a new measurement method to complement existing self-report measures of resilience. Thus, the primary aim of Study 4 was to develop and validate a situational judgment test (SJT) designed to measure a procedural knowledge resilience resource in palliative care workers. The main outputs and findings in this study were:

- A 12-item SJT was developed using situational dilemmas identified from interviews with palliative care workers from a range of disciplines (nurses, consultants, social workers, mental health workers, and occupational therapists). The scoring key was developed using subject matter experts from the same range of disciplines as above.
- Item analyses showed that SJT items had acceptable levels of item difficulty and discriminated between high and low scorers.
- The SJT had high internal consistency and acceptable test-retest scores
- Construct validity evidence was demonstrated by moderate correlational convergence with three of the five resources from the five factor resilience questionnaire (5FRRQ) which was derived from the eight-factor resilience resource model in Study 2. SJT scores also showed weak yet significant correlations with Agreeableness, Emotional Stability, Conscientiousness, and Openness, which is somewhat consistent with prior meta-analytic research (McDaniel & Nguyen, 2001). The SJT was also significantly correlated with job experience, which is also in line with prior research (Weekley & Jones, 1992; 1997).
- Criterion-related validity evidence was demonstrated by the SJT's incremental variance over four of the five 5FRRQ resources and personality (controlling for education and experience) in predicting organisational attitudinal outcomes at Time 1 and Time 2.
- The results of this study are important because: 1) they provide support for a new resilience measurement method not previously identified in the resilience measurement literature; 2) the SJT is specific to the palliative care context, which indicates that it is possible to develop an interactionist measure that assesses resilience as a person-in-context phenomenon; 3) the unidimensional factor structure of the SJT shows some support for an SJT that may be measuring a resilience resource related to procedural knowledge; and 4) the use of a person–situation interactionist measure of workplace resilience lays the groundwork for specifying situational characteristics (SJT) under which particular intra/interpersonal resources (5FRRQ + SJT) will predict positive adaption to workplace stressors; and 5) it may be possible to use a multi-

measure of resilience resources to empirically test components of Conservation of Resources (COR) theory (Hobfoll, 1989) to further understanding of resilience in the palliative care context.

7.2 General discussion and theoretical implications

Having outlined brief findings from each of the four studies, this chapter now turns to a general discussion of the theoretical implications of this thesis. Based on findings from this thesis, the following sections discuss issues with the measurement of resilience and the assessment of resilience in palliative care workers. Essentially, this is a summary and extension of the research implications already considered in the individual chapters.

Although the theoretical implications of this research are broad, they can be organised into four areas: 1) exploring resilience as a set of resources; 2) resilience measurement from an interactionist perspective; 3) qualitative research methods; and 4) new methods of measuring resilience.

7.2.1 Exploring resilience as a set of resources

As demonstrated in Study 2, the concurrent psychometric investigation of resilience measures showed a pattern of item cluster with little evidence of overlapping item content, resulting in an eight-factor model of resilience resources (8FRR). It is possible that the resources identified in the 8FRR model may represent predictors of resilient functioning such as those identified in Schetter and Dolbier's (2011) *taxonomy of resilience resources.* In order to demonstrate the possible conceptual links between the 8FRR model and *taxonomy of resilience resources*, all eight factors from the 8FRR model were mapped onto three of Schetter and Dolbier's (2011) six resource categories. Thus, nesting the 8FRR model within a wider taxonomy of resilience resources may enable researchers to hypothesize *a priori* which resources constitute resilience in specific situations. The main limitation of this taxonomy however, is that it is primarily a content taxonomy and lacks the explanatory potential of other process-oriented theories such as Hobfoll's (1989) Conservation of Resources (COR) theory.

COR theory (Hobfoll, 1989) is a comprehensive resource theory based on the premise that the possession of reliable resource reservoirs (internal and external to the individual) may have a protective effect on managing a range of stressors of varying intensity (Hobfoll & Shirom, 2001; 1989). Hobfoll's theory (1989) examines resource interactions, rather than focusing on specific stress buffering resources. Using COR as a theoretical framework to explore resilience may be of some use in elucidating the complexity of the resilience construct as the theory

views resources as part of a greater dynamic process. The theory holds that resources change in the face of stressful challenges and these interactions are a key operating mechanism by which well-being and health are influenced (Hobfoll, 2002). The use of COR theory may guide research exploring resilience resource interactions to further understand the antecedents to resilient functioning. In particular, more longitudinal studies may be useful in examining which resource interactions have a stress buffering influence that is stable over time, and which situational demands require a specific set of resource interactions (Roberts & Caspi, 2003). As such, COR theory is a comprehensive resource theory that may provide a suitable framework for further understanding the mechanisms by which a range of resources interact to promote resilient functioning.

7.2.2 Resilience measurement from an interactionist perspective

As mentioned throughout this thesis, interactionist approaches to measurement follow the basic idea that any assessment of human behaviour depends in some systematic way on characteristics of the person, characteristics of the situation, and the interaction between person and situation (Deinzer et al., 1995; Endler & Parker, 1992; David Magnusson, 1999). Stable dispositional as well as systematic albeit instable situational or contextual factors together create a psychological state which varies across time points and situational demands. Yet, many of the measures reviewed in Study 1 and empirically examined in Study 2 operationalise resilience an individual characteristic, which implies that resilience is a global construct that an individual either *has* or *does not have* without consideration of situational influences. For example, the main output from Study 2 was the emergence of an eight-factor resilience resource (8FRR) model where each factor represented a different resilience scale/subscale. The 8FRR model showed a clear pattern of traits associated with resilience, suggesting that resilience is currently operationalised as a trait. The limitation of the trait resilience approach is that person variance is explained at the expense of situational variance and the interaction between the two (person x situation) (Deinzer et al., 1995). If resilience is conceptualised as a person-in-context phenomenon, then any attempts at measuring resilience should acknowledge that trait resilience will be affected by situational factors as resilience does not occur in a vacuum (Bronfenbrenner, 1979). As such, an important theoretical implication of this thesis is that future developments in the measurement of resilience resources should consider the use of theoretical frameworks resting on the principles of interactionism. It is speculated that the interactionist perspective may increase the likelihood of accurately measuring resources associated with resilience relative to a specific adverse situation in order to predict behavioural responses to adversity (Endler & Edwards, 1983; Reynolds et al., 2010).

Consistent with findings from Study 2, the thematic analysis of resilience measurement items in Study 1 showed that resilience is being measured as a trait rather than a person-in-context phenomenon. Findings from the content review identified a wide range of intrapersonal resources associated with resilience, however only two broad resources were found that were external to the individual: social support and structured environment. A review of item content also showed that resilience was measured as a global construct where participants were asked to respond to test items with no reference to context or specific situational characteristics. The implication of this finding is that current approaches to resilience measurement do not seek to gather information about the interplay between different resilience resources, as such valuable information is lost. For example, in the case of social support, distinctions need to be made with respect to the amount of support received but also the nature of support such as whether it is emotional, instrumental, or informational (House et al., 1985). Without contextual knowledge it is difficult to know in what situations different types of social support (e.g. emotional versus instrumental) are more effective in protecting individuals from the negative impact of stressors. This reiterates the need for the exploration of resilience in context, consistent with the tenets of interactionism.

As outlined in Chapter 3, a suitable interactionist framework, which may be well suited to the measurement of resilience is latent state-trait theory (LST: Steyer, Ferring & Schmitt, 1992; Steyer & Schmitt, 1990; Steyer, Schmitt & Eid, 1999). LST posits that state, trait, situation, interactions effects, and measurement error must be explained by any given measurement model (Steyer & Schmitt, 1990). LST provides a methodology for the estimation of contextual attributes that result from person-situation interactions. Whilst demonstrations of the utility of LST are beyond the scope of this thesis, there is abundant research evidence in support of LST basic assumptions (e.g. Courvoisier, Eid, & Nussbeck, 2007; Deinzer et al., 1995). Implications of such findings are important with regard to psychological measurement in applied settings.

7.2.3 Qualitative research methods

Study 3 used a qualitative methodology to further understanding of resilience through an exploration of behaviours associated with resilience in palliative care workers. Using a mixed method of data collection is important in the exploration of psychological constructs as research in other health care settings has shown that quantitative and qualitative methods of data collection may yield different insights (Randall et al., 2005). In one study, doctors interviewed about workplace stress gave qualitatively different answers on self-report

measures than in semi-structured interviews (Firth-Cozens & Payne, 1999). Using self-report measures, information about individual causes of stress associated with personality were identified, whereas in interviews job related factors such as a lack of sleep, poor communication, and poor teamwork were identified. Using qualitative approaches to explore the processes associated with complex psychological phenomena such as resilience may offer advantages over approaches that require responses to predefined categories such as is the case with self-report methods (Smith, 1995). Qualitative methods are also particularly useful when considering resilience processes as opposed to traditional focuses on outcome research (Brocki & Wearden, 2006). Using a qualitative approach also has strong ecological validity, in that individuals are asked about their own experiences rather than assumptions made by researchers.

Another important research implication of Study 3 was the emergence of the *procedural knowledge* theme, which has not been previously identified as a resilience resource in the palliative care literature. One theory that offers important insights into procedural knowledge in particular relating to measurement, is the theory of implicit trait policy (ITP: Motowidlo & Beier, 2010). ITP refers to the idea that individuals will judge (drawing on procedural knowledge) the relative effectiveness of expressing a particular trait in certain situations. Thus a key contribution of this work draws on ITP theory to guide the measurement of a procedural knowledge resilience resource using the situational judgment test (SJT) method. This is an important theoretical contribution to the resilience measurement literature as this method has not been previously adopted by resilience measurement authors and therefore provides a unique opportunity for advances in the way resilience is currently measured.

7.2.4 New methods of measuring resilience

Building on findings from Study 2 and Study 3, the final empirical chapter of this thesis focused on the development of an SJT which was a method of measurement not used before in the assessment of resilience. The use of a method such as the SJT has three broad implications for research.

First, the SJT item analysis in Study 4 revealed that all test items were negatively skewed resulting in fewer differences in individuals' selection of response options. This may have been because the situational dilemmas were too obvious or lacked sufficient fidelity to stimulate a reasonable amount of reflection on effective courses of action. To address this issue, situational dilemmas could be systematically manipulated by researchers to understand the effects of different degrees of contextualised knowledge on the variability of test scores.

For example it may be possible to use more generic situation descriptions (e.g., "A patient is suffering, what's the best response?") or use single-response SJTs (Crook, Beier, Cox, Kell, Hanks, & Motowidlo, 2011; Motowidlo et al., 2009; Motowidlo, Martin, & Crook, 2013) to ascertain whether respondents are drawing on knowledge that is entirely context dependent or knowledge that is context-independent derived from more general experience (Motowidlo, Crook, Kell, & Naemi, 2009). In single-response SJTs, test-takers are required to judge the effectiveness of the behaviour described in one critical incident (Krumm et al., 2014). Thus, manipulating SJT characteristics such as the type of items may moderate the extent to which judgment in SJTs is contextualized or decontextualized (see Krumm et al., 2014) and in turn influence the variability of test scores.

Second, as discussed in some detail in Chapter 6, the introduction of the SJT method in the measurement of resilience resources in palliative care workers introduces the possibility of a multi-measure approach to resilience assessment (Figure 7.2). Underlying the multi-measure approach is the notion that situational characteristics will moderate the use of intrapersonal resilience resources in behaviours associated with positive adaptation (i.e. resilience) to workplace stressors. At the conceptual core of the multi-measure of resilience resources is the interactionist process by which situational variables impact upon the expression of intrapersonal resilience resources consistent with theories such as implicit trait policy (Motowidlo et al., 2006) and trait activation theory (Tett & Burnett, 2003). The use of a combination of measurement methods (self-report and SJT) provide opportunities to address method variance and reduce unexplained variance in measurement models. It is acknowledged that a multi-measure of resilience resources is paradigmatic (an example of a possible multi-measure), however the combination of a self-report and SJT measure of resilience advocates the assessment of resilience from an interactionist perspective in that it considers trait resilience as well as judgments about effective behaviours in response to specific workplace situations. This is an important methodological advancement and could be considered as a first step toward a new interactionist measure of resilience resources specifically designed for use in the palliative care domain.

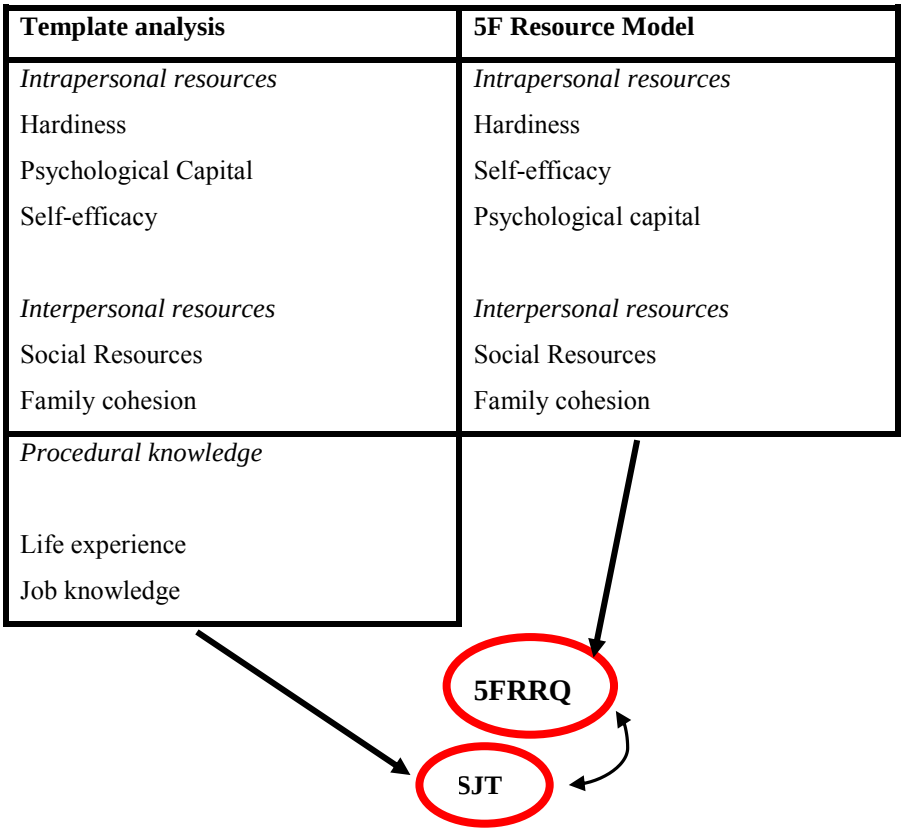


Figure 7.2: Multi-measure of resilience resources

A third research implication of this research programme relates to the application of the multi-measure of resilience resources proposed in Chapter 6 which was discussed in the implications section (6.7.4). It is possible that an overarching theoretical framework such as Conservation of Resources (COR) theory (Hobfoll, 1989) which considers resources as the single unit for understanding of psychological stress (Westman et al., 2004) could be used to further understand resilience resource interactions. It is possible that a multi-measure of resilience resources could be used to empirically test components of COR theory specifically in relation to exploring workplace resilience in the palliative care context. For example, the relationship between job demands and resilience resources could be explored to understand threshold effects that are likely to promote or inhibit adaptive behaviours in the face of ongoing workplace stressors. COR theory testing may yield insights into the mechanisms behind resource losses as well as possible resource gains which are key principles of COR theory (Hobfoll, 1989, 2002) that may have applicability in field of resilience research.

The present research programme is therefore important as it shows that resilience measures can be tailored to assess resilience resources relevant to specific occupational domains such as the palliative care context. This thesis also proposes a new method with which to measure resilience resources which leads to a better understanding of how to measure resilience as a

person-in-context phenomenon. Finally, this research is important as it makes new contributions to the resilience measurement literature and may provide future researchers with new ways of approaching the measurement of *resilience* in a range of occupational domains.

7.3 Practical Implications

There are a number of practical implications arising from this thesis. Although they have been considered in the discussions of each chapter, they are considered here under two broad headings: resilience interventions and knowledge transfer.

7.3.1 Resilience interventions

There are several broad implications for practice specifically concerned with resilience interventions that may be beneficial to practitioners responsible for worksite stress interventions. The first two practical implications relate to interventions at the individual level, whilst the remaining three implications relate to interventions at the organisational level.

Firstly, although occupational health interventions may be potentially valuable to organisations there is no consistent body of knowledge indicating how to approach the reduction of work-related stress in the best way (Cooper et al., 2003). However, there has been some success using Conservation of Resources (COR) theory (Hobfoll, 1989, 2002) based interventions to reduce stress in the workplace (Freedy & Hobfoll, 1994; Levine et al., 1993). Using a COR intervention approach, it may be possible to structure *resilience* interventions around the resources uncovered in the 8FRR model identified in Study 2. Hobfoll (1998) argues that personal resources and social resources are interconnected, therefore, according to COR, an intervention has to address the personal level within a social context. Otherwise interventions at one level may confront resistance because of the need to maintain resources at another level. Using a COR intervention approach, it is possible that skills sessions could be targeted toward strengthening intrapersonal resources (e.g. optimism, hardiness) and interpersonal resources (e.g. seeking social support) to increase access to coping resources. By targeting a range of resources it may be possible to expand coping options of employees and reduce psychological distress. Hence, COR interventions that build resources such as those identified in Study 2 and Study 3 may inform preventive interventions that help increase people's resource pools and reduce stress in psychologically demanding healthcare professions (Freedy & Hobfoll, 1994; Hobfoll, 1998; Hobfoll & Shirom, 2001).

Secondly, delivering COR based interventions may be cost effectively administered by delivering sessions in a modular format to reduce the time and costs associated with lengthier

interventions. For example, using the eight resources identified in Study 2, eight individual resource-building sessions could be delivered to minimise resource drains on the employing organisation; small team coaching sessions may be a useful delivery format for these sessions. Alternatively, due to the modular format of the intervention, it would also be possible to combine resource-building sessions for inclusion in wider worksite stress interventions. In addition, SJT scenarios such as those developed in Study 4 may help raise awareness amongst multi-disciplinary team members of the pressures faced by colleagues from different specialities.

Third, with regards to interventions at the organisational level, some of the experiences shared by participants in Study 3 in critical incident technique interviews could be used as a platform for peer-learning similar to those found in *Schwarz Center Rounds* (Lown & Manning, 2010). This approach adopts a reflective learning approach, which focuses on how employees manage complex patient needs (e.g. chronic disease in addition to psychiatric illness). For example, employees are able to debrief about the emotional impact of dealing with complex cases and access support from colleagues and mentors. Moreover, organisations that value a reflective learning approach are much more likely to promote an organisational culture in which resilience is harnessed rather than inhibited. Intervention strategies like these may benefit those new to the palliative care domain as well as those with many years of experience. Encouraging an environment where it is acceptable to acknowledge limitations and when it is not possible to assist others could also be an important factor in building resilience resources at the organisational level.

A fourth practical implication of particularly with respect to Study 4 is that data collected from both CIT interviews and SME focus groups could be used in the knowledge elicitation stage of data collection in the design of risk management stress prevention interventions (Cox et al., 2003; Griffiths et al., 2003). Risk management interventions use a methodology for conducting assessments for psychosocial hazards in the workplace, and for reducing them. The risk management approach emphasises workers as "experts" in relation to their own jobs who actively participate in the design of the stress prevention intervention (Cox, Griffiths, & Randall, 2003). Employees are therefore involved in the identification of workplace psychosocial risks associated with job content/context (see Cox, 1993) and take ownership of reducing those risks (Cox, Griffiths, & Randall, 2003). This approach has been used extensively in a wide range of occupational settings with a great deal of success (Cox et al., 2002).

The final implication for practice that relates to interventions at the organisational level relates to the availability of social support from the organisation as a whole. Throughout this thesis, social support was a recurring theme that was positively associated with resilience in palliative care work. Given the reliance on multi-disciplinary team work in providing end-of-life care, it is not surprising that social support was identified as a key resilience resource. Creating structures in the workplace where support is readily available may be a step forward for creating an environment that fosters a resilient workplace. Indeed, in a review by Vachon (1995) it was reported that the organisational environment itself was a key stressor for palliative care workers, specifically factors related to inadequate resources, team communication difficulties, or unrealistic expectations of the organisation. Another study by Newton and Waters (2001) found that stress was specifically associated with an erosion of support systems. Therefore, it is important for resilience interventions to not only focus on resilience resources at the individual level but also ways of establishing interpersonal support structures at the organisational level.

7.3.2 Knowledge transfer

The emergence of procedural knowledge as a key resilience resource for palliative care workers raises two broad implications for practice. Firstly, in Study 4, the development of the SJT required participation from both clinicians and subject matter experts who it could be argued are the most qualified people to inform the development of a measure of resilience. The process of using job incumbent knowledge in item development may increase the content and face validity of measurement instruments (Vogt, King, & King, 2004). Using a participatory approach to measurement development allows clinicians to tailor test content to their unique requirements. Not only does this approach encourage a sense of ownership in the development process, it also is a means of sharing institutional knowledge that may not be captured in other forms of item development such as systematic literature reviews.

A second implication for practice is that procedural knowledge may foster both individual and organisational resilience through knowledge sharing mechanisms. For example, knowledge may extend its value beyond physical resources because knowledge is a resource that can be used at all times across all parts of the organisation (Itami & Roehl, 1991) and is not depleted with use. Importantly, knowledge and in particular implicit knowledge is not easily passed on to others in the organisation through typical training interventions. As such, socialization processes such as mentoring, shadowing, and coaching may be central to the flow of procedural knowledge (Nissen, 2006). In this way, knowledge transfer is contextualised and directly related to skills accumulated through personal experience which means knowledge

has a richer meaning and is more directly applicable in the workplace (Foss, 1996). It also enables employees to gain intimate knowledge of "who knows what" in the organisation (King & Zeithaml, 2003). This broad, not narrow, range of knowledge resources may provide individuals and in turn, the organisation, access to further resources to buffer against the challenges of day-to-day work in the provision of end-of-life care.

7.4 Research limitations

As with most research, there are several potential limitations to the studies presented in this thesis. Such limitations include sample characteristics, methodological issues, and restricted access to data. These are discussed in the following section.

7.4.1 Sample characteristics

Four broad limitations are associated with the characteristics of the samples used in the present research programme. Firstly, two particular limitations associated with sample sizes can be noted in the systematic review study (Study 1) and template analysis (Study 3). In Study 1, a more diverse group to perform the sorting task to develop themes was required. This was addressed by agreeing on themes once inter-rater reliability had reached a mean pairwise Kappa coefficient of 80% agreement. An individual was also recruited who was not familiar with the resilience literature and found a high level of agreement. Future research would include a more diverse pool of reviewers in this phase of the study. In Study 3, a relatively small sample size (n= 36) was used. Although ideally a larger sample would have been obtained, the organisations involved were reluctant to take staff off the wards due to staff shortages and existing workplace demands. It was therefore difficult to find a larger amount of participants for such a time consuming data collection process. Unfortunately this is one of the logistical constraints faced by all researchers conducting field research (Robson, 2011).

A second study limitation directly related to the issue of sample characteristics is the degree to which findings from studies can be generalised to other samples. For example, Study 3 (template analysis) makes no claims about the possibility of generalising findings to other samples. The reason for this is that participants were sampled using a purposeful selection method. That is, participants were recruited for the study providing they met a set of specific criteria. Moreover, the purpose of the template analysis was to explore resilience from the unique perspective of clinicians working in the palliative care setting. The degree to which findings from Study 3 can be generalised to other occupations is therefore limited. Nevertheless, it can be said that other researchers with similar research aims may consider some of the findings useful (Marshall & Rossman, 2010).

A third limitation related to generalizability is associated with the gender split of the samples used in Study 2(b) (joint factor confirmatory analysis), Study 3 (template analysis), and Study 4 (SJT development and validation). In both of these studies, there was a greater representation of females to males. Although this may limit the ability to generalise results from this programme of research to other samples, the gender split of these samples was representative of the palliative care sampling frame and not considered an issue for this research programme. Further, univariate analyses revealed no group differences between males and female. Future research may benefit from exploring resilience in other healthcare contexts with a more equitable gender distribution. Similarly, there was an overrepresentation of nurses in the palliative care samples that took part in this research programme. This was representative of the participating hospices as the majority of employees were employed as nurses. Despite this limitation, analyses revealed that there were no sub group differences found between occupational professions in the present study.

A final limitation related to sample characteristics is that the subject matter experts that took part in the development of the SJT in Study 4 were identified by the clinical research team, and as such were not randomly selected from the palliative care sampling frame. This is often an issue inherent in applied research as operational requirements can compromise the ability to carry out representative sampling (Robson, 2011). To account for this limitation, a range of clinical roles that were represented in the CIT interviews were compared with the range of clinical roles usually represented in a multi-disciplinary team in end of life care. Whilst there were more nurses that took part in the interviews than other professions, a selection of clinical staff working across the palliative care domain were fully represented by interviewees.

In addition to limitations associated with sample characteristics three broad limitations can be noted relating to issues of a methodological nature. These are discussed next.

7.4.2 Potential methodological issues

Firstly, all three empirical studies were limited by common method variance. Although a multi-method data collection approach was adopted throughout this research, with a range of qualitative and quantitative methods, there was a strong dependence on self-report data, which may have led to common method variance. Using multi-trait multi-method (Campbell & Fiske, 1959) approaches to data collection or modelling method effects using confirmatory factory analysis (CFA) (e.g. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) may address this limitation in future research endeavours.

Secondly, in Chapter 1 (section 1.1.4), four issues were discussed with respect to current approaches to measurement: 1) trait approaches to resilience measurement; 2) clarity in the way adversity should be defined; 3) a clear operationalisation of what constitutes a resilient outcome; and 4) systematic approaches to item sampling. Given that this research programme culminated in the development of a new measure of resilience, it would be expected that all four of these issues would be given some consideration. In the present research programme, three of the four abovementioned issues were addressed. The first issue was addressed through the use of the SJT method which is designed to measure resilience as a person-in-context phenomenon. SJT test items require participants to report the most effective way to deal with a specific situational dilemma. With regards to the second issue, by definition, SJT test-items clearly define a situational dilemma (i.e. adversity) which requires the participant to make a judgment about effective behaviours relative to a specific adverse situation. The third measurement issue relating to a clear operationalisation of a resilient outcome was not addressed in the development of the SJT in Study 4. The reason for this is that the focus of the present research programme was to explore ways of measuring resilience in palliative care workers rather than exploring outcomes associated with resilience measurement. As noted in future directions below, exploring outcome trajectories using longitudinal designs and a range of measurement methods including the SJT may reveal some interesting insights in this area. Finally, systematic item sampling in measurement development was addressed in Studies 2-4 by using quantitative and qualitative data collection methods to inform item development. Thus, on the whole and within the scope of this thesis it was possible to acknowledge if not address most of the issues often associated with the measurement of resilience.

A final methodological confound relates to the completion of survey data in Study 2 and Study 4. In both these studies the intensity and number of stressors participants faced prior to completing survey data is unknown and may have impacted the veracity of the data. It is therefore difficult to determine if individuals who had higher scores on the eight-factor resilience questionnaire had experienced comparable levels of adversity. Notwithstanding, for the palliative care samples, negotiating several stressors and challenges would be commonly experienced by those working in end-of-life care (Pereira et al., 2011), so this limitation may have been addressed by participants having a baseline exposure to workplace stressors.

7.4.3 Restricted access to data

A lack of organisational resources relating to staff shortages limited the types of measures that could be used throughout this thesis. The hospice ethics committee made it explicitly clear to

the researcher that participation by employees in the studies was contingent upon questionnaires being sufficiently brief. In particular, the researcher was asked that surveys should take staff no longer than 15-20 minutes to complete. This limited the scope of the study in two ways. Firstly, it meant that in order to include a breadth of measures in Study 2 for the joint factor analysis of resilience measures, short form versions needed to be used in the analysis. Thus, a pragmatic approach needed to be taken and a measures were chosen that provided an acceptable balance between practical needs and psychometric concerns (Burisch, 1984). Despite the potential limitation of using short form measures, all measures used in the various analyses in Studies 2 and 4 met the minimum cut-off for evidence of adequate internal consistency. Secondly, time restrictions meant that all 17 measures identified in the systematic review could not be used in the joint factor analysis. This limitation was addressed instead, by using the five highest rated measures from Study 1 (Pangallo et al., *in press*) to ensure that the most valid and reliable measures were included in the analyses, which would increase the utility of findings for both practitioners and researchers. Also, a review of content and dimensionality performed in Study 1 showed that many (not all) of the underlying dimensions of resilience were captured across the five selected measures chosen for inclusion in Study 2. Despite the constraints placed on the researcher, which is not unusual in applied research (Robson, 2011), it was still possible to perform a broad based empirical analysis of resilience measures which resulted in a clearly defined eight-factor model.

In Study 4, limitations were noted relating to the ability to assess the criterion-related validity of the SJT. Objective outcome measures such as supervisor ratings and job performance data were not made available to the researcher in order to test the criterion-related validity of the SJT. For example, due to the highly sensitive nature of hospice care, participating organisations did not wish to disseminate job performance data as there was a possibility that in some cases this would have inadvertently compromised patient confidentiality. Relatedly, cognitive ability data was not made available to the thesis author. The hospice ethics committee decided that this would have raised test anxiety in participants and raised some concern by participants for their use. Based on these study limitations, further construct and criterion-related validity evidence associated with the SJT developed in this thesis is warranted.

Despite restricted access to data, the sample sizes and available data collected for the quantitative studies in this research programme were considered substantial in the context of palliative care applied research. It was therefore concluded that restricted access to data did not compromise the quality of the data analyses (and findings) in these studies.

7.5 Directions for future research

In the preceding section the limitations of this thesis were categorised under three broad categories relating to sample characteristics, methodological issues, and restricted access to data. Whilst some brief suggestions for future research directions were commented upon, the next section discusses in more detail possible directions for future research. These are related to the operationalisation of resilience, research design, and SJT validation.

7.5.1 Operationalising resilience

In any attempt to operationalise resilience, researchers should acknowledge the types of stressors experienced by the target population. For example, some instruments (e.g. MTRR: The Multidimensional Trauma Recovery and Resiliency Instrument; Liang et al., 2007) operationalize resilience in relation to traumatic events, which are usually outside the range of typical stressors faced by palliative care workers. Researchers should therefore develop instruments that have good fit with the nature of the adversity experienced by the target population.

Another major issue that has affected the development of measures, is the lack of theoretical frameworks used to guide resilience measurement. This has been compounded by dissention over whether to operationalise resilience as a trait, state, or process. In order to advance research in this area, future endeavours may benefit from the use of interactionist measurement models such as latent state-trait theory (LST: Steyer et al., 1992) to measure the various components of resilience and estimate error variance resulting from person-situation interactions using structural equation modelling (Quintana & Maxwell, 1999). This may provide new insights into resilience processes and mechanisms and provide some clarity on how best to operationalise resilience in given situations.

In support of interactionism, this thesis has argued that resilience should be operationalised and measured as a person-situation phenomenon. In an organisational setting, resilience is a direct result of how well an employee is able to adapt to the impact of external job demands (stressors) using resources available to the individual. Future research could examine whether there is added value in operationalising resilience using organisational level resources commonly associated with burnout and job stress. For example, six organisational correlates have been associated with job stress: workload, control, reward, community, fairness, and values (Karasek & Thorell, 1990; Leiter & Maslach, 2003). It is possible that in addition to individual resources, general features of the work environment common to many organisations such as recognising excellent performance (reward), internal processes for promotion

(fairness), or level of conflict within the workplace (community) may be important factors to consider in future attempts to operationalise resilience in a variety of occupational domains.

Obviously, further research is necessary before there can be a full account of the nature of resilience resources and their relationships to other conceptions of psychological health and adjustment. In general, research is needed to better understand the numerous conceptualisations and measures of resilience and their interrelations and overlap such as that explored in this thesis. Eventually, such research will elucidate fundamental aspects of positive adaptations to stressors in a wider range of samples. It is necessary however for researchers to unearth the plethora of diversely labelled measures, each designed to capture somewhat different aspects of *resilience*. The present thesis explored resilience resources in palliative care workers through the 5FRRQ (comprising five of the eight resources identified in the 8FRR model identified in Study 2) and through the development of an SJT specifically designed for use in palliative care workers. Future research needs to test the validity of these measures in predicting outcomes associated with the term *resilience* and determine the extent to which these two measures approximate an interactionist measure of resilience resources.

7.5.2 Research design

Resilience is a complex dynamic process that is difficult to understand through cross-sectional research. Future research should aim to be longitudinal as empirical evidence has shown that positively adapting to adversity involves a brief disruption to sustained normal functioning following exposure to an adverse event (Bonanno & Diminich, 2012). In order to measure whether an individual has experienced a brief disruption to normal functioning, it is incumbent upon researchers to collect data at several time points following a specific stressor (Smith-Osbourne & Whitehill-Bolton, 2013). Multivariate analyses could then be conducted to assess different outcome trajectories purportedly associated with resilience relative to the adverse event under investigation.

Further longitudinal studies would be beneficial to measure not only the ability of individuals to bounce back from challenging events, but the stability of adaptive functioning over time. For example in a palliative care context, researchers could assess an individual employee's response to a range of different workplace stressors at various stages in the employment cycle. Data could be collected when an individual employee first enters the palliative care environment to understand how an individual copes with the demands of the work. Data could also be collected at a later time point when perhaps the responsibilities of the individual have grown which have more significant consequences such as the management of a terminal care

ward. In this way, longer-term impact and outcomes of exposure to different stressors can be examined (Masten & Narayan, 2012). Longitudinal prospective studies of palliative care workers could also reveal whether resources such as procedural knowledge and length of experience mediate positive adaptation to workplace stressors (e.g. infer resilience).

A 'multiple levels of analysis' approach to investigating resilience resources in palliative care workers is also warranted with an emphasis on the process of positive adaptation across various life domains such as personal life, job performance, interpersonal relationships, and physical health (Bonanno, 2012). Future studies could also collect these outcome measures as close as possible to a stressor event. This would allow research to study different outcome trajectories from other patterns of outcome; not only chronic symptoms and psychopathology, but also patterns associated with recovery and delayed elevations in symptoms (Bonanno, 2004; Bonanno et al., 2011).

Throughout this thesis there has been much emphasis placed on the potential value of using a resource framework such as COR theory (Hobfoll, 1988) with which to explore *resilience*. Typically, COR theory is studied in relation to the depletion of resources due to workplace stress and strain (see Westman et al., 2004). Future research could explore COR theory relative to the accumulation of resilience resources such as those identified in the present thesis in addition to well-established stress-buffering resources such as work respite (e.g. Davidson et al., 2010). For example, repeated measures of resources could be collected to test whether work respite affords an individual a chance to replenish other resources (e.g. social support) and gain new ones (e.g. optimism) and whether such regroupings facilitate workplace resilience. Thus, contrary to research exploring resources to *prevent* or *reduce* strain (e.g. Westman & Etzion, 2002), examining the effects of accumulated resources may yield new insights about whether in fact an increase in resources (accumulated during work respite) leads to a greater capacity to positively adapt to workplace stressors.

Additional research is needed on methods and measures that work across diverse situations and cultures, in addition to measures suitable to specific situations (Furr, Comer, Edmunds, & Kendall, 2010; Masten & Osofsky, 2010; Peltonen & Punamäki, 2010) as evidence can be difficult to aggregate in the absence of systematic and comparable assessments. Further, the question of generalizability could be considered more broadly by replicating some of this programme of research in different organisational contexts. It would be particularly interesting to conduct similar research in a more traditionally male work environment or where there is a more even gender balance. Such an organisation may be found in, for instance, other health care settings such as accident and emergency units or ambulance services.

7.5.3 SJT validation

Regarding SJT validation, several interesting directions for research are proposed. Firstly, with respect to criterion-related validity, despite the SJT in this study predicting organisational attitudinal outcomes, this was only a preliminary step toward establishing the criterion-related validity of the measure. Prior research has examined cognitive ability, experience, and personality as correlated of SJTs, thus similar studies would be an avenue for future research for establishing the construct validity of the SJT developed in this thesis. Similarly, it would be fruitful to explore the degree to which the SJT is capturing a component of procedural knowledge (Motowidlo et al., 2006). Further studies correlating SJTs with job knowledge tests would be possible ways of exploring this possibility.

Second, there is a need to understand how different SJT formats impact on their effectiveness. Some initial steps have been undertaken on this route. As noted in prior research (Chan and Schmitt, 1997; Lievens and Sackett, 2006; McDaniel et al., 2007) the degree of stimulus fidelity (written vs video-based) and the type of response instructions (knowledge-based vs behavioural tendency) have been explored as key factors in determining the cognitive loading of SJTs. More studies that investigate the influence of other SJT features on adverse impact and validity such as a diverse range of subject matter experts, the level of item specificity, or the length of items (Lievens et al., 2008) are warranted. It would be helpful to examine how different content being captured by SJTs influences the relationship between SJT scores and external correlates (resilience scales, well-being, and personality).

Also related to SJT formats is the possibility of comparing SJT formats such as multimedia SJTs with cartoon-based SJTs (Leivens et al., 2008). Much like the low fidelity SJT developed in this thesis, a cartoon-based format is less costly than video and can be easily administered online. Future research should compare the effectiveness of these formats.

A third avenue for future research reflects recent trends in selection research (e.g. Fluckinger, Dudley, & Seeds, 2014) using interactive multimedia (video-based) simulations. In contrast to traditional low-fidelity SJTs in which content is kept static, interactive multi-media SJTs could present item stems that that could be updated in real time depending on user responses. This type of interactive multimedia SJT could be seen as a combination of an interactive role-play exercise and a low-fidelity SJTs. Nascent research using interactive multimedia assessments suggest that they may have incremental predictive potential over non-cognitive assessments (Fluckinger et al., 2014). Thus, future studies using scenarios such as those

developed in this research programme in both SJT multi-media and/or interactive multi-media formats could be explored for evidence of incremental validity over lower fidelity formats in predicting organisational outcome attitudes (i.e. job satisfaction, turnover intention). Relatedly, it would be interesting to explore the degree to which various SJT formats (high vs. low fidelity) predict a range of alternative outcome criteria such as patient-centred measures (i.e. patient safety, family perception of services, comfortable dying measures), organisational citizenship behaviours (O'Connell et al., 2007), and pro-social team behaviours (e.g. Stevens & Campion, 1999).

A fourth area for future exploration concerns the inclusion of values in the assessment of resilience in palliative care works. While values-based recruitment (VBR) has been more recently explored in healthcare selection (Patterson et al., 2015), the assessment of values for selection or development purposes has been relatively unexplored in the palliative care context. Indeed in a recent study exploring values in palliative care workers, *vitality* (i.e. creativity, independence living a diversified life) and *spirituality* were frequently cited as important attitudinal values toward their life and professional work (Fegg, L'hoste, Brandstätter, & Borasio, 2014). These values may arise as workers habituate toward dying and continuous confrontation with death, which in turn help individuals cope with the stressors associated with end of life care (Ablett & Jones, 2007). Thus, the inclusion of values in resilience assessment may be a fruitful area for future research.

Fifth, although there are exceptions, cultural influences have been ignored in many studies on resilience (Cohler, Stott, & Musick, 1995). As Cicchetti and Rogosch (2002) point out, the dynamic interplay of factors involved in the resilience process will have differential impact depending on cultural norms. This is especially important when trying to define what successful adaptation across cultures. It would be important to validate the SJT in a wider range of palliative care works from other cultures. The generalizability of SJTs to other contexts might be jeopardized if SJTs were used in a different context (e.g. job, organisation, culture) and for a different criterion than intended. In cross-cultural applications of SJTs, tailoring the scoring key to the host culture might be a way of matching predictors and criteria. Thus, studies could explore cultural differences in terms of situational dilemmas, and response options.

Sixth, it was not possible to use objective performance data in the criterion-related validity analyses performed in Study 4 due to restrictions on data collection made by the hospice ethics committee. Future research may benefit from the use of self-evaluations of performance as proxy measures of performance to circumvent possible restrictions on data collection efforts

(Randall, Ferguson, & Patterson, 2000). Whilst this approach may be somewhat unconventional in criterion-related validity studies, it may yield interesting relationships with other variables of interest such as attitudinal outcomes.

A final suggestion for future research concerns the validation of the multi-measure of resilience resources (comprised of the SJT and 5FRRQ) proposed in Chapter 6. To establish the validity of the multi-measure of resilience resources, examination of sensitivity to change would need to be established. Future researchers could administer an intervention study (with a control group) through comparison of pre- and post-intervention multi-measure scores with other indicators of resilience such as well-being. Evidence of sensitivity to change would require multi-measure scores to improve following an intervention alongside an improvement in other indicators such as psychological well-being. Participants in the control group would be expected to show minimal change over time compared to the intervention group. Evidence of sensitivity to change would greatly enhance the practical applications of the multi-measure of resilience resources.

7.6 A final note

In summary, the present research programme has successfully explored the measurement of resilience in palliative care workers; this has resulted in greater conceptual clarity of how to operationalise resilience, which should lead to more targeted ways of measuring resilience resources for those working in end-of-life care. In particular, better measures may better inform interventions and developmental requirements of those in need of skills to bolster their ability to adapt to stress. As with all human beings, palliative care workers experience events that can be perceived as stressful and traumatic and just like the broader population, many are *resilient* to the difficulties they face. Many also perceive these difficulties as a means by which their lives can become richer, fuller, and more meaningful. It is an organisational responsibility to foster these positive perspectives and build on the ability to adapt to life's challenges that is inherent in us all; especially in those who have self-selected for an occupation that they are well aware will be filled with challenges and hence, opportunities for growth.

This research began with the desire to understand *resilience* more fully. In searching for the extraordinary, the ordinary was revealed. Resilience is not a quality that someone possess and others lack. The challenge for resilience researchers lies in exploring the ways in which we can measure and develop resilience resources in the quest of dealing with workplace adversities.

References

Abeloff, M. D. (1991). Burnout in oncology--physician heal thyself. *Journal of Clinical Oncology*, *9*(10), 1721–1722.

Ablett, J., & Jones, R. (2007). Resilience and well-being in palliative care staff: a qualitative study of hospice nurses' experience of work. *Psycho-Oncology*, *16*(8), 733–740. doi:10.1002/pon.1130

Addington-Hall, J. M., & Higginson, I. J. (2001). *Palliative care for non-cancer patients* (pp. 1–292). USA: Oxford University Press.

Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: the challenge of the gradient. *American Psychologist*, *49*(1), 15. doi:10.1037/0003-066X.49.1.15

Agronick, G. S., & Duncan, L. E. (1998). Personality and social change: Individual differences, life path, and importance attributed to the women's movement. *Journal of Personality and Social Psychology*, *74*(6), 1545–1555. doi:10.1037/0022-3514.74.6.1545

Ahern, N. R., Kiehl, E. M., Sole, M. Lou, & Byers, J. (2006). A review of instruments measuring resilience. *Issues in Comprehensive Pediatric Nursing*, *29*(2), 103–25. doi:10.1080/01460860600677643

Alessandri, G., & Vecchio, G. (2007). A Revised Version of the Kremen and Block's Ego Resiliency Scale in an Italian Sample. *Testing, Psychometrics, Methodology in Applied Psychology*, *14*(3-4), 165–183.

Alessandri, G., Vecchione, M., Caprara, G., & Letzring, T. (2012). The Ego Resiliency Scale Revised. *European Journal of Psychological Assessment*, *28*(2), 139–146. doi:10.1027/1015-5759/a000102

Alexander, C. (1998). *The Endurance: Shackleton's legendary antarctic expedition*. New York: Alfred A Knop.

Almedom, A. (2005). Resilience, Hardiness, Sense of Coherence, and Posttraumatic Growth: All Paths Leading To "Light At the End of the Tunnel"? *Journal of Loss and Trauma*, *10*(3), 253–265. doi:10.1080/15325020590928216

Almedom, A., & Glandon, D. (2007). Resilience is not the Absence of PTSD any More than Health is the Absence of Disease. *Journal of Loss and Trauma*, *12*(2), 127–143. doi:doi:10.1080/15325020600945962

Amedeo, D., Golledge, R. G., & Stimson, R. R. J. (2009). *Person-Environment-Behavior Research: Investigating Activities and Experiences in Spaces and Environments* (p. 417). New York: Guilford Press.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999 (Ed.). (1999). *Standards for Educational and Psychological Testing.* Washington, D.C.: American Educational Research Association.

Anderson, J. R. (2013). *The architecture of cognition* (pp. 1–340). New Jersey: Psychology Press.

Antonovsky, A. (1979). *Health, Stress and Coping*. San Francisco: Jossey-Bass.

Antonovsky, A. (1987). *Unraveling The Mystery of Health - How People Manage Stress and Stay Well* (p. 218). San Francisco: Jossey-Bass.

Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Science & Medicine*, *36*(6), 725–733. doi:10.1016/0277-9536(93)90033-Z

Atkinson, P. a, Martin, C. R., & Rankin, J. (2009). Resilience revisited. *Journal of Psychiatric and Mental Health Nursing*, *16*(2), 137–45. doi:10.1111/j.1365-2850.2008.01341.x

Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review*, *14*(4), 496–515. doi:10.5465/AMR.1989.4308374

Baer, R. a, Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, *13*(1), 27–45. doi:10.1177/1073191105283504

Bakas, T., McLennon, S. M., Carpenter, J. S., Buelow, J. M., Otte, J. L., Hanna, K. M., … Welch, J. L. (2012). Systematic review of health-related quality of life models. *Health and Quality of Life Outcomes*, *10*(134), 1–12. doi:10.1186/1477-7525-10-134

Bandura, A. (1977). *Social learning theory*. New Jersey: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control* (p. 604). Gordonsville, VA: WH Freeman & Co.

Barnes, K. (2001). Staff stress in the children's hospice: Causes, effects and coping strategies. *International Journal of Palliative Nursing*, *7*(5), 248–254. doi:10.12968/ijpn.2001.7.5.12638

Barnett, J. E., Baker, E. K., Elman, N. S., & Schoener, G. R. (2007). In pursuit of wellness: The self-care imperative. *Professional Psychology: Research and Practice*, *38*(6), 603–612. doi:10.1037/0735-7028.38.6.603

Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, *14*(4), 413–445. doi:10.1007/BF00922627

Bartlett, M. S. (1937). Properties of sufficiency and statistical tests. *Proceedings of the Royal Society of London. Series A-Mathematical and Physical Sciences*, *160*(901), 268–282.

Barton, W. H. (2005). Methodological challenges in the study of resilience. In M. Ungar (Ed.), *Handbook for working with children and youth: Pathways to resilience across cultures and contexts* (pp. 135–147). New Delhi: Sage.

Bartunek, J. M., & Seo, M. (2002). Qualitative research can add new meanings to quantitative research. *Journal of Organizational Behavior*, *23*(2), 237–242. doi:10.1002/job.132

Baruth, J., & Carroll, K. (2002). A Formal Assessment of Resilience: The Baruth Protective Factors Inventory. *Journal of Individual Psychology*, *58*(3), 235–244.

Beardslee, W. R. (1989). The role of self-understanding in resilient individuals. *American Journal of Orthopsychiatry*, *59*(2), 266–278. doi:10.1111/j.1939-0025.1989.tb01659.x

Bech, P., Olsen, L., Kjoller, M., & Rasmussen, N. (2003). Measuring well being rather than the absence of distress symptoms: a comparison of the SF-36 Mental Health subscale andthe WHO. *International Journal of Methods in Psychiatric Research*, *12*(2). doi:10.2337/dc07-0447

Berkman, L. F., & Kawachi, I. (2000). Social Cohesion, Social Capital, and Health. In L. F. Berkman & I. Kawachi (Eds.), *Social epidemiology* (p. 383). London: Oxford University Press.

Bird, V. J., Le Boutillier, C., Leamy, M., Larsen, J., G Oades, L., Williams, J., & Slade, M. (2012). Assessing the strengths of mental health consumers: a systematic review. *Psychological Assessment*, *24*(4), 1024–33. doi:10.1037/a0028983

Black, C. D. (2008). *Dame Carol Black's Review of the health of Britain's working age population*. London:TSO.

Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In Hillsdale, NJ: Erlbaum. In W. Collins (Ed.), *Development of cognition, affect, and social relations: The Minnesota symposia on child psychology (Vol. 13).* New Jersey: Hillsdate.

Block, J. H., Block, J., & Morrison, A. (1981). Parental agreement-disagreement on child-rearing orientations and gender-related personality correlates in children. *Child Development*, *52*(3), 965–974.

Block, J., & Kremen, A. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology*, *70*(2), 349–361. doi:10.1037/0022-3514.70.2.349

Bonanno, G. (2004). Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*(1), 20–28. doi:10.1037/0003-066X.59.1.20

Bonanno, G. (2005). Clarifying and extending the construct of adult resilience. *American Psychologist*, *60*(3), 265–267. doi:10.1037/0003-066X.60.3.265b

Bonanno, G. (2012a). Commentary on " A Conceptual Framework for Understanding the Mental Health Impacts of Oil Spills : Lessons from the Exxon Valdez Oil Spill "

Resilience and Variability Following Oil Spill Disasters. *Psychiatry*, *75*(3), 236–242. doi:10.1521/psyc.2012.75.3.236

Bonanno, G. (2012b). Uses and abuses of the resilience construct: loss, trauma, and health-related adversities. *Social Science & Medicine*, *74*(5), 753–6. doi:10.1016/j.socscimed.2011.11.022

Bonanno, G., Brewin, C. R., Kaniasty, K., & La Greca, A. M. (2010). Weighing the costs of disaster consequences, risks, and resilience in individuals, families, and communities. *Psychological Science in the Public Interest*, *11*(1), 1–49. doi:10.1177/1529100610387086

Bonanno, G., & Diminich, E. D. (2012). Annual Research Review: Positive adjustment to adversity--trajectories of minimal-impact resilience and emergent resilience. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *54*(4), 378–401. doi:10.1111/jcpp.12021

Bonanno, G., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology*, *75*(5), 671–682. doi:10.1037/0022-006X.75.5.671

Bonanno, G., & Mancini, A. (2012). Beyond resilience and PTSD: mapping the heterogeneity of responses to potential trauma. *Psychological Trauma: Theory, Research, Practice & Policy*, *4*(1), 74–83. doi:10.1037/a0017829

Bonanno, G., Pat-Horenczyk, R., & Noll, J. (2011). Coping flexibility and trauma: The Perceived Ability to Cope With Trauma (PACT) scale. *Psychological Trauma: Theory, Research, Practice, and Policy*, *3*(2), 117–129. doi:10.1037/a0020921

Bonanno, G., Rennicke, C., & Dekel, S. (2005). Self-enhancement among high-exposure survivors of the September 11th terrorist attack: Resilience or social maladjustment? *Journal of Personality and Social Psychology*, *88*(6), 984–998. doi:10.1037/0022-3514.88.6.984

Bornstein, R. F. (2002). A process dissociation approach to objective-projective test score interrelationships. *Journal of Personality Assessment*, *78*(1), 47–68. doi:10.1207/S15327752JPA7801_04

Bowling, N. A., & Hammond, G. D. (2008). A meta-analytic examination of the construct validity of the Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale. *Journal of Vocational Behavior*, *73*(1), 63–77. doi:10.1016/j.jvb.2008.01.004

Bradley, J. R., & Cartwright, S. (2002). Social support, job stress, health, and job satisfaction among nurses in the United Kingdom. *International Journal of Stress Management*, *9*(3), 163–182. doi:10.1023/A:1015567731248

Bremner, J. D. (1999). Does stress damage the brain? *Biological Psychiatry*, *78*(7), 797–805. doi:10.1016/S0006-3223(99)00009-8

Brennan, M. A. (2008). Conceptualizing resiliency: An interactional perspective for community and youth development. *Child Care in Practice*, *14*(1), 55–64. doi:10.1080/13575270701733732

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, *68*(5), 748–766. doi:10.1037/0022-006X.68.5.748

Brocki, J. M., & Wearden, A. J. (2006). A critical evaluation of the use of interpretative phenomenological analysis (IPA) in health psychology. *Psychology and Health*, *21*(1), 87–108. doi:10.1080/14768320500230185

Bronfenbrenner, U. (1979). *The ecology of human development.* Cambridge, MA: Harvard University Press.

Brooks, J., & King, N. (2012). Qualitative psychology in the real world: the utility of template analysis. In *Paper presented at British Psychological Society Annual Conference* (Vol. 18, p. 20). London, UK: unpublished.

Brooks, J., & King, N. (2014). *Doing Template Analysis: Evaluating an End of Life Care Service*. *Sage Research Methods Cases*. Sage Research Methods Cases. Retrieved from http://dx.doi.org/10.4135/978144627305013512755

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, *18*(4), 211–237. doi:10.1080/10478400701598298

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford: Oxford university press. doi:10.1002/job.132

Burisch, M. (1984). Approaches to personality inventory construction: A comparison of merits. *American Psychologist*, *39*(3), 214–227. doi:10.1037/0003-066X.39.3.214

Cammann, C., Fichman, M., Jenkins, G. D., & Klesh, J. (1983). Michigan Organizational Assessment Questionnaire. In S. Seashore, E. Lawler, P. Mirvis, & C. Cammann (Eds.), *Assessing organizational change: A guide to methods, measures, and practice* (pp. 71–138). New York: Wiley-Interscience.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, *56*(2), 81–105. doi:10.1037/h0046016

Campbell-Sills Murray B., L. (2007). Psychometric analysis and refinement of the connor–davidson resilience scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress*, *20*(6), 1019–1028. Retrieved from 10.1002/jts.20271

Campbell-Sills, L., Cohan, S. L., & Stein, M. B. (2006). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behaviour Research and Therapy*, *44*(4), 585–599. doi:10.1016/j.brat.2005.05.001

Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress*, *20*(6), 1019–1028. doi:10.1002/jts.20271.

Campion, M. C., & Ployhart, R. E. (2013). Assessing Personality With Situational Judgment Measures. In N. D. Christiansen & R. P. Tett (Eds.), *Handbook of Personality at Work* (pp. 439–456). New York, NY: Routledge.

Caplan, G. (1990). Loss, stress, and mental health. *Community Mental Health Journal*, *26*(1), 27–48. doi:10.1007/BF00752675

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment* (Vol. 17). Thousand Oaks: California: Sage.

Carver, C. S. (1998). Resilience and Thriving: Issues, Models, and Linkages. *Journal of Social Issues*, *54*(2), 245–266. doi:10.1111/j.1540-4560.1998.tb01217.x

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review*, *30*(7), 879–89. doi:10.1016/j.cpr.2010.01.006

Centre for Mental Health. (2011). *Managing presenteeism* (p. 4). London. Retrieved from www.centreformentalhealth.org.uk/presenteeism

Champion, L. A., Goodall, G., & Rutter, M. (1995). Behaviour problems in childhood and stressors in early adult life. A 20 year follow-up of London school children. *Psychological Medicine*, *25*(02), 231–246. doi:10.1017/S003329170003614X

Chan, D., & Schmitt, N. (2002). Situational judgment and job performance. *Human Performance*, *15*(3), 233–254. doi:10.1207/S15327043HUP1503_01

Chell, E. (2004). Critical Incident Technique. In C. Cassell & G. Symon (Eds.), *Essential guide to qualitative methods in organizational studies* (pp. 45–60). London: Sage.

Christensen, K. A., Stephens, M. A. P., & Townsend, A. L. (1998). Mastery in women's multiple roles and well-being: adult daughters providing care to impaired parents. *Health Psychology*, *17*(2), 163–171. doi:10.1037/0278-6133.17.2.163

Christian, M. S., Edwards, B. D., & Bradley, J. C. (2010). Situational judgment tests: constructs assessed and a meta-analysis of their criterion-related validities. *Personnel Psychology*, *43*(1), 83–117. doi:10.1111/j.1744-6570.2009.01163.x

Cicchetti, D. (2010). Resilience under conditions of extreme stress: a multilevel perspective. *World Psychiatry*, *9*(3), 145–54.

Cicchetti, D., & Garmezy, N. (1993). Prospects and promises in the study of resilience. *Development and Psychopathology*, *5*(4), 497–502. doi:10.1017/S0954579400006118

Cicchetti, D., & Lynch, M. (1993). Toward an ecological/transactional model of community violence and child maltreatment: consequences for children's development. *Psychiatry*, *56*(1), 96–118.

Cicchetti, D., & Rogosch, F. A. (1999). Psychopathology as risk for adolescent substance use disorders: A developmental psychopathology perspective. *Journal of Clinical Child Psychology*, *28*(3), 355–365. doi:10.1207/S15374424jccp280308

Cicchetti, D., & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology*, *70*(1), 6–20. doi:10.1037/0022-006X.70.1.6

Cicchetti, D., Rogosch, F. A., Lynch, M., & Holt, K. D. (1993). Resilience in maltreated children: Processes leading to adaptive outcome. *Development and Psychopathology*, *5*(04), 629–647. doi:10.1017/S0954579400006209

Cicchetti, D., Rogosch, F. A., & Toth, S. L. (2000). The efficacy of toddler-parent psychotherapy for fostering cognitive development in offspring of depressed mothers. *Journal of Abnormal Child Psychology*, *28*(2), 135–148. doi:10.1023/A:1005118713814

Cicchetti, D., Toth, S., & Bush, M. (1988). Developmental psychopathology and incompetence in childhood. In *Advances in clinical child psychology* (pp. 1–71). New York: Plenum.

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, *6*(4), 284–290. doi:10.1037/1040-3590.6.4.284

CIPD. (2013). *Employee Outlook: Focus on employee well-being* (pp. 1–20). London.

Clause, C. S., Mullins, M. E., Nee, M. T., Pulakos, E., & Schmitt, N. (1998). Parallel test form development: A procedure for alternate predictors and an example. *Personnel Psychology*, *51*(1), 193–208. doi:10.1111/j.1744-6570.1998.tb00722.x

Clauss-Ehlers, C. S. (2008). Sociocultural factors, resilience, and coping: Support for a culturally sensitive measure of resilience. *Journal of Applied Developmental Psychology*, *29*(3), 197–212. doi:10.1016/j.appdev.2008.02.004

Claxton-Oldfield, S. (2014). Hospice palliative care volunteers: The benefits for patients, family caregivers, and the volunteers. *Palliative and Supportive Care*, 1–5. doi:10.1017/S1478951514000674

Clevenger, J., Pereira, G. M., Wiechmann, D., Schmitt, N., & Harvey, V. S. (2001). Incremental validity of situational judgment tests. *Journal of Applied Psychology*, *86*(3), 410–417. doi:10.1037/0021-9010.86.3.410

Cohen, A. B. (2009). Many forms of culture. *American Psychologist*, *64*(3), 194–204. doi:10.1037/a0015308

Cohen, J. (1968). Weighted kappa: nominal scale agreement with provision for scaled disagreement or partial credit. *Psychological Bulletin*, *70*(4), 213–220. doi:10.1037/h0026256

Cohen, S. (2004). Social relationships and health. *American Psychologist*, *59*(8), 676–684. doi:10.1037/0003-066X.59.8.676

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, *98*(2), 310–357. doi:10.1037/0033-2909.98.2.310

Cohler, B. J., Stott, F. M., & Musick, J. S. (1995). Adversity, vulnerability, and resilience: Cultural and developmental perspectives. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology, Vol. 2: Risk, disorder, and adaptation. Wiley series on personality processes* (pp. 753–800). Oxford: England: John Wiley & Sons.

Collins, S., & Long, A. (2003). Working with the psychological effects of trauma: consequences for mental health-care workers–a literature review. *Journal of Psychiatric and Mental Health Nursing*, *10*(4), 417–424. doi:10.1046/j.1365-2850.2003.00620.x

Comfrey, A., & Lee, H. (1992). *A First Course in Factor Analysis.* Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76–82. doi:10.1002/da.10113

Connor, K. M., & Zhang, W. (2006). Resilience: Determinants, measurement, and treatment responsiveness. *CNS Spectrums*, *11*(SUPPL. 12), 5–12.

Cooper, C. L., Dewe, P. J., & O'Driscoll, M. P. (2001). *Organizational stress: A review and critique of theory, research, and applications* (p. 288). London: Sage.

Cordes, C. L., & Dougherty, T. W. (1993). A review and an integration of research on job burnout. *Academy of Management Review*, *18*(4), 621–656. doi:10.5465/AMR.1993.9402210153

Costello, A. B., & Osborne, J. W. (2005). Best Practices in Exploratory Factor Analysis : Four Recommendations for Getting the Most From Your Analysis. *Practical Assessment, Research & Evaluation*, *10*(7), 1–9.

Courvoisier, D. S., Nussbeck, F. W., Eid, M., Geiser, C., & Cole, D. A. (2008). Analyzing the convergent and discriminant validity of states and traits: Development and applications of multimethod latent state-trait models. *Psychological Assessment*, *20*(3), 270–280. doi:10.1037/a0012812

Cousins, R., Mackay, C. J., Clarke, S. D., Kelly, C., Kelly, P. J., & McCaig, R. H. (2004). "Management standards" work-related stress in the UK: Practical development. *Work & Stress*, *18*(2), 113–136. doi:10.1080/02678370410001734322

Cox, T. (1993). *Stress Research and Stress Management: Putting Theory to Work*. Sudbury: HSE Books.

Cox, T., Griffiths, A., & Randall, R. (2003). A risk management approach to the prevention of work stress. In M. Schabracq, J. Winnubst, & C. L. Cooper (Eds.), *The handbook of work and health psychology* (2nd ed., Vol. 191, pp. 191–206). Chichester: John Wiley & Sons, Ltd.

Cox, T., Randall, R., & Griffiths, A. (2002). *Interventions to Control Stress at Work in Hospital Staff*. Sudbury: HSE Books.

Crabtree, B., & Miller, W. (1999). *Doing Qualitative Research.* (2nd ed., p. 401). Thousand Oaks: California: Sage Publications.

Cramer, K. M. (2013). Six Criteria of a Viable Theory: Putting Reversal Theory to the Test. *Journal of Motivation, Emotion, and Personality: Reversal Theory Studies*, *1*, 9–16. doi:10.12689/jmep.2013.102

Cronbach, L., & Meehl, P. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*(4), 281–302. doi:10.1037/h0040957

Crook, A. E., Beier, M. E., Cox, C. B., Kell, H. J., Hanks, A. R., & Motowidlo, S. J. (2011). Measuring Relationships between Personality, Knowledge, and Performance using Single-response Situational Judgment Tests. *International Journal of Selection and Assessment*, *19*(4), 363–373. doi:10.1111/j.1468-2389.2011.00565.x

Cundiff, J. M., Smith, T. W., Uchino, B. N., & Berg, C. A. (2013). Subjective social status: Construct validity and associations with psychosocial vulnerability and self-rated health. *International Journal of Behavioral Medicine*, *20*(1), 148–158. doi:10.1007/s12529-011-9206-1

Davidson, J. R. T., Connor, K. M., & Lee, L.-C. (2005). Beliefs in karma and reincarnation among survivors of violent trauma. *Social Psychiatry and Psychiatric Epidemiology*, *40*(2), 120–125. doi:10.1007/s00127-005-0857-6 Print ISSN

Davidson, O. B., Eden, D., Westman, M., Cohen-Charash, Y., Hammer, L. B., Kluger, A. N., … Perrewé, P. L. (2010). Sabbatical leave: who gains and how much? *Journal of Applied Psychology*, *95*(5), 953–964. doi:10.1037/a0020068

Davydov, D. M., Stewart, R., Ritchie, K., & Chaudieu, I. (2010). Resilience and mental health. *Clinical Psychology Review*, *30*(5), 479–95. doi:10.1016/j.cpr.2010.03.003

De Meijer, L. A. L., Born, M. P., van Zielst, J., & van der Molen, H. T. (2010). Construct-driven development of a video-based situational judgment test for integrity: A study in a multi-ethnic police setting. *European Psychologist*, *15*(3), 229–236. doi:10.1027/1016-9040/a000027

De Vaus, D. (2002). *Surveys in social research* (5th editio, p. 374). London: Routledge.

Dean, J. G., & Stain, H. J. (2010). Mental health impact for adolescents living with prolonged drought. *Australian Journal of Rural Health*, *18*(1), 32–37. doi:10.1111/j.1440-1584.2009.01107.x

Deinzer, R., Steyer, R., Eid, M., Notz, P., Schwenkmezger, P., Ostendorf, F., & Neubauer, A. (1995). Situational effects in trait assessment: The FPI, NEOFFI, and EPI questionnaires. *European Journal of Personality*, *9*(1), 1–23. doi:10.1002/per.2410090102

Dienstbier, R. A., & Zillig, L. M. P. (2002). Toughness. In C. R. Snyder & S. G. Lopez (Eds.), *Handbook of positive psychology* (pp. 515–527). New York: Oxford University Press.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology*, *41*(1), 417–440. doi:10.1146/annurev.ps.41.020190.002221

Dimoska, A., Girgis, A., Hansen, V., Butow, P. N., & Tattersall, M. H. (2008). Perceived difficulties in consulting with patients and families: a survey of Australian cancer specialists. *Med J Aust*, *189*(11-12), 612–615.

Dodge, K. A., & Pettit, G. S. (2003). A biopsychosocial model of the development of chronic conduct problems in adolescence. *Developmental Psychology*, *39*(2), 349. doi:10.1037/0012-1649.39.2.349

Drake, B., & Pandey, S. (1996). Understanding the relationship between neighborhood poverty and specific types of child maltreatment. *Child Abuse & Neglect*, *20*(11), 1003–1018. doi:10.1016/0145-2134(96)00091-9

Drasgow, F., & Olson-Buchanan, J. B. (2014). *Innovations in computerized assessment* (p. 280). New Jersey: Psychology Press.

Dunkel Schetter, C., & Dolbier, C. (2011). Resilience in the Context of Chronic Stress and Health in Adults. *Social and Personality Psychology Compass*, *5*(9), 634–652. doi:10.1111/j.1751-9004.2011.00379.x

Dunn, L., Iglewicz, A., & Moutier, C. (2008). A conceptual model of medical student well-being: Promoting resilience and preventing burnout. *Academic Psychiatry*, *32*, 44–53. doi:10.1176/appi.ap.32.1.44

Dunning, D., & Hayes, A. F. (1996). Evidence for egocentric comparison in social judgment. *Journal of Personality and Social Psychology*, *71*(2), 213. doi:10.1037/0022-3514.71.2.213

Egeland, B., Carlson, E., & Sroufe, L. (1993). Resilience as a process. *Development and Psychopathology*, *5*(4), 517–528. doi:10.1017/S0954579400006131

Ekehammar, B. (1974). Interactionism in personality from a historical perspective. *Psychological Bulletin*, *81*(12), 1026–1048. doi:10.1037/h0037457

Endler, N. (1983). Interactionism: A personality model, but not yet a theory. *Nebraska Symposium on Motivation*, 155–200.

Endler, N. (1988). Interactionism revisited: A discussion of "On the role of situations in personality research." In S. G. Cole, R. G. Demaree, & W. Curtis (Eds.), *Applications of interactionist psychology: Essays in honor of Saul B. Sells.* (pp. 179–188). Hillsdale, NJ England: Lawrence Erlbaum Associates, Inc.

Endler, N., & Edwards, J. (1983). Personality research. In M. Hersen, A. Kazdin, & S. Bellack (Eds.), *The Clinical Psychology Handbook* (1st ed., pp. 223–238). New York: Pergamon Press.

Endler, N., & Edwards, J. M. (1986). Interactionism in personality in the twentieth century. *Personality and Individual Differences*, *7*(3), 379–384. doi:10.1016/0191-8869(86)90013-9

Endler, N., & Parker, J. J. (1992). Interactionism revisited: Reflections on the continuing crisis in the personality area. *European Journal of Personality*, *6*(3), 177–198. doi:10.1002/per.2410060302

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272–299. doi:doi: 10.1037/1082-989X.4.3.272

Fegg, M., L'hoste, S., Brandstätter, M., & Borasio, G. D. (2014). Does the Working Environment Influence Health Care Professionals' Values, Meaning in Life and Religiousness? Palliative Care Units Compared With Maternity Wards. *Journal of Pain and Symptom Management*, *48*(5), 915–923. doi:10.1016/j.jpainsymman.2014.01.009

Ferguson, E. (2001). Personality and coping traits: A joint factor analysis. *British Journal of Health Psychology*, *6*(Part 4), 311–325. doi:10.1348/135910701169232

Ferguson, E., & Cox, T. (1993). Exploratory factor analysis: A users' guide. *International Journal of Selection and Assessment*, *1*(2), 84–94.

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage publications.

Field, A. (2013). *Discovering statistics with SPSS. London: Sage, Last access: August* (4th ed., Vol. 27, p. 908). London: Sage Publications.

Firth-Cozens, J., & Payne, R. (1999). *Stress in health professionals: psychological and organisational causes and interventions* (p. 264). Chichester: John Wiley & Sons Inc.

Fitzpatrick, R., Bowling, A., Gibbons, E., Haywood, K., Jenkinson, C., Mackintosh, A., & Peters, M. (2006). *A structured review of patient-reported measures in relation to selected chronic conditions, perceptions of quality of care and carer impact.* (p. 460). Oxford. Retrieved from Retrieved from http://phi.uhce.ox.ac.uk/

Flach, F. (1988). *Resilience: Discovering a new strength at times of stress*. New York: Ballentine.

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*(4), 327–58. doi:10.1037/h0061470

Fletcher, D., & Sarkar, M. (2013). Psychological Resilience. *European Psychologist*, *18*(1), 12–23. doi:10.1027/1016-9040/a000124

Fluckinger, C. D., Dudley, N. M., & Seeds, M. (2014). Incremental Validity of Interactive Multimedia Simulations in Two Organizations. *International Journal of Selection and Assessment*, *22*(1), 108–112. doi:10.1111/ijsa.12061

Folkman, S., Lazarus, R. S., Dunkel Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, *50*(5), 992–1003. doi:10.1037/0022-3514.50.5.992

Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, *55*, 745–774. doi:10.1146/annurev.psych.55.090902.141456

Foss, N. J. (1996). Knowledge-based approaches to the theory of the firm: Some critical comments. *Organization Science*, *7*(5), 470–476. doi:10.1287/orsc.7.5.470

Fredrickson, B. L., & Branigan, C. (2003). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition & Emotion*, *19*(3), 313–332. doi:10.1080/02699930441000238

Freedy, J. R., & Hobfoll, S. E. (1994). Stress inoculation for reduction of burnout: A conservation of resources approach. *Anxiety, Stress and Coping*, *6*(4), 311–325. doi:10.1080/10615809408248805

Friborg, O., Barlaug, D., Martinussen, M., Rosenvinge, J. H., & Hjemdal, O. (2005). Resilience in relation to personality and intelligence. *International Journal of Methods in Psychiatric Research*, *14*(1), 29–42. doi:10.1002/mpr.15

Friborg, O., Hjemdal, O., Rosenvinge, J., & Martinussen, M. (2003). A new rating scale for adult resilience: what are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research*, *12*(2), 65–76. doi:10.1002/mpr.143

Funder, D. C. (2009). Persons, behaviors and situations: An agenda for personality psychology in the postwar era. *Journal of Research in Personality*, *43*(2), 120–126. doi:10.1016/j.jrp.2008.12.041

Furr, J. M., Comer, J. S., Edmunds, J. M., & Kendall, P. C. (2010). Disasters and youth: a meta-analytic examination of posttraumatic stress. *Journal of Consulting and Clinical Psychology*, *78*(6), 765–80. doi:10.1037/a0021482

Garmezy, N. (1991). Resilience in children's adaptation to negative life events and stressed environments. *Pediatric Annals*, *20*, 459–466.

Garmezy, N. (1993). Children in poverty: Resilience despite risk. *Psychiatry*, *56*(1), 127–136.

Germain, C., & Gitterman, A. (1987). Ecological Perspective. In A. Minahan (Ed.), *Encyclopaedia of Social Work (Vol 1)* (18th ed., pp. 488–499). Silver Spring, MD: National Assoication of Social Workers.

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2007). Development of a theoretically derived model of resilience through concept analysis. *Contemporary Nurse*, *25*(1-2), 124–135.

Gillespie, B. M., Chaboyer, W., & Wallis, M. (2007). Development of a theoretically derived model of resilience through concept analysis. *Contemporary Nurse*, *25*(1-2), 124–35. doi:10.5555/conu.2007.25.1-2.124

Glantz, M., & Sloboda, Z. (1999). *Analysis and reconeptualisation of resilience*. (D. Glantz & J. L. Johnson (Eds.), Ed.) (pp. 109–126). New York: Kluwer Academic/Plenum Publishers.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, *4*(1), 26–42. doi:: 10.1037/1040-3590.4.1.26

Goldstein, L. H., & Leigh, P. N. (1999). Motor neurone disease: a review of its emotional and cognitive consequences for patients and its impact on carers. *British Journal of Health Psychology*, *4*(3), 193–208. doi:10.1348/135910799168579

Gough, H. (1956). *California Psychological Inventory.* Palo Alto: Consulting Psychologists Press.

Graham, J., & Ramirez, A. (2002). Improving the working lives of cancer clinicians. *European Journal of Cancer Care*, *11*(3), 188–192. doi:10.1046/j.1365-2354.2002.00338.x

Graham, J., Ramirez, A. J., Cull, A., Finlay, I., Hoy, A., & Richards, M. A. (1996). Job stress and satisfaction among palliative physicians. *Palliative Medicine*, *10*(3), 185–194.

Grandey, A. a., & Cropanzano, R. (1999). The Conservation of Resources Model Applied to Work–Family Conflict and Strain. *Journal of Vocational Behavior*, *54*(2), 350–370. doi:10.1006/jvbe.1998.1666

Grant, S. G. N. (2006). Michael Rutter: Genes and behavior: nature-nurture interplay explained. *Genes, Brain and Behavior*, *5*(3), 303–303. doi:10.1111/j.1601-183X.2006.00219.x

Green, J. G., McLaughlin, K. A., Berglund, P. A., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the national comorbidity survey replication I: associations with first onset of DSM-IV disorders. *Archives of General Psychiatry*, *67*(2), 113–123. doi:10.1001/archgenpsychiatry.2009.186.

Green, S. B. (1991). How many subjects does it take to do a regression analysis. *Multivariate Behavioral Research*, *26*(3), 499–510. doi:10.1207/s15327906mbr2603_7

Griffin, M. L., Hogan, N. L., Lambert, E. G., Tucker-Gail, K. a., & Baker, D. N. (2009). Job Involvement, Job Stress, Job Satisfaction, and Organizational Commitment and the

Burnout of Correctional Staff. *Criminal Justice and Behavior*, *37*(2), 239–255. doi:10.1177/0093854809351682

Griffiths, A., Randall, R., Santos, A., & Cox, T. (2003). Senior nurses: interventions to reduce work stress. In M. Dollard, A. Winefield, & H. Winefield (Eds.), *Occupational Stress in the Service Professions.* (pp. 169–191). London, UK: Taylor & Francis.

Grunfeld, E., Whelan, T. J., Zitzelsberger, L., Willan, A. R., Montesanto, B., & Evans, W. K. (2000). Cancer care workers in Ontario: prevalence of burnout, job stress and job satisfaction. *Canadian Medical Association Journal*, *163*(2), 166–169.

Haase, J. E. (2004). The adolescent resilience model as a guide to interventions. *Journal of Pediatric Oncology Nursing*, *21*(5), 289–299. doi:10.1177/1043454204267922

Hak, T., & Bernts, T. (1996). Coder training: Theoretical training or practical socialization? *Qualitative Sociology*, *19*(2), 235–257. doi:10.1007/BF02393420

Hardy, S., Carson, J., & Thomas, B. (1998). Improving care by caring for professional carers. In S. Hardy, J. Carson, & B. Thomas (Eds.), *Occupational stress: personal and professional approaches* (pp. 1–209). Cheltenham: Stanley Thornes.

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, *87*(2), 268–279. doi:10.1037//0021-9010.87.2.268

Harvey, M. R. (2007). Towards an ecological understanding of resilience in trauma survivors: Implications for theory, research, and practice. *Journal of Aggression, Maltreatment & Trauma*, *14*(1-2), 9–32. doi:10.1300/J146v14n01_02

Harvey, M. R., Liang, B., Harney, P. A., Koenen, K., Tummala-Narra, P., & Lebowitz, L. (2003). A Multidimensional Approach to the Assessment of Trauma Impact, Recovery and Resiliency. *Journal of Aggression, Maltreatment & Trauma*, *6*(2), 87–109. doi:10.1300/J146v06n02_05

Health and Safety Executive. (2012). *Stress and Psychological Disorders* (pp. 1–7). Retrieved from http://www.hse.gov.uk/statistics/causdis/stress/index.htm

Health and Safety Executive. (2013). *Health and Safety Executive: Annual Statistics Report for Great Britain 2012/13* (p. 27).

Health Care Commission. (2013). *National Survey of NHS Staff 2013*. Oxford.

Henkel, V., Mergl, R., Kohnen, R., Maier, W., Möller, H., & Hegerl, U. (2003). The WHO-5 Wellbeing index performed the best in screening for depression in primary care. *British Medical Journal*, *326*, 200–201. doi:10.1136/bmj.326.7382.200

Henson, R. K., & Roberts, J. K. (2006). Use of exploratory factor analysis in published research common errors and some comment on improved practice. *Educational and Psychological Measurement*, *66*(3), 393–416. doi:10.1177/0013164405282485

Hetherington, E. M., Bridges, M., & Insabella, G. M. (1998). What matters? What does not? Five perspectives on the association between marital transitions and children's adjustment. *American Psychologist*, *53*(2), 167–184. doi:10.1037/0003-066X.53.2.167

Hjemdal, O. (2007). Measuring protective factors: The development of two resilience scales in Norway. *Child and Adolescent Psychiatric Clinics of North America*, *16*(2), 303–321. doi:10.1016/j.chc.2006.12.003

Hjemdal, O., Friborg, O., Braun, S., Kempenaers, C., Linkowski, P., Fossion, P., & Hjemdal OddgeirBraun, StéphanieKempenaers, ChantalLinkowski, PaulFossion, Pierre, O. (2011). The Resilience Scale for Adults: Construct Validity and Measurement in a Belgian Sample. *International Journal of Testing*, *11*(1), 53–70. doi:10.1080/15305058.2010.508570

Hjemdal, O., Friborg, O., Stiles, T. C., Rosenvinge, J. H., & Martinussen, M. (2006). Resilience Predicting Psychiatric Symptoms: A Prospective Study of Protective Factors and their Role in Adjustment to Stressful Life Events. *Clinical Psychology & Psychotherapy*, *13*(3), 194–201. doi:10.1002/cpp.488

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. doi:10.1037/0003-066X.44.3.513

Hobfoll, S. E. (1998). *Stress, culture and community: The psychology and philosophy of stress.* New York: Plenum.

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology*, *6*(4), 307–324. doi:10.1037//1089-2680.6.4.307

Hobfoll, S. E. (2012). A Conceptual Framework for Understanding the Mental Health Impacts of Oil Spills : Lessons from the Exxon Valdez Oil Spill. *Psychiatry: Interpersonal and Biological Processes*, *75*(3), 207–222. doi:10.1521/psyc.2012.75.3.203

Hobfoll, S. E., & London, P. (1986). The relationship of self-concept and social support to emotional distress among women during war. *Journal of Social and Clinical Psychology*, *4*(2), 189–203. doi:10.1521/jscp.1986.4.2.189

Hobfoll, S. E., & Shirom, A. (2001). Conservation of resources theory: Applications to stress and management in the workplace. In R. T. Golembiewski (Ed.), *Handbook of organizational behavior* (2nd ed., Vol. 1, pp. 57–80). New York: Marcel Dekker.

Hochschild, A. (1983). *The managed heart. Commercialization of human feeling* (pp. 3–307). Berkely: University of California Press, Ltd.

Hoge, E. A., Austin, E. D., & Pollack, M. H. (2007). Resilience: Research evidence and conceptual considerations for posttraumatic stress disorder. *Depression and Anxiety*, *24*(2), 139–152. doi:10.1002/da.20175

Horton, T. V., & Wallander, J. L. (2001). Hope and social support as resilience factors against psychological distress of mothers who care for children with chronic physical conditions. *Rehabilitation Psychology*, *46*(4), 382.

Hough, L. M., Oswald, F. L., & Ployhart, R. E. (2001). Determinants, detection and amelioration of adverse impact in personnel selection procedures: Issues, evidence and lessons learned. *International Journal of Selection and Assessment*, *9*(1-2), 152–194. doi:10.1111/1468-2389.00171

House, J. S., Kahn, R. L., McLeod, J. D., & Williams, D. (1985). Measures and concepts of social support. In S. Syme & S. Leonard (Eds.), *Social Support and Health* (pp. 83–108). San Diego: Academic Press.

Hruschka, D. J., Schwartz, D., St.John, D. C., Picone-Decaro, E., Jenkins, R. a., & Carey, J. W. (2004). Reliability in Coding Open-Ended Data: Lessons Learned from HIV Behavioral Research. *Field Methods*, *16*(3), 307–331. doi:10.1177/1525822X04266540

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. doi:10.1080/10705519909540118

Huberman, M., & Miles, M. B. (2002). *The qualitative researcher's companion* (p. 409). Thousand Oaks: California: Sage.

Hulbert, N. J., & Morrison, V. L. (2006). A preliminary study into stress in palliative care: optimism, self-efficacy and social support. *Psychology, Health & Medicine*, *11*(2), 246–54. doi:10.1080/13548500500266664

Hulin, C. (1991). Adaptation, persistence, and commitment in organizations. In M. Dunnette & L. Hough (Eds.), *Handbook of industrial and organizational psychology, Vol. 2* (2nd ed., pp. 445–505). Palo Alto, Calif: Consulting Psychologists Press.

Hunsley, J., & Mash, E. J. (2008). *A guide to assessments that work*. *The Oxford handbook of clinical psychology* (pp. 3–14). New York: Oxford University Press.

Hystad, S. W., Eid, J., & Brevik, J. I. (2011). Effects of psychological hardiness, job demands, and job control on sickness absence: a prospective study. *Journal of Occupational Health Psychology*, *16*(3), 265–78. doi:10.1037/a0022904

Iacobucci, D. (2001). Interrater Reliability. *Journal of Consumer Psychology*, *10*(1-2), 71–73.

Itami, H., & Roehl, T. W. (1991). *Mobilizing invisible assets* (p. 181). Harvard University Press.

Jackson, D., Firtko, A., & Edenborough, M. (2007). Personal resilience as a strategy for surviving and thriving in the face of workplace adversity: a literature review. *Journal of Advanced Nursing*, *60*(1), 1–9. doi:10.1111/j.1365-2648.2007.04412.x

Jackson, V., Mack, J., Matsuyama, R., Lakoma, M. D., Sullivan, A. M., Arnold, R. M., … Block, S. D. (2008). A qualitative study of oncologists' approaches to end-of-life care. *Journal of Palliative Medicine*, *11*(6), 893–906. doi:10.1089/jpm.2007.2480

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. Pervin & O. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., Vol. 2, pp. 102–138). New York: Guilford.

Johns, G. (2001). In praise of context. *Journal of Organizational Behavior*, *22*(1), 31–42. doi:10.1002/job.80

Johnson, K. A., Hill, E. D., & Cohen, A. B. (2011). Integrating the study of culture and religion: Toward a psychology of worldview. *Social and Personality Psychology Compass*, *5*(3), 137–152. doi:10.1111/j.1751-9004.2010.00339.x

Jones, J., Hodgson, J., & Webster, S. (2013). *Follow-up and assessment of self reports of work-related illness in the Labour Force Survey Health and Safety Executive* (p. 52). Bootle.

Jones, M. C., Wells, M., Gao, C., Cassidy, B., & Davie, J. (2013). Work stress and well-being in oncology settings: a multidisciplinary study of health care professionals. *Psycho-Oncology*, *22*(1), 46–53. doi:10.1002/pon.2055

Judge, T., Erez, A., Bono, J., & Thoreson, C. (2003). Core Self-Evaluations Scale: Development of a measure. *Personnel Psychology*, *56*(2), 303–331. doi:10.1111/j.1744-6570.2003.tb00152.x

Judge, T., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction-job performance relationship: a qualitative and quantitative review. *Psychological Bulletin*, *127*(3), 376–407. doi:10.1037/0033-2909.127.3.376

Kaplan, H. (1999). Toward an understanding of resilience: A critical review of definitions and models. In M. Glantz & J. Johnson (Eds.), *Resilience and development: positive life adaptations* (pp. 17–83). New York: Kluwer Academic/Plenum Publishers.

Karasek, R. A., & Thorell, T. (1990). *Healthy work: Stress, health, and the reconstruction of working life* (p. 402). New York: Basic books.

Kashdan, T. B., Ferssizidis, P., Collins, R. L., & Muraven, M. (2010). Emotion differentiation as resilience against excessive alcohol use: An ecological momentary assessment in underage social drinkers. *Psychological Science*, *21*(9), 1341–1347. doi:10.1177/0956797610379863

Kenny, D., & McCoach, D. (2003). Effect of the number of variables on measures of fit in structural equation modeling. *Structural Equation Modeling*, *10*(3), 333–351. doi:10.1207/S15328007SEM1003_1

Kent, R. (2001). *Data construction and data analysis for survey research*. Hampshire, UK: Palgrave Macmillan.

Kim-Cohen, J. (2007). Resilience and developmental psychopathology. *Child and Adolescent Psychiatric Clinics of North America*, *16*(2), 271–83, vii. doi:10.1016/j.chc.2006.11.003

King, A. W., & Zeithaml, C. P. (2003). Research notes and commentaries. Measuring organizational knowledge: a conceptual and methodological framework. *Strategic Management Journal*, *24*(8), 763–772. doi:10.1002/smj.333

King, N. (2012). Doing template analysis. In G. Symon & C. Cassell (Eds.), *Qualitatve Organizational Research: Core Methods and Current Challenges* (pp. 426–450). London: Sage Publications.

King, N., Cassell, C., & Symon, G. (2004). Using templates in the thematic analysis of texts. In C. Cassell & G. Symon (Eds.), *Essential guide to qualitative methods in organizational research* (pp. 256–270). London: Sage.

Kitzinger, J., & Barbour, R. (1999). Introduction: the challenge and promise of focus groups. In R. Barbour & J. Kitzinger (Eds.), *Developing focus group research: politics, theory and practice* (p. 223). London: Sage.

Kline, P. (1994). *An easy guide to factor analysis.* London: Routledge.

Kobasa, S. (1979). Personality Social Psychology. *Journal of Personality and Social Psychology*, *37*(1). doi:10.1037/0022-3514.37.1.1

Kobasa, S., Maddi, S. R., & Kahn, S. (1982). Hardiness and health: a prospective study. *Journal of Personality and Social Psychology*, *42*(1), 168–77. doi:10.1037/0022-3514.42.1.168

Koedinger, K. R., & Corbett, A. T. (2006). Cognitive tutors: Technology bringing learning science to the classroom. In K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (Vol. 13, pp. 135–168). New York: Cambridge Univ Press.

Krumm, S., Lievens, F., Hüffmeier, J., Lipnevich, A. a, Bendels, H., & Hertel, G. (2014). How "Situational" Is Judgment in Situational Judgment Tests? *The Journal of Applied Psychology*. doi:10.1037/a0037674

Książek, I., Stefaniak, T. J., Stadnyk, M., & Książek, J. (2011). Burnout syndrome in surgical oncology and general surgery nurses: a cross-sectional study. *European Journal of Oncology Nursing*, *15*(4), 347–350. doi:10.1016/j.ejon.2010.09.002

Kumpfer, K. (1999). Factors and processes contributing to resilience: The resilience framework. In M. D. Glantz & J. L. Johnston (Eds.), *Resilience and development: Positive life adaptations. Longitudinal research in the social and behavioral sciences* (pp. 161–176). Dodrecht: Kluwer Academic/Plenum.

Kumpfer, K., & Alvarado, R. (2003). Family-strengthening approaches for the prevention of youth problem behaviors. *American Psychologist*, *58*(6-7), 457–465. doi:10.1037/0003-066X.58.6-7.457

Kumpfer, K., & Hopkins, R. (1993). Prevention: Current research and trends. *Psychiatric Clinics of North America*, *16*(1), 11–20.

Lambert, A. J., & Wedell, D. H. (1991). The self and social judgment: Effects of affective reaction and“ own position” on judgments of unambiguous and ambiguous information about others. *Journal of Personality and Social Psychology*, *61*(6), 884. doi:10.1037/0022-3514.61.6.884

Lazarus, R., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.

Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, *81*(2), 123. doi:10.1037/0021-9010.81.2.123

Legree, P., & Psotka, J. (2006). *Refining situational judgment test methods*. *In army research inst for the behavioral and social sciences* (p. 9). Arlington, VA.

Leiter, M. P., & Maslach, C. (2003). Areas of worklife : a structured approach to organizational predictors of job burnout. In P. L. Perrewé & D. Ganster (Eds.), *Research in Occupational Stress and Well-being Volume 3* (3rd ed., pp. 91–134). Emerald Group Publishing Limited. doi:10.1016/S1479-3555(03)03003-8

Lepore, S., & Revenson, T. (2006). Resilience and posttraumatic growth: Recovery, resistance, and reconfiguration. In L. Calhoun & R. Tedesch (Eds.), *Handbook of posttraumatic growth: Research and practice* (pp. 24–46). Mahwah, New Jersey: Erlbaum.

Levine, O. H., Britton, P. J., James, T. C., Jackson, A. P., Hobfoll, S. E., & Lavin, J. P. (1993). The empowerment of women: A key to HIV prevention. *Journal of Community Psychology*, *21*(4), 320–334. doi:10.1002/1520-6629

Liang, B., & Harvey, M. R. (2007). The Multidimensional Trauma Recovery and Resiliency Instrument : Preliminary Examination of an Abridged Version. *Journal of Aggression, Maltreatment & Trauma*, *14*(1-2), 55–74. doi:10.1300/J146v14n01_04

Liang, B., Tummalanarra, P., Bradley, R., & Harvey, M. R. (2007). The Multidimensional Trauma Recovery and Resiliency Instrument. *Journal of Aggression, Maltreatment & Trauma*, *14*(1-2), 55–74. doi:10.1300/J146v14n01_04

Lievens, F. (2000). Development of an empirical scoring scheme for situational inventories. *European Review of Applied Psychology*, *50*, 117–124.

Lievens, F., Buyse, T., & Sackett, P. R. (2005). Retest effects in operational selection settings: Development and test of a framework. *Personnel Psychology*, *58*, 981–1007. doi:10.1111/j.1744-6570.2005.00713.x

Lievens, F., Peeters, H., & Schollaert, E. (2008). Situational judgment tests: A review of recent research. *Personnel Review*, *37*(4), 426–441.

Lincoln, Y. S., & Guba, E. G. (1990). Judging the quality of case study reports. *International Journal of Qualitative Studies in Education*, *3*(1), 53–59. doi:10.1080/0951839900030105

Linley, P. A., & Joseph, S. (2011). Meaning in life and posttraumatic growth. *Journal of Loss and Trauma*, *16*(2), 150–159. doi:10.1080/15325024.2010.519287

Little, B. (2000). Persons, contexts, and personal projects. In Wapner (Ed.), *Theoretical perspectives in environment behavior research* (pp. 79–88). New York: Kluwer Academic/Plenum Publishers.

Loevinger, J. (1957). Objective Tests as Instruments of Psychological Theory: Monograph Supplement 9. *Psychological Reports*, *3*, 635–694. doi:10.2466/pr0.1957.3.3.635

Loewe, B., Spitzer, R., & Grafe, K. (2004). Comparative validity of three screening questionnaires for DSM-IV depressive disorders and physicians diagnoses. *Journal of Affective Disorders*, *78*(2), 131–140. doi:10.1016/S0165-0327(02)00237-9

Lown, B. A., & Manning, C. F. (2010). The Schwartz Center Rounds: evaluation of an interdisciplinary approach to enhancing patient-centered communication, teamwork, and provider support. *Academic Medicine*, *85*(6), 1073–1081. doi:10.1097/ACM.0b013e3181dbf741

Luszczynska, A., & Cieslak, R. (2005). Protective, promotive, and buffering effects of perceived social support in managerial stress: The moderating role of personality. *Anxiety, Stress & Coping: An International Journal*, *18*(3), 227–244. doi:10.1080/10615800500125587

Luthans, F., Vogelgesang, G. R., & Lester, P. B. (2006). Developing the Psychological Capital of Resiliency. *Human Resource Development Review*, *5*(1), 25–44. doi:10.1177/1534484305285335

Luthans, F., Youseff, C. M., & Avolio, B. J. (2007). *Psychological Capital* (pp. 237–238). New Jersey: Oxford University Press.

Luthans, F., Youssef, C., & Avolio, B. (2007). *Psychological capital: developing the human competitive edge*. New York: Oxford University Press.

Luthar, S. S. (2006). Resilience in development: A synthesis of research across five decades. In D. Cohen & D. Cicchetti (Eds.), *Developmental psychopathology Volume 3* (2nd ed., pp. 739–795). Hoboken, NJ: Wiley & Sons.

Luthar, S. S., & Brown, P. (2007). Maximizing resilience through diverse levels of inquiry: Prevailing paradigms, possibilities, and priorities for the future. *Development and Psychopathology*, *19*(3), 931–955. doi:10.1017/S0954579407000454

Luthar, S. S., & Cicchetti, D. (2000). The construct of resilience: Implications for interventions and social policies. *Development and Psychopathology*, *12*, 857–885.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: a critical evaluation and guidelines for future work. *Child Development*, *71*(3), 543–62. doi:10.1111/1467-8624.00164

Luthar, S. S., & Cushing, G. (1999). Measurement Issues in the Empirical Study of Resilience. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptations. Longitudinal research in the social and behavioral sciences* (pp. 129–160). Dodrecht: Kluwer Academic/Plenum Publishers. doi:10.1007/0-306-47167-1_7

Luthar, S. S., Doernberger, C. H., & Zigler, E. (1993). Resilience is not a unidimensional construct: Insights from a prospective study of inner-city adolescents. *Development and Psychopathology*, *5*(04), 703–717. doi:10.1017/S0954579400006246

Lynch, M., & Cicchetti, D. (1998). An ecological-transactional analysis of children and contexts: The longitudinal interplay among child maltreatment, community violence, and children's symptomatology. *Development and Psychopathology*, *10*(02), 235–257.

Lyons, J. A. (1991). Strategies for assessing the potential for positive adjustment following trauma. *Journal of Traumatic Stress*, *4*(1), 93–111. doi:10.1002/jts.2490040108

Maddi, S. R., Harvey, R. H., Khoshaba, D. M., Lu, J. L., Persico, M., & Brow, M. (2006). The Personality Construct of Hardiness, III: Relationships With Repression, Innovativeness, Authoritarianism, and Performance. *Journal of Personality*, *74*(2), 575–598. doi:10.1111/j.1467-6494.2006.00385.x

Madsen, M. D., & Abell, N. (2010). Trauma Resilience Scale: Validation of Protective Factors Associated With Adaptation Following Violence. *Research on Social Work Practice*, *20*(2), 223–233. doi:10.1177/1049731509347853

Magnusson, D. (1976). The person and the situation in an international model of behavior. *Scandinavian Journal of Psychology*, *17*(1), 253–271. doi:10.1111/j.1467-9450

Magnusson, D. (1999). Holistic interactionism: A perspective for research on personality development. In L. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 219–251). New York: Guilford Press.

Mancini, A. D., & Bonanno, G. A. (2009). Predictors and parameters of resilience to loss: Toward an individual differences model. *Journal of Personality*, *77*(6), 1805–1832. doi:10.1111/j.1467-6494.2009.00601.x

Markus, H., Smith, J., & Moreland, R. L. (1985). Role of the self-concept in the perception of others. *Journal of Personality and Social Psychology*, *49*(6), 1494. doi:10.1037/0022-3514.49.6.1494

Marshall, C., & Rossman, G. B. (2010). *Designing qualitative research* (3rd ed., p. 175). London: Sage.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*(1), 397–422. doi:10.1146/annurev.psych.52.1.397

Masten, A. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, *56*, 227–238. doi:: 10.1037/0003-066X.56.3.227

Masten, A. (2007). Resilience in developing systems: Progress and promise as the fourth wave rises. *Development and Psychopathology*, *19*(3), 921–930. doi:10.1017/S0954579407000442

Masten, A., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology*, *2*(04), 425–444. doi:10.1017/S0954579400005812

Masten, A., & Coatsworth, D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist*, *53*(2), 205–220. doi:10.1037/0003-066X.53.2.205

Masten, A., Hubbard, J., Gest, S., Tellegen, A., Garmezy, N., & Ramirez, M. (1999). Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence. *Development and Psychopathology*, *11*(01), 143–169. doi:10.1017/S0954579499001996

Masten, A., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: pathways of risk and resilience. *Annual Review of Psychology*, *63*, 227–57. doi:10.1146/annurev-psych-120710-100356

Masten, A., Neemann, J., & Andenas, S. (1994). Life events and adjustment in adolescents: The significance of event independence, desirability, and chronicity. *Journal of Research on Adolescence*, *4*(1), 71–97. doi:10.1207/s15327795jra0401_5

Masten, A., & Obradovic, J. (2006). Competence and resilience in development. *Annals of the New York Academy of Sciences*, *1094*, 13–27. doi:10.1196/annals.1376.003

Masten, A., & Osofsky, J. D. (2010). Disasters and their impact on child development: introduction to the special section. *Child Development*, *81*(4), 1029–39. doi:10.1111/j.1467-8624.2010.01452.x

Masten, A., & Powell, J. (2003). A resilience framework for research, policy, and practice. In S. S. Luthar (Ed.), *Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities* (pp. 1–26). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511615788.003

Matsunaga, M. (2010). How to Factor-Analyze Your Data Right : Do's , Don'ts , and How-To's. *International Journal of Psychological Research*, *3*(1), 97–110.

McCrae, R., & Costa, P. (1989). The structure of interpersonal traits: Wiggin's circumplex and the five-factor model. *Personality and Social Psychology*, *56*(4), 586–595. doi:10.1037/0022-3514.56.4.586

McCrae, R., & Costa, P. (1999). A five-factor theory of personality. In L. Pervisn, R. Robins, & O. John (Eds.), *Handbook of personality: Theory and research* (3rd ed., Vol. 2, pp. 139–153). New York: Guilford Press.

McCrae, R., Costa, P., Ostendorf, F., Angleitner, A., Hřebíčková, M., Avia, M., … Smith, P. (2000). Nature over nurture: temperament, personality, and life span development. *Journal of Personality and Social Psychology*, *78*(1), 173–186. doi:10.1037//0022-3514.78.1.173

McCrae, R., Yik, M. S. M., Trapnell, P. D., Bond, M. H., & Paulhus, D. L. (1998). Interpreting personality profiles across cultures: bilingual, acculturation, and peer rating studies of Chinese undergraduates. *Journal of Personality and Social Psychology*, *74*(4), 1041. doi:10.1037/0022-3514.74.4.1041

McCrone, P., Dhanasiri, S., & Patel, A. (2008). *Paying the Price: The Cost of Mental Health Care in England to 2026*. London.

McDaniel, M. A., Hartman, N. S., Whetzel, D. L., & Grubb, W. (2007). SITUATIONAL JUDGMENT TESTS, RESPONSE INSTRUCTIONS, AND VALIDITY: A META-ANALYSIS. *Personnel Psychology*, *60*(1), 63–91. doi:10.1111/j.1744-6570.2007.00065.x

McDaniel, M. A., Morgeson, F. P., Finnegan, E. B., Campion, M. A., & Braverman, E. P. (2001). Use of situational judgment tests to predict job performance: a clarification of the literature. *Journal of Applied Psychology*, *86*(4), 730. doi:10.1037/0021-9010.86.4.730

McDaniel, M. A., & Nguyen, N. (2001). Situational judgment tests: A review of practice and constructs assessed. *International Journal of Selection and Assessment*, *9*(1/2), 103–113. doi:10.1111/1468-2389.00167

McDaniel, M. A., Whetzel, D. L., Schmidt, F. L., & Maurer, S. D. (1994). The validity of employment interviews: A comprehensive review and meta-analysis. *Journal of Applied Psychology*, *79*(4), 599. doi:10.1037/0021-9010.79.4.599

McDowell, I. (2006). *Measuring health: a guide to rating scales and questionnaires* (3rd editio). Oxford: Oxford University Press.

McFarlane, A. C., & Yehuda, R. A. (1996). Resilience, vulnerability, and the course of posttraumatic reactions. In B. van der Kolk, A. C. McFarlane, & L. Weiseth (Eds.), *Traumatic stress: The effects of overwhelming experience on mind, body, and society* (pp. 155–181). New York: Guilford Press.

McHorney, C. A. (1996). Measuring and monitoring general health status in elderly persons: practical and methodological issues in using the SF-36 Health Survey. *The Gerontologist*, *36*(5), 571–583. doi:10.1093/geront/36.5.571

McLarnon, M. J. W., & Rothstein, M. G. (2013). Development and Initial Validation of the Workplace Resilience Inventory. *Journal of Personnel Psychology*, *12*(2), 63–73. doi:10.1027/1866-5888/a000084

McNeely, E. (2005). The consequences of job stress for nurses' health: time for a check-up. *Nursing Outlook*, *53*(6), 291–299. doi:10.1016/j.outlook.2005.10.001

Medland, J., Howard-Ruben, J., & Whitaker, E. (2004). Fostering psychosocial wellness in oncology nurses: addressing burnout and social support in the workplace. In *Oncology nursing forum* (Vol. 31, pp. 47–54). Onc Nurs Society.

Mehling, W. E., Gopisetty, V., Daubenmier, J., Price, C. J., Hecht, F. M., & Stewart, A. (2009). Body awareness: construct and self-report measures. *PloS One*, *4*(5), e5614. doi:10.1371/journal.pone.0005614

Meichenbaum, D. (2005). *Understanding resilience in children and adults: Implications for prevention and interventions*. *... Ninth Annual Conference on Resilience* (pp. 1–98). Florida.

Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment Theory and Affect Regulation: The Dynamics, Development, and Cognitive Consequences of Attachment-Related Strategies. *Motivation and Emotion*, *27*(2), 77–102. doi:10.1023/A:1024515519160

Miller, R., Sabin, C. A., Goldman, E., Clemente, C., Sadowski, H., Taylor, B., & Lee, C. A. (2000). Coping styles in families with haemophilia. *Psychology, Health & Medicine*, *5*(1), 3–12. doi:10.1080/135485000105963

Mischel, W. (1977). The interaction of person and situation. In D. Magnusson & N. Endler (Eds.), *Personality at the crossroads: Current issues in interactional psychology* (pp. 333–352). Hillsdale, NJ: Lawrence Erlbaum Associates.

Mischel, W., & Shoda, Y. (1995). A cognitive-affective system theory of personality: reconceptualizing situations, dispositions, dynamics, and invariance in personality structure. *Psychological Review*, *102*(2), 246–268. doi:10.1037/0033-295X.102.2.246

Montross, L. P., Depp, C., Daly, J., Reichstadt, J., Golshan, S., Moore, D., … Jeste, D. V. (2006). Correlates of self-rated successful aging among community-dwelling older adults. *The American Journal of Geriatric Psychiatry*, *14*(1), 43–51. doi:10.1097/01.JGP.0000192489.43179.31

Motowidlo, S., & Beier, M. E. (2010). Differentiating specific job knowledge from implicit trait policies in procedural knowledge measured by a situational judgment test. *The Journal of Applied Psychology*, *95*(2), 321–33. doi:10.1037/a0017975

Motowidlo, S., Dunnette, M., & Carter, G. (1990). An alternative selection procedure: The low-fidelity simulation. *Journal of Applied Psychology*, *75*(6), 640–647. doi:10.1037/0021-9010.75.6.640

Motowidlo, S., Hanson, M. A., & Crafts, J. L. (1997). Low-fidelity simulations. In D. L. Whetzel & G. R. Wheaton (Eds.), *Applied measurement methods in industrial psychology* (1st ed., pp. 241–260). Palo Alto, Calif: Davies-Black Publishing.

Motowidlo, S., Hooper, A. C., & Jackson, H. L. (2006). Implicit policies about relations between personality traits and behavioral effectiveness in situational judgment items. *Journal of Applied Psychology*, *91*(4), 749–761. doi:10.1037/0021-9010.91.4.749

Motowidlo, S., Martin, M. P., & Crook, A. E. (2013). Relations between personality, knowledge, and behavior in professional service encounters. *Journal of Applied Social Psychology*, *43*(9), 1851–1861. doi:10.1111/jasp.12137

Motowidlo, S., & Tippins, N. (1993). Further studies of the low-fidelity simulation in the form of a situational inventory. *Journal of Occupational and Organizational Psychology*, *66*(4), 337–344. doi:10.1111/j.2044-8325.1993.tb00543.x

Murphy, K. R., & DeShon, R. (2000). Interrater correlations do not estimate the reliability of job performance ratings. *Personnel Psychology*, *53*(4), 873–900. doi:10.1111/j.1744-6570.2000.tb02421.x

Murtha, T. C., Kanfer, R., & Ackerman, P. L. (1996). Toward an interactionist taxonomy of personality and situations: An integrative situational—dispositional representation of personality traits. *Journal of Personality and Social Psychology*, *71*(1), 193–207. doi:10.1037/0022-3514.71.1.193

Naglieri, J. A., Goldstein, S., & LeBuffe, P. (2010). Resilience and impairment: An exploratory study of resilience factors and situational impairment. *Journal of Psychoeducational Assessment*, *28*(4), 349–356. doi:10.1177/0734282910366845

Nash, A. (1989). A terminal case? Burnout in palliative care. *Professional Nurse (London, England)*, *4*(9), 443–444.

Newton, J., & Waters, V. (2001). Community palliative care clinical nurse specialists' descriptions of stress in their work. *International Journal of Palliative Nursing*, *7*(11), 531–540. doi:10.12968/ijpn.2001.7.11.9293

Nissen, M. E. (2006). Dynamic knowledge patterns to inform design: A field study of knowledge stocks and flows in an extreme organization. *Journal of Management Information Systems*, *22*(3), 225–263. doi:10.2753/MIS0742-1222220308 Online Date Friday, February 10, 2006 Add to marked items Add to saved items Recommend

Norris, F. H. (2010). *Behavioral Science Perspectives on Resilience* (p. 50).

Nunally, J. C., & Bernstein, I. H. (1994). *Psychonometric theory*. New York: McGraw-Hill Publishers.

Nyatanga, B. (2012). Researching palliative care: more than patient recruitment and data collection. *British Journal of Community Nursing*, *17*(12), 612. doi:10.12968/bjcn.2012.17.12.612

O'Connell, M. S. O., Hartman, N. S., McDaniel, M. A., Lee, W., Iii, G., & Lawrence, A. (2007). Incremental Validity of Situational Judgment Tests for Task and Contextual Job Performance. *International Journal of Selection and Assessment*, *15*(1), 19–29. doi:10.1111/j.1468-2389.2007.00364.x

O'connor, B. P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instruments, & Computers*, *32*(3), 396–402. doi:10.3758/BF03200807

Olesen, J., Gustavsson, A., Svensson, M., Wittchen, H., & Jönsson, B. (2012). The economic cost of brain disorders in Europe. *European Journal of Neurology*, *19*(1), 155–162. doi:10.1111/j.1468-1331.2011.03590.x

Olson-Buchanan, J. B., & Drasgow, F. (2006). Multimedia situational judgment tests: The medium creates the message. In J. A. Weekley & R. E. Ployhart (Eds.), *Situational judgment tests: Theory, measurement, and application* (pp. 253–278). New Jersey: Erlbaum Mahwah, NJ.

Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent resilience: a concept analysis. *Journal of Adolescence*, *26*(1), 1–11. doi:10.1016/S0140-1971(02)00118-5

Olthuis, G., & Dekkers, W. (2005). Quality of life considered as well-being: Views from philosophy and palliative care practice. *Theoretical Medicine and Bioethics*, *26*(4), 307–337. doi:10.1007/s11017-005-4487-5

Oostrom, J. K., Born, M. P., Serlie, A. W., & van der Molen, H. T. (2012). Implicit Trait Policies in Multimedia Situational Judgment Tests for Leadership Skills: Can They Predict Leadership Behavior? *Human Performance*, *25*(4), 335–353. doi:10.1080/08959285.2012.703732

Palinkas, L. A., Petterson, J. S., Russell, J., & Downs, M. A. (1993). Community patterns of psychiatric disorders after the Exxon Valdez oil spill. *American Journal of Psychiatry*, *150*(10), 1517–1523.

Pangallo, A., & Zibarras, L. (n.d.). Operationalising resilience: A joint factor analysis of resilience measurment scales. *Psychological Assessment*.

Pangallo, A., Zibarras, L., Lewis, R., & Flaxman, P. (2014). Resilience through the lens of interactionism: A systematic review. *Psychological Assessment*. doi:10.1037/pas0000024

Parker, S. K. (1998). Enhancing role breadth self-efficacy: the roles of job enrichment and other organizational interventions. *Journal of Applied Psychology*, *83*(6), 835–852. doi:10.1037/0021-9010.83.6.835

Parrish, M. M., & Quinn, P. (1999). Laughing your way to peace of mind: How a little humor helps caregivers survive. *Clinical Social Work Journal*, *27*(2), 203–211. doi:10.1023/A:1022826924730

Patterson, F., Ashworth, V., & Good, D. (2013). *Situational Judgement Tests: A guide for applicants to the UK Foundation Programme* (p. 32).

Patterson, F., Ashworth, V., Zibarras, L., Coan, P., Kerrin, M., & O'Neill, P. (2012). Evaluations of situational judgement tests to assess non-academic attributes in selection. *Medical Education in Review*, *46*(9), 850–68. doi:10.1111/j.1365-2923.2012.04336.x

Patterson, F., Baron, H., Carr, V., Plint, S., & Lane, P. (2009). Evaluation of three short-listing methodologies for selection into postgraduate training in general practice. *Medical Education*, *43*(1), 50–7. doi:10.1111/j.1365-2923.2008.03238.x

Patterson, F., Carr, V., Zibarras, L., Burr, B., Berkin, L., Plint, S., … Gregory, S. (2009). New machine-marked tests for selection into core medical training: evidence from two validation studies. *Clinical Medicine: Journal of the Royal College of Physicians*, *9*(5), 417–20. doi:10.7861/clinmedicine.9-5-417

Patterson, F., Prescott-Clements, L., Zibarras, L., Edwards, H., Kerrin, M., & Cousans, F. (2015). Recruiting for values in healthcare: a preliminary review of the evidence. *Advances in Health Sciences Education*, 1–23. doi:10.1007/s10459-014-9579-4

Payne, S., Preston, N., Turner, M., & Rolls, L. (2013). *Research in palliative care : can hospices afford not to be involved ?* (pp. 1–42). London.

Payne, S., Seymour, J., Molassiotis, A., Froggatt, K., Grande, G., Lloyd-Williams, M., … Todd, C. (2011). Benefits and challenges of collaborative research: lessons from supportive and palliative care. *BMJ Supportive & Palliative Care*, *1*(1), 5–11. doi:10.1136/bmjspcare-2011-000018

Pearlin, L. (1982). The social contexts of stress. In L. Goldberger & S. Breznitz (Eds.), *Handbook of Stress: Theoretical and Clinical Aspects*. New York: The Free Press.

Peltonen, K., & Punamäki, R.-L. (2010). Preventive interventions among children exposed to trauma of armed conflict: a literature review. *Aggressive Behavior*, *36*(2), 95–116. doi:10.1002/ab.20334

Pendry, P. S. (2006). Moral distress: recognizing it to retain nurses. *Nursing Economics*, *25*(4), 217–221.

Pereira, S. M., Fonseca, A. M., & Carvalho, A. S. (2011). Burnout in palliative care: a systematic review. *Nursing Ethics*, *18*(3), 317–26. doi:10.1177/0969733011398092

Perreault, W. D., & Leigh, L. E. (1989). Reliability of nominal data based on qualitative judgments. *Journal of Marketing Research*, *26*(2), 135–148. doi:10.2307/3172601

Peterson, G. M., Jackson, S. L., Fitzmaurice, K. D., & Gee, P. R. (2009). Attitudes of Australian pharmacists towards practice-based research. *Journal of Clinical Pharmacy and Therapeutics*, *34*(4), 397–405. doi:10.1111/j.1365-2710.2008.01020.x

Pierce, B., Dougherty, E., Panzarella, T., Le, L. W., Rodin, G., & Zimmermann, C. (2006). Staff stress, work satisfaction, and death attitudes on an oncology palliative care unit, and on a medical and radiation oncology inpatient unit. *Journal of Palliative Care*, *23*(1), 32–39.

Pietrzak, R. H., Johnson, D. C., Goldstein, M. B., Malley, J. C., Rivers, A. J., Morgan, C. A., & Southwick, S. M. (2010). Psychosocial buffers of traumatic stress, depressive symptoms, and psychosocial difficulties in veterans of operations enduring freedom and Iraqi freedom: The role of resilience, unit support, and postdeployment social support. *Journal of Affective Disorders*, *120*(1-3), 188–192. Retrieved from 10.1016/j.jad.2009.04.015

Ployhart, R. E., Schneider, B., & Schmitt, N. (2006). *Staffing organizations: Contemporary practice and theory* (3rd ed., p. 661). Mahwah, New Jersey: Lawrence Erlbaum Associates Publishers.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879–903. doi:10.1037/0021-9010.88.5.879

Polk, L. V. (1997). Toward a Middle-Range Theory of Resilience. *Advances in Nursing Science*, *19*(3), 1–13.

Raiger, J. (2005). Applying a cultural lens to the concept of burnout. *Journal of Transcultural Nursing*, *16*(1), 71–76. doi:10.1177/1043659604270980

Ramirez, A., Graham, J., Richards, M., Cull, A., & Gregory, W. (1996). Mental health of hospital consultants: the effects of stress and satisfaction at work. *Lancet*, *347*(9003), 724–728. doi:10.1016/S0140-6736(96)90077-X

Randall, R., Ferguson, E., & Patterson, F. (2000). Self-assessment accuracy and assessment centre decisions. *Journal of Occupational & Organizational Psychology*, *73*(4), 443–459. doi:10.1348/096317900167155/full

Randall, R., Griffiths, A., & Cox, T. (2005). Evaluating organizational stress-management interventions using adapted study designs. *European Journal of Work and Organizational Psychology*, *14*(1), 23–41. doi:10.1080/13594320444000209

Reber, P. J., & Squire, L. R. (1994). Parallel brain systems for learning with and without awareness. *Learning & Memory*, *1*(4), 217–229. doi:10.1101/lm.1.4.217

Reich, J., Zautra, A., & Stuart, J. (2010). *Handbook of adult resilience*. New York: The Guilford Press.

Reynolds, K. J., Turner, J. C., Branscombe, N. R., Mavor, K. I., Bizumic, B., & Subašić, E. (2010). Interactionism in personality and social psychology: An integrated approach to understanding the mind and behaviour. *European Journal of Personality*, *24*(5), 458–482. doi:10.1002/per.782

Richardson, G. (2002). Metatheory of resilience and resiliency. *Journal of Clinical Psychology*, *58*(3), 307–321. doi:10.1002/jclp.10020

Richardson, G., Neiger, B., Jenson, S., & Kumpfer, K. (1990). The resilience model. *HEalth Education*, *21*(6), 33–39. doi:10.1080/00970050.1990.10614589

Richman, L., Kubzansky, L., Maselko, J., Ackerson, L., & Bauer, M. (2009). The relationship between mental vitality and cardiovascular health. *Psychology & Health*, *24*(8), 919–932. doi:10.1080/08870440802108926

Richman-Hirsch, W. L., Olson-Buchanan, J. B., & Drasgow, F. (2000). Examining the impact of administration medium on examinee perceptions and attitudes. *Journal of Applied Psychology*, *85*(6), 880. doi:10.1037/0021-9010.85.6.880

Riley, D., & Eckenrode, J. (1986). Social ties: subgroup differences in costs and benefits. *Journal of Personality and Social Psychology*, *51*(4), 770–778. doi:10.1037/0022-3514.51.4.770

Riley, J., & Masten, A. (2005). Resilience in context. In B. Peter, R. Leadbeate, & R. McMahon (Eds.), *Resilience in children, families, communities* (pp. 13–26). New York: Springer.

Rini, C. K., Dunkel-Schetter, C., Wadhwa, P. D., & Sandman, C. A. (1999). Psychological adaptation and birth outcomes: the role of personal resources, stress, and sociocultural context in pregnancy. *Health Psychology*, *18*(4), 333–345. doi:10.1037/0278-6133.18.4.333

Roberts, B., & Caspi, A. (2003). The cumulative continuity model of personality development: Striking a balance between continuity and change in personality traits across the life course. In U. Staudinger & U. Lindenberger (Eds.), *Understanding human development: Dialogues with lifespan psychology.* (pp. 183–214). Dodrecht: Kluwer Academic/Plenum.

Robinson, N. (1999). The use of focus group methodology—with selected examples from sexual health research. *Journal of Advanced Nursing*, *29*(4), 905–913. doi:10.1046/j.1365-2648.1999.00966.x

Robson, C. (2011). *Real world research* (3rd ed., p. 608). Oxford: Blackwell Publishing.

Roisman, G. I. (2005). Conceptual clarifications in the study of resilience. *The American Psychologist*, *60*(3), 264–267. doi:10.1037/0003-066X.60.3.264

Rokach, A. (2005). *Caring for those who care for the dying: Coping with the demands on palliative care workers*. *Palliative & supportive care* (Vol. 3, pp. 325–332). Cambridge Univ Press.

Rosch, P. J. (1987). Dealing with physician stress. *Medical Aspects of Human Sexuality*, *21*(4), 73–93.

Roth, P., Bobko, P., McFarland, L., & Buster, M. (2008). Work sample tests in personnel selection: a meta-analysis of black–white differences in overall and exercise scores. *Personnel Psychology*, *61*(3), 637–661. doi:10.1111/j.1744-6570.2008.00125.x

Rust, J., & Golombok, S. (2009). *Modern Psychometrics: The Science of Psychological Assessment* (3rd ed., p. 272). Hove: East Sussex: Routledge.

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M. Kent & J. Rolf (Eds.), *Primary prevention of psychopathology: Vol 3 Social competence in children* (pp. 49–74). Hanover, NH: University Press of New England.

Rutter, M. (1985). Resilience in the face of adversity: protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry*, *147*, 598–611. doi:10.1192/bjp.147.6.598

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *The American Journal of Orthopsychiatry*, *57*(3), 316–331. doi:10.1111/j.1939-0025.1987.tb03541.x

Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health*, *14*(8), 626–631. doi:10.1016/1054-139X(93)90196-V

Rutter, M. (1999). Resilience concepts and findings: implications for family therapy. *Journal of Family Therapy*, *21*(2), 119–144. doi:10.1111/1467-6427.00108

Rutter, M. (2000). Psychosocial influences: Critiques, findings, and research needs. *Development and Psychopathology*, *12*(03), 375–405. doi:10.1017/S0954579400003072

Rutter, M. (2006). Implications of resilience concepts for scientific understanding. *Annals of the New York Academy of Sciences*, *1094*, 1–12. doi:10.1196/annals.1376.002

Rutter, M. (2007). Resilience, competence, and coping. *Child Abuse and Neglect*, (31), 205–209. doi:Resilience, competence, and coping.

Rutter, M. (2012). Resilience as a dynamic concept. *Development and Psychopathology*, *24*(2), 335–344. doi:10.1017/S0954579412000028

Ryan, L., & Caltabiano, M. (2009). Development of a new resilience scale: The Resilience in Midlife Scale (RIM Scale). *Asian Social Science*, *5*(11), 39–51. doi:10.5539/ass.v5n11p39

Ryff, C., & Singer, B. (2002). From social structure to biology. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 541–555). Oxford: Oxford University Press.

Ryff, C., Singer, B., Love, G. D., & Essex, M. J. (1998). *Resilience in adulthood and later life*. *Handbook of aging and mental health: An integrative approach* (pp. 69–96). New York: Plenum Press.

Sainsbury Centre for Mental Health. (2007). *Mental Health at Work : Developing the business case* (No. Policy paper no. 8) (p. 24). London. Retrieved from www.scmh.org.uk

Sameroff, A. J., & Rosenblum, K. L. (2006). Psychosocial Constraints on the Development of Resilience. *Annals of the New York Academy of Sciences*, *1094*(1), 116–124. Retrieved from http://dx.doi.org/10.1196/annals.1376.010

Sarason, I. G., Sarason, B. R., Shearin, E. N., & Pierce, G. R. (1987). A brief measure of social support: Practical and theoretical implications. *Journal of Social and Personal Relationships*, *4*(4), 497–510. doi:10.1177/0265407587044007

Schaufeli, W. B., & Buunk, B. P. (2003). Burnout: An overview of 25 years of research and theorizing. In M. Schabracq, J. Winnubst, & C. Cooper (Eds.), *The handbook of work and health psychology* (2nd ed., Vol. 2, pp. 282–424). Chichester: Wiley.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health Psychology*, *4*(3), 219–247. doi:10.1037/0278-6133.4.3.219

Schmitt, N., & Chan, D. (2006). *Situational judgment tests: Method or construct*. *Situational judgment tests: Theory, measurement, and application* (pp. 135–155). Erlbaum Mahwah, NJ.

Schoon, I. (2006). *Risk and Reisilience: Adaptation in changing times*. Cambridge: Cambridge University Press.

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. a., & King, J. (2006). Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review. *The Journal of Educational Research*, *99*(6), 323–338. doi:10.3200/JOER.99.6.323-338

Searle, B., Bright, J. E. H., & Bochner, S. (2001). Helping people to sort it out: The role of social support in the job strain model. *Work & Stress*, *15*(4), 328–346. doi:10.1080/02678370110086768

Seery, M. D., Holman, E. A., & Silver, R. C. (2010). Whatever does not kill us: cumulative lifetime adversity, vulnerability, and resilience. *Journal of Personality and Social Psychology*, *99*(6), 1025–41. doi:10.1037/a0021344

Seery, M. D., Leo, R. J., Lupien, S. P., Kondrak, C. L., & Almonte, J. L. (2013). An upside to adversity?: moderate cumulative lifetime adversity is associated with resilient responses

in the face of controlled stressors. *Psychological Science*, *24*(7), 1181–9. doi:10.1177/0956797612469210

Segerstrom, S. (2010). Resources, stress, and immunity: an ecological perspective on human psychoneuroimmunology. *Annals of Behavioral Medicine*, *40*(1), 114–125. doi:10.1007/s12160-010-9195-3

Seligman, M., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*(1), 5–14. doi:10.1037/0003-066X.55.1.5

Shaikh, A., & Kauppi, C. (2010). Deconstructing resilience: myriad conceptualizations and interpretations. *International Journal of Arts and Sciences*, *3*(15), 155–176.

Sharma, S., Gangopadhyay, M., Austin, E., & Mandal, M. (2013). Development and Validation of a Situational Judgment Test of Emotional Intelligence. *International Journal of Selection and Assessment.*, *2*(1), 57–74. doi:10.1111/ijsa.12017/full

Silberg, J., Rutter, M., Neale, M., & Eaves, L. (2001). Genetic moderation of environmental risk for depression and anxiety in adolescent girls. *The British Journal of Psychiatry*, *179*(2), 116–121. doi:10.1192/bjp.179.2.116

Silver, R., & Wortman, C. (1980). Coping with undesirable life events. In J. Garber & M. Seligman (Eds.), *Human helplessness: Theory and applications* (pp. 279–375). New York: Academic Press.

Silverman, D. (2013). *Doing qualitative research: A practical handbook* (4th editio). London: SAGE Publications Limited.

Silvester, J., Wyatt, M., & Randall, R. (2014). Politician personality, Machiavellianism, and political skill as predictors of performance ratings in political roles. *Journal of Occupational and Organizational Psychology*, *87*(2), 258–279. doi:10.1111/joop.12038

Sinclair, V. G., & Wallston, K. a. (2004). The Development and Psychometric Evaluation of the Brief Resilient Coping Scale. *Assessment*, *11*(1), 94–101. doi:10.1177/1073191103258144

Skinner, E. A., & Zimmer-Gembeck, M. J. (2007). The development of coping. *Annual Review of Psychology*, *58*, 119–144. doi:10.1146/annurev.psych.58.110405.085705

Skinner, H. (1981). Toward the integration of classification theory and methods. *Journal of Abnormal Psychology*, *90*(1), 68–87. doi:10.1037/0021-843X.90.1.68

Smith, B., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International Journal of Behavioral Medicine*, *15*(3), 194–200. doi:10.1080/10705500802222972

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International Journal of Behavioral Medicine*, *15*(3), 194–200. doi:10.1080/10705500802222972.

Smith, E. R., & Semin, G. R. (2007). Situated social cognition. *Current Directions in Psychological Science*, *16*(3), 132–135. doi:10.1111/j.1467-8721.2007.00490.x

Smith, J. A. (1995). Semi-structured interviewing and qualitative analysis. In J. Smith, R. Harre, & L. Van Langenhove (Eds.), *Rethinking methods in psychology* (pp. 9–26). London: Sage.

Snyder, C. R. (2000). The Past and Possible Futures of Hope. *Journal of Social and Clinical Psychology*, *19*(1), 11–28. doi:10.1521/jscp.2000.19.1.11

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., … Harney, P. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, *60*(4), 570–585. doi:10.1037/0022-3514.60.4.570

Stanton, A. L. (2011). Regulating emotions during stressful experiences: The adaptive utility of coping through emotional approach. In S. Folkman (Ed.), *The Oxford handbook of stress, health, and coping* (pp. 369–386). New York: Oxford University Press.

Steiner, D. D., & Gilliland, S. W. (1996). Fairness reactions to personnel selection techniques in France and the United States. *Journal of Applied Psychology*, *81*(2), 134. doi:10.1037/0021-9010.81.2.134

Sternberg, R. J., & Hedlund, J. (2002). Practical intelligence, g, and work psychology. *Human Performance*, *15*(1-2), 143–160. doi:10.1080/08959285.2002.9668088

Stevens, M. J., & Campion, M. A. (1999). Staffing work teams: Development and validation of a selection test for teamwork settings. *Journal of Management*, *25*(2), 207–228. doi:10.1177/014920639902500205

Steyer, R., Ferring, D., & Schmitt, M. J. (1992). States and traits in psychological assessment. *European Journal of Psychological Assessment*, *8*(2), 79–98.

Steyer, R., Schmitt, M., & Eid, M. (1999). Latent state–trait theory and research in personality and individual differences. *European Journal of Personality*, *13*(5), 389–408. doi:10.1002/(SICI)1099-0984

Steyer, R., & Schmitt, M. J. (1990). Latent state-trait models in attitude research. *Quality and Quantity*, *24*(4), 427–445. doi:10.1007/BF00152014

Streiner, D., & Norman, G. (2008). *Health measurement scales: a practical guide to their development and use* (Fourth). Oxford: Oxford University Press.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics*. Boston: Allyn and Bacon.

Taylor, S. E. (2007). Social support. In H. Friedman & R. Silver (Eds.), *Foundations of health psychology* (pp. 145–171). New York: Oxford University Press.

Tedeschi, R., & Calhoun, L. (2004). " Posttraumatic Growth: Conceptual Foundations and Empirical Evidence." *Psychological Inquiry*, *15*(1), 1–18. doi:10.1207/s15327965pli1501_01

Terwee, C. B., Bot, S. D. M., de Boer, M. R., van der Windt, D. a W. M., Knol, D. L., Dekker, J., … de Vet, H. C. W. (2007). Quality criteria were proposed for measurement properties of health status questionnaires. *Journal of Clinical Epidemiology*, *60*(1), 34–42. doi:10.1016/j.jclinepi.2006.03.012

Tett, R. P., & Burnett, D. D. (2003). A personality trait-based interactionist model of job performance. *Journal of Applied Psychology*, *88*(3), 500–517. doi:10.1037/0021-9010.88.3.500

Tippins, N. T., & Adler, S. (2011). *Technology-enhanced assessment of talent* (Vol. 30, p. 500). San Francisco, CA: John Wiley & Sons.

Trickett, P. K., Kurtz, D. A., & Pizzigati, K. (2004). Resilient outcomes in abused and neglected children: Bases for strengths-based intervention and prevention policies. In K. Maton, C. Schellenbach, B. Leadbeater, & A. Solarz (Eds.), *Investing in children, youth, families, and communities: Strengths-based research and policy* (pp. 73–95). Washington DC: American Psychological Association.

Tugade, M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, *86*(2), 320–333. doi:10.1037/0022-3514.86.2.320

Tugade, M., Fredrickson, B. L., & Barrett, L. F. (2004). Psychological resilience and positive emotional granularity: examining the benefits of positive emotions on coping and health. *Journal of Personality*, *72*(6), 1161–90. doi:10.1111/j.1467-6494.2004.00294.x

Tusaie, K., & Dyer, J. (2004). Resilience: a historical review of the construct. *Holistic Nursing Practice*, *18*(1), 3–10.

Ungar, M. (2010). What Is Resilience Across Cultures and Contexts? Advances to the Theory of Positive Development Among Individuals and Families Under Stress. *Journal of Family Psychotherapy*, *21*(1), 1–16. doi:10.1080/08975351003618494

Ungar, M. (2011). The social ecology of resilience: Addressing contextual and cultural ambiguity of a nascent construct. *American Journal of Orthopsychiatry*, *81*(1), 1–17. doi:10.1111/j.1939-0025.2010.01067.x

Ungar, M., Clark, S., Kwong, W., Makhnach, A., & Cameron, C. (2006). Studying resilience across cultures. *Journal of Ethnic And Cultural Diversity in Social Work*, *14*(3-4), 1–19. doi:10.1300/J051v14n03

Vachon, M. L. S. (1995). Staff stress in hospice/palliative care: a review. *Palliative Medicine*, *9*(2), 91–122. doi:10.1177/026921639500900202

Vaishnavi, S., Connor, K., & Davidson, J. (2007a). An abbreviated version of the Connor-Davidson Resilience Scale (CD-RISC), the CD-RISC2: Psychometric properties and applications in psychopharmacological trials. *Psychiatry Research*, *152*(2-3), 293–297. doi:10.1016/j.psychres.2007.01.006

Vaishnavi, S., Connor, K. M., & Davidson, J. R. T. (2007b). An abbreviated version of the Connor-Davidson Resilience Scale (CD-RISC), the CD-RISC2: Psychometric properties and applications in psychopharmacological trials. *Psychiatry Research*, *152*(2-3), 293–297.

Vanderbilt-Adriance, E., & Shaw, D. S. (2008). Conceptualizing and re-evaluating resilience across levels of risk, time, and domains of competence. *Clinical Child and Family Psychology Review*, *11*(1-2), 30–58. doi:10.1007/s10567-008-0031-2

Vanistendael, S., & Lecomte, J. (2000). *Le bonheur est toujours possible. Construire la résilience [Happiness is always possible. Building resilience]*. Paris: Bayard.

Vaux, A. (1988). *Social support: Theory, research, and intervention.* (p. 346). New York: Praeger publishers.

Vogt, D. S., King, D. W., & King, L. A. (2004). Focus groups in psychological assessment: enhancing content validity by consulting members of the target population. *Psychological Assessment*, *16*(3), 231. doi:10.1037/1040-3590.16.3.231

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement*, *1*(2), 165–178.

Walker, L., & Avant, K. (2005). *Strategies for Theory Construction in Nursing* (4th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Waller, M. (2001). Resilience in ecosystemic context: evolution of the concept. *The American Journal of Orthopsychiatry*, *71*(3), 290–7. doi:10.1037/0002-9432.71.3.290

Weekley, J. A., & Jones, C. (1997). Video-based situational testing. *Personnel Psychology*, *50*, 25–49. doi:10.1111/j.1744-6570.1997.tb00899.x

Weekley, J. A., & Jones, C. (1999). Further studies of situational tests. *Personnel Psychology*, *52*(3), 679–700. doi:10.1111/j.1744-6570.1999.tb00176.x

Weekley, J. A., & Ployhart, R. E. (2006). *Situational judgment tests: Theory, measurement, and application* (pp. xiii–365). New Jersey: Lawrence Erlbaum Associates, Inc.

Weekley, J. A., Ployhart, R. E., & Holtz, B. (2005). On the development of Situational Judgement Tests: Issues in Item Development, Scaling, and Scoring. In J. Weekley & R. E. Ployhart (Eds.), *Situational judgment tests: Theory, measurement, and applications* (1st ed., pp. 157–182). New Jersey: Lawrence Erlbaum Associates, Inc.

Weems, C. F., Taylor, L. K., Cannon, M. F., Marino, R. C., Romano, D. M., Scott, B. G., … Triplett, V. (2010). Post traumatic stress, context, and the lingering effects of the

Hurricane Katrina disaster among ethnic minority youth. *Journal of Abnormal Child Psychology*, *38*(1), 49–56. doi:10.1007/s10802-009-9352-y

Weinberg, A., & Creed, F. (2000). Stress and psychiatric disorder in healthcare professionals and hospital staff. *The Lancet*, *355*(9203), 533–537. doi:10.1016/S0140-6736(99)07366-3

Weiss, C. H. (1997). How can theory-based evaluation make greater headway? *Evaluation Review*, *21*(4), 501–524. doi:10.1177/0193841X9702100405

Wellman, B. (1992). Which types of ties and networks provide what kinds of social support. *Advances in Group Processes*, *9*(1992), 207–235.

Werner, E. (1986). The concept of risk from a developmental perspective. *Advances in Special Education*, *5*, 1–23.

Werner, E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Development and Psychopathology*, *5*(4), 503–515. doi:http://dx.doi.org/10.1017/S095457940000612X

Werner, E. (1995). Resilience in development. *Current Directions in Psychological Sciences*, *4*, 81–85.

Werner, E., & Smith, R. (1982). *Vulnerable but not invincible*. New York: McGraw-Hill.

Werner, E., & Smith, R. (1992). *Overcoming the odds: High risk children from birth to adulthood.* New York: Cornell University Press.

Werner, E., & Smith, R. (2001). *Journeys from childhood to midlife: Risk, resilience, and recovery.* (p. 241). New York: Cornell University Press.

Westman, M., & Etzion, D. (2002). The impact of short overseas business trips on job stress and burnout. *Applied Psychology*, *51*(4), 582–592. doi:10.1111/1464-0597.00109

Westman, M., Hobfoll, S. E., Chen, S., Davidson, O. B., Davidson, B., & Laski, S. (2004). Organizational stress through the lens of conservation of resources (COR) theory. In P. L. Perrewé & D. Ganster (Eds.), *Research in Occupational Stress and Well-being Volume 4* (pp. 167–220). Emerald Group Publishing Limited. doi:10.1016/S1479-3555(04)04005-3

Whetzel, D. L., & McDaniel, M. A. (2009). Situational judgment tests: An overview of current research. *Human Resource Management Review*, *19*(3), 188–202. doi:10.1016/j.hrmr.2009.03.007

Whippen, D. A., & Canellos, G. P. (1991). Burnout syndrome in the practice of oncology: results of a random survey of 1,000 oncologists. *Journal of Clinical Oncology*, *9*(10), 1916–1920.

Wiebe, D. J., & McCallum, D. M. (1986). Health practices and hardiness as mediators in the stress-illness relationship. *Health Psychology*, *5*(5), 425–438. doi:10.1037/0278-6133.5.5.425

Wilks, S. E., & Croom, B. (2008). Perceived stress and resilience in Alzheimer's disease caregivers: testing moderation and mediation models of social support. *Aging & Mental Health*, *12*(3), 357–65. doi:10.1080/13607860801933323

Windle, G. (1999). Critical conceptual and measurement issues in the study of resilience. In M. Glantz & L. Johnson (Eds.), *Resilience and Development: Positive Life Adaptations* (pp. 160–176). New York: Kluwer Academic/Plenum Publishers.

Windle, G. (2010). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology*, *21*(02), 152–169. doi:10.1017/S0959259810000420

Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. *Health and Quality of Life Outcomes*, *9*(1), 8. doi:10.1186/1477-7525-9-8

Wingo, A. P., Fani, N., Bradley, B., & Ressler, K. J. (2010). Psychological resilience and neurocognitive performance in a traumatized community sample. *Depression and Anxiety*, *27*(8), 768–774. doi:10.1002/da.20675

Winkel, D. E., Wyland, R. L., Shaffer, M. A., & Clason, P. (2011). A new perspective on psychological resources: Unanticipated consequences of impulsivity and emotional intelligence. *Journal of Occupational and Organizational Psychology*, *84*(1), 78–94. doi:10.1348/2044-8325.002001

Woodgate, R. L. (1999). Conceptual Understanding of Resilience in the Adolescent With Cancer: Part I. *Journal of Pediatric Oncology Nursing*, *16*(1), 35–43. doi:10.1177/104345429901600105

Woods, S., & Hampson, S. (2005). Measuring the Big Five with single items using a bipolar response scale. *European Journal of Personality*, *19*(5), 373–390. doi:10.1002/per.542

World Health Organization. (1998). *Wellbeing measures in primary health care/The Depcare Project* (p. 45). Stockholm.

Worthington, R., & Thorns, A. (2005). Decisions at the end of life. In R. Worthington (Ed.), *Ethics and palliative care: a case-based manual* (pp. 37–48). Abiingdon: Radcliffe Publishing.

Wright, M., Masten, A., & Narayan, A. (2013). Resilience Processes in Development: Four Waves of Research on Positive Adaptation in the Context of Adversity. In S. Goldstein & R. B. Brooks (Eds.), *Handbook of Resilience in Children* (pp. 15–37). New York: Springer US. doi:10.1007/978-1-4614-3661-4_2

Zakin, G., Solomon, Z., & Neria, Y. (2003). Hardiness, attachment style, and long term psychological distress among Israeli POWs and combat veterans. *Personality and Individual Differences*, *34*(5), 819–829. doi:10.1016/S0191-8869(02)00073-9

Zautra, A., Hall, J., & Murray, K. (2010). Resilience: A New Definition of Health for People and Communities. In J. Reich, A. J. Zautra, & J. Hall (Eds.), *Handbook of adult resilience* (pp. 3–25). New York: Guilford Press.

Zwick, W. R., & Velicer, W. F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin*, *99*(3), 432. doi:10.1037/0033-2909.99.3.432

Appendix 1: Questionnaire Study 2

INFORMATION SHEET

Project title: Exploring resilience in palliative care workers

Name of Researcher: Antonio Pangallo

Purpose of the study:
As part of my PhD research, I am exploring how to measure resilience in palliative care workers. Your answers will help to determine what measures may be best suited to the assessment of resilience in the palliative care working environment.

Why have you been chosen?
Your experiences at work and in particular how you prefer to deal with challenges, make you an ideal candidate for participating in this research. **Please note: there are no right or wrong answers**. I am simply looking to identify the main factors that arise from a study of resilience measures.

What will I be expected to do?
You will be asked a series of survey questions about aspects of your personality and how you tend to behave in general situations. The survey should take about **twenty minutes** depending on your rate of responding. Your responses will help me to develop a better understanding of the resilience construct.

Will my taking part in this study be kept confidential?
All information collected for this research will be kept strictly confidential and anonymous. I will be the only person that will access this survey data.

What will happen to the results of the research study?
All survey data will be grouped together, analysed collectively (not individually), and subsequently published (thesis and journal articles).

Who is organising and funding the research?
This an independent study conducted and funded by City University London. Ethics approval has been given by the Ethics Committee of the School of Arts and Social Sciences of City University London (approval number PSYETH 11/002) and hospice ethics committee. If you have any comments or complaints about the conduct of the study or your experiences as a participant, please contact Samantha Dunmur ([redacted] .

Contact for further information about the study
Antonio Pangallo ([redacted] . Thank you in advance for taking part in this study and please remember this is completely voluntary.

INFORMED CONSENT

If you wish to continue, please provide your consent to participate in this study by ticking all four boxes below:

- ❑ I confirm that I have read and understood the information sheet for this study
- ❑ I understand that my participation is voluntary and that I am free to withdraw at any time (by oral/written communication), without giving any reason, and without any consequences.
- ❑ I understand that all personal information provided by myself will remain confidential and no information that identifies me will be made publically available
- ❑ I agree to take part in this research.

DEMOGRAPHICS

1. What is the highest level of education you have completed?

- ❍ None
- ❍ High School / O level
- ❍ A level or equivalent
- ❍ Undergraduate Degree
- ❍ Postgraduate Degree (includes PG Certificates)
- ❍ Doctoral Degree

2. Gender

- ❍ Male
- ❍ Female

Age _____

3. What is your job role?

- ❑ Allied Health Professional
- ❑ Consultant
- ❑ Doctor
- ❑ Mental Health Professional
- ❑ Nursing Professional
- ❑ Social Worker
- ❑ Other _____

4. Where do you work - select one or more options

- ❑ Hospice
- ❑ Hospital
- ❑ Community

Revised Ego-resiliency scale (ER-89-R)

Please rate your level of agreement for each statement

	Does not apply at all 1	**2**	**3**	**4**	**5**	**6**	**Applies very strongly 7**
I am generous with my friends	❍	❍	❍	❍	❍	❍	❍
I enjoy dealing with new and unusual situations	❍	❍	❍	❍	❍	❍	❍
I usually succeed in making a favourable impression on people	❍	❍	❍	❍	❍	❍	❍
I enjoy trying new foods I have never tasted before	❍	❍	❍	❍	❍	❍	❍
I am regarded as a very energetic person	❍	❍	❍	❍	❍	❍	❍
I like to take different paths to familiar places	❍	❍	❍	❍	❍	❍	❍
I am more curious than most people	❍	❍	❍	❍	❍	❍	❍
I like to do new and different things	❍	❍	❍	❍	❍	❍	❍
My daily life is full of things that keep me interested	❍	❍	❍	❍	❍	❍	❍
I get over my anger at someone reasonably quickly	❍	❍	❍	❍	❍	❍	❍

Connor Davidson Resilience Scale (CD-RISC-10)

Over the last month, please indicate how much you agree with the following statement. If a particular situation has not occurred recently, answer according to how you think you would have felt

	Not true at all (1)	Rarely True (2)	Sometimes true (3)	Often true (4)	True nearly all of the time (5)
I am able to adapt when changes occur	❍	❍	❍	❍	❍
I can deal with whatever comes my way	❍	❍	❍	❍	❍
I try to see the humorous side of things when I am faced with problems	❍	❍	❍	❍	❍
Having to cope with stress can make me stronger	❍	❍	❍	❍	❍
I tend to bounce back after illness, injury, or other hardships	❍	❍	❍	❍	❍
I believe I can achieve my goals, even if there are obstacles	❍	❍	❍	❍	❍
Under pressure, I stay focused and think clearly	❍	❍	❍	❍	❍
I am not easily discouraged by failure	❍	❍	❍	❍	❍

I think of myself as a strong person when dealing with life's challenges and difficulties	❍	❍	❍	❍	❍
I am able to handle unpleasant or painful feelings like sadness, fear and anger	❍	❍	❍	❍	❍

Resilience Scale for Adults (RSA)

Please think of how you usually are, or how you have been the last month, how you think and feel about yourself, and about important people surrounding you. Please select the option that is closest to the end statement that describes you best.

Please indicate to what extent you agree with the following statements

	Not true at all 1	2	3	4	5	6	Very true 7
I strongly believe in my abilities	❍	❍	❍	❍	❍	❍	❍
I often doubt my judgments and decisions	❍	❍	❍	❍	❍	❍	❍
In difficult periods I have a tendency to view everything as gloomy	❍	❍	❍	❍	❍	❍	❍
I manage to come to terms with events in my life that I cannot influence	❍	❍	❍	❍	❍	❍	❍
My plans for the future are difficult to accomplish	❍	❍	❍	❍	❍	❍	❍
I know how to accomplish my future goals	❍	❍	❍	❍	❍	❍	❍
I feel that my future looks very promising	❍	❍	❍	❍	❍	❍	❍
My goals for the future are unclear	❍	❍	❍	❍	❍	❍	❍
I am at my best when I have a clear goal to strive for	❍	❍	❍	❍	❍	❍	❍
When I start on new things/projects, I rarely plan ahead and just get on with it	❍	❍	❍	❍	❍	❍	❍
I am good at organising my time	❍	❍	❍	❍	❍	❍	❍
Rules and regular routines are absent in my everyday life	❍	❍	❍	❍	❍	❍	❍
I enjoy being with other people	❍	❍	❍	❍	❍	❍	❍
It is not important to me to be flexible in social situations	❍	❍	❍	❍	❍	❍	❍
New friendships are something I make easily	❍	❍	❍	❍	❍	❍	❍
Meeting new people is difficult for me	❍	❍	❍	❍	❍	❍	❍
When I am with others I easily laugh	❍	❍	❍	❍	❍	❍	❍
For me, thinking of good topics of conversation is difficult	❍	❍	❍	❍	❍	❍	❍
My family's understanding of what is important in life is quite different to mine	❍	❍	❍	❍	❍	❍	❍
I feel very happy with my family	❍	❍	❍	❍	❍	❍	❍
My family is characterised by disconnection	❍	❍	❍	❍	❍	❍	❍

In difficult periods my family keep a positive outlook on the future	❍	❍	❍	❍	❍	❍
In front of other people, my family acts unsupportive of one another	❍	❍	❍	❍	❍	❍
In my family we like to do things on our own	❍	❍	❍	❍	❍	❍
I can discuss personal issues with no one	❍	❍	❍	❍	❍	❍
Those who are good at encouraging me are close friends and family	❍	❍	❍	❍	❍	❍
The bonds among my friends is weak	❍	❍	❍	❍	❍	❍
When a family member experiences a crisis, I am informed right away	❍	❍	❍	❍	❍	❍
I get support from friends and/or family	❍	❍	❍	❍	❍	❍
When needed, I have no one who can help me	❍	❍	❍	❍	❍	❍
My close friends/family appreciate my qualities	❍	❍	❍	❍	❍	❍

Brief Resilience Scale (BRS)

Please indicate the extent to which you agree with each of the following statements

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I tend to bounce back quickly after hard times	❍	❍	❍	❍	❍
I have a hard time making it through stressful events	❍	❍	❍	❍	❍
It does not take me long to recover from a stressful event	❍	❍	❍	❍	❍
It is hard for me to snap back when something bad happens	❍	❍	❍	❍	❍
I usually come through difficult times with little trouble	❍	❍	❍	❍	❍
I tend to take a long time to get over set-backs in my life	❍	❍	❍	❍	❍

Psychological Capital Questionnaire (PCQ)

Below are statements that describe how you may think about yourself right now. Use the following scale to indicate your level of agreement or disagreement with each statement

	Strongly Disagree 1 (1)	Disagree 2 (2)	Somewhat Disagree 3 (3)	Somewhat Agree 4 (4)	Agree 5 (5)	Strongly Agree 6 (6)
I feel confident analyzing a long-term problem to find a solution	❍	❍	❍	❍	❍	❍

I feel confident in representing my work area in meetings with management	❍	❍	❍	❍	❍	❍
I feel confident contributing to discussions about the organization's strategy	❍	❍	❍	❍	❍	❍
I feel confident helping to set targets/goals in my work area.	❍	❍	❍	❍	❍	❍
I feel confident contacting people outside the organization (e.g., suppliers, customers) to discuss problems	❍	❍	❍	❍	❍	❍
I feel confident presenting information to a group of colleagues	❍	❍	❍	❍	❍	❍
If I should find myself in a jam at work, I could think of many ways to get out of it	❍	❍	❍	❍	❍	❍
At the present time, I am energetically pursuing my work goals	❍	❍	❍	❍	❍	❍
There are lots of ways around any problem	❍	❍	❍	❍	❍	❍
Right now I see myself as being pretty successful at work	❍	❍	❍	❍	❍	❍
I can think of many ways to reach my current work goals	❍	❍	❍	❍	❍	❍
At this time, I am meeting the work goals that I have set for myself	❍	❍	❍	❍	❍	❍
When I have a setback at work, I have trouble recovering from it, moving on	❍	❍	❍	❍	❍	❍
I usually manage difficulties one way or another at work	❍	❍	❍	❍	❍	❍
I can be "on my own," so to speak, at work if I have to	❍	❍	❍	❍	❍	❍
I usually take stressful things at work in my stride	❍	❍	❍	❍	❍	❍
I can get through difficult times at work because I've experienced difficulty before	❍	❍	❍	❍	❍	❍
I feel I can handle many things at a time at this job	❍	❍	❍	❍	❍	❍

When things are uncertain for me at work, I usually expect the best	❍	❍	❍	❍	❍	❍
If something can go wrong for me work-wise, it will	❍	❍	❍	❍	❍	❍
I always look on the bright side of things regarding my job	❍	❍	❍	❍	❍	❍
I'm optimistic about what will happen to me in the future as it pertains to work	❍	❍	❍	❍	❍	❍
In this job, things never work out the way I want them to	❍	❍	❍	❍	❍	❍
I approach this job as if "every cloud has a silver lining"	❍	❍	❍	❍	❍	❍

World Health Well-Being Index (WHO-5)

Please indicate which is closest to how you have been feeling over the last two weeks

	All of the time 5 (1)	Most of the time 4 (2)	More than half of the time 3 (3)	Less than half of the time 2 (4)	Some of the time 1 (5)	At no time 0 (6)
I have felt cheerful and in good spirits	❍	❍	❍	❍	❍	❍
I have felt calm and relaxed	❍	❍	❍	❍	❍	❍
I have felt active and vigorous	❍	❍	❍	❍	❍	❍
I woke up feeling fresh and rested	❍	❍	❍	❍	❍	❍
My daily life has been filled with things that interest me	❍	❍	❍	❍	❍	❍

Appendix 2: Participant Consent Form

Project title: An exploration of resilience with palliative care workers

Name of Researcher: Antonio Pangallo

	Please tick to confirm
I confirm that I have read and understood the information sheet for this study	**[ ]**
I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	**[ ]**
I understand that my participation is voluntary and that I am free to withdraw at any time (by oral/written communication), without giving any reason, and without any consequences.	**[ ]**
I agree to my interview being taped (if being interviewed)	**[ ]**
I understand that all personal information provided by myself will remain confidential and no information that identifies me will be made publically available	**[ ]**
I agree to take part in this research.	**[ ]**

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Researcher	Date	Signature

Thank you for taking part in this study!

The study is based at City University and is being funded by City University and has been approved by the Ethics Committee of the School of Arts and Social Sciences of City University London (approval number PSYETH 11/002).

This study is an independent research study funded by City University only.

If you have any comments or complaints about the conduct of the study or your experiences as a participant, please contact the secretary to the Committee, Peter Aggar ([redacted])

Appendix 3: Information Sheet

Project title: An exploration of resilience with palliative care workers

Name of Researcher: Antonio Pangallo

You are invited to take part in the research study and this document outlines why the research is being done and what it will involve.

1. What is the purpose of the study?

This research aims to understand the behaviours associated with resilience in palliative care workers. It is hoped that by identifying these behaviours it will be possible to develop measures that help identify staff at risk of stress-related illness such as burnout.

2. Why have I been chosen?

You have been chosen as you have the experience and expertise to talk about stressful or challenging situations you have faced and ways you have dealt with those situations.

3. What will happen to me if I take part?

Your involvement in the study would be to take part in an interview where we discuss: your general thoughts and understanding about resilience; specific resilient attitudes and behaviours you think you have displayed in response to a very stressful or challenging experience. Your interview will probably last between ½ an hour to 1 hour depending on how much time you have available, and how much information you want to share. I will record the interviews with your permission and everything you say in the interview will be confidential and anonymised. The recordings will be written up and then analysed.

This is completely voluntary. If you do decide to take part you will be given this information sheet to keep and will also be asked to sign a consent form and provided with a copy of this. If you decide to take part, you are still free to withdraw from the study at any time and without a given reason.

4. If I want to take part, what will happen next?

If you decide you want to take part in this study, you can contact Dr Anjali Mullick by email at [redacted] If you require further information, Anjali can refer you to me, and I will explain what the research is about, what will be involved in the interview process and can also answer any questions you might have. You can then decide if you want to go ahead with the interview and we can arrange a suitable time and location.

5. Will my taking part in this study be kept confidential?

All information that is collected about you during the course of the research will be kept strictly confidential. All interview recordings will be destroyed at the end of the research. Any details which potentially could identify you will be removed. Anonymised transcripts of your interview will be retained by me and I will be the only person to have access to the original recordings of the interview, your consent form and any of your contact details. Your participation in this study will not be discussed with other interviewees. Thus your involvement remains entirely confidential and anonymous.

However, please note that, if observed, the researcher is obliged to disclose any information relating to harmful or inappropriate behaviour to the hospice ethics committee (e.g. illegal acts, intention to self-harm, suicide) during the research process.

6. What will happen to the results of the research study?

The results of the study will be used for my PhD. The results will also be published in academic articles. However, the results will be analysed on a group level so that results cannot be attributed to any one individual.

This research once completed will also be available in a report format and I would be happy to present findings to your organisation.

7. Who is organising and funding the research?

The study is based at City University and is being funded by City University and has been approved by the Ethics Committee of the School of Arts and Social Sciences of City University London (approval number PSYETH 11/002).

This is an independent study with no external funding

If you have any comments or complaints about the conduct of the study or your experiences as a participant, please contact the secretary to the Committee, Peter Aggar ([redacted]).

8. Contact for further information

Antonio Pangallo
Email: [redacted]

Appendix 4: CIT Interview schedule

Firstly I would like to thank you for agreeing to take part in this research project. I expect our time today to last for between 45-60 minutes – is that OK with you? Did you receive the information sheet?

I am a PhD researcher at City University conducting interviews on the topic of resilience. I'll be using the information from these interviews to explore how palliative care workers deal with challenging workplace situations. Particularly, the behaviours that help you get through these difficult times. I'll be conducting interviews with a range of clinical staff such as nurses, consultants, doctors, mental health workers, social workers, and occupational therapists.

In today's interview, I'll be focusing on specific instances and examples of resilience, rather than talking about resilience in general. Does everything sound ok so far?

I am going to record everything that we discuss today, but it is important to know that anything you say will be strictly confidential. I'm not reporting on any individual responses and no one in your organisation will know how you personally responded. Do you have any concerns about the confidentiality or the project at the moment? If anything crops up during or after the interview that you would like to discuss, or that you have a question about, please do feel free to call me.

So, very briefly, what is your understanding of 'resilience'? [Clarify if necessary].

Question	**Prompts**
Can you tell me about a time when you were resilient at work?	Can you think of one specific incident? What exactly did you do? (rather than say) Which of these behaviours enabled you to deal with the challenge successfully? What did you mean by... ? Can you tell me more about?
Thinking about that situation, where do you think your resilience came from? What strengths did you have to use?	Can you think back to the specific incident we discussed or another specific incident? What did you mean by... ? Can you tell me more about….?
Can you tell me about a time when you really struggled to deal with a major stress or adverse event at work and did not recover so quickly?	Can you think of one specific incident? What was it about the event that made it hard to recover? What exactly did you do/not do? Which of these behaviours stopped you from being able to recover? What did you mean by... ? Was it as bad as it could have been? Did anything good come out of this event? To what extent are you able to put this behind you?

Thank-you for taking the time to participate in this study – your examples will be very helpful. Do you have any questions at this point? In terms of next steps, I will be collecting experiences such as yours, from your colleagues. I will then extract behaviours that have been reported as effective examples of resilience, and those that are ineffective, to help draw out key themes. The analysis will be done at group level rather than individual level, so there will be no sharing of information at individual level. If any questions come to mind at a later date, or if you would like to talk about your contribution to the research project in general, please do contact me.

Appendix 5: Interview transcript

Interview with EL, Hospice Nurse

Researcher questions in bold.
EL=participant.

Can you tell me about a specific situation in which you showed resilience at work?

EL: I was thinking about this on the way up here. Resilience depends on the day and my mood. There were times I felt resilient, times I knew I should be resilient, and times when I'm definitely not resilient.

Can you think of a specific example?

EL: Okay, yeah. Something that came to mind was an incident on the ward. It was when I was the ward manager here. And we had a really complex case. Family facts: the woman was the patient; we could all she see was dying. Very complex family dynamics—obviously being a very difficult family and obviously, these things get intensified when somebody's nearing the end of his life. And the husband had an unusual way of dealing with it: He got very angry. And he would scream and he would shout! And it would scare people because he was a very big man. Everyone had sympathy for him because he was losing his wife, but they were also incredibly intimidated by him, because of his size. And their fear around that nearly got out of proportion, okay? He would get generally angry and that would feel threatening because of his size and the volume, and everything felt threatening! But he never lashed out at somebody, but there was the constant fear that he would.

As manager, I kinda took on as much of that as I could so it wouldn't affect my team. But also, took on the anxiety of my team, to kinda support that ... but didn't do anything with it. And it wasn't until she died that I just kinda felt like all the emotion came flooding out, because I'd wanted to hold it together for him, for her, for my team, for the other patients on the ward. I felt that my role (at that time) was to hold it together for everybody.

Can you tell me more about your behaviour during that time?

EL: I suppose I turned my office into a little containment office. And the husband of my patient knew he could come in and just scream and shout or do whatever he wanted (within reason—it was a figure of speech). And the staff, too, could come in and shout and scream and cry and do whatever they wanted. And I just—I just held it all.

EL: I had the confidence to deal with the situation, so I took control. Everybody knew this situation was going on, and I knew if I needed support it was there for me. Support was offered from others like… "We know this is very difficult for you," "You can do it!", "How is this feeling?", "Are you okay?" I think that's something that a professional is always good at – asking for help you need it

Did you do anything differently at work compared with normal everyday situations you encounter?

EL: Uh—I suppose at times, because you know, things do chip away at you. And so, generally, I was able to turn things around and take a more optimistic view of things. I knew this would pass. I always reminded myself that it's best to face these challenges one day at a time.
EL: I also had a lot of support from my poor husband. And I think that's one thing that's really important—having the experience to know that work/life balance is crucial to being resilience. In terms of my emotions at that time, I was very calm at that time. Because I think (when you're leading a team), if you're "Stressie-Bessie", then that's just going to spread like wildfire throughout the rest of the team. You have to maintain control and be strong. I still felt huge amounts of frustration but the situation was incredibly sad—it was difficult to watch.
Is there anything else you want to add before we move on to the next question?

EL: Yeah…I suppose at that time I had the maturity to know that the only way to deal with these situations is to keep going. I really tried to get my staff to engage with the purpose of the job. Also I had incredible support from a colleague. She helped me see that I really made a difference in that situation. I also think experience helped me get through that situation. I had been abused by grieving husbands before but felt completely unphased by it. I knew how to handle the situation and had the confidence to do my job.

Thanks for that –are you happy to move on to the next question?

EL: Yeah.it feels good to talk about this stuff – it's kind of therapeutic.

I'm really pleased you're enjoying the process. So, let me ask you about a time when you didn't feel so resilient in a challenging workplace scenario – can you think of a specific incident?

EL: Well, I'd had a long involvement with a young Asian guy and his family. The whole course of his illness was very difficult, professionally; he had non-joined-up care in hospital. It was complicated illness; well, he had a cancer, but it was very complicated in that it involved two teams of specialist who really failed to communicate with each other and with him. And we got caught up with that. So it was actually very, very difficult, actually. And emotionally, sad, with him and his family; this young chap with very, very difficult symptoms. So there was all that. And I knew him for eighteen months so it was a very long involvement.

EL: So that's the background. One night I went to see him in an acute ward. It was really clear he—well, it was unlikely he was going to come home again, but his family wasn't really accepting that. I wouldn't normally go into hospital to see a patient but I had to for the sake of his family.

EL: I tried to get some information from the staff but nobody knew what was going on, so it was just a mess. And he [the patient] seemed to be in this completely sterile environment; he was in this spanking-new ward and he was there with his brother and his wife. And he was down for an investigation of some sort when I'd arrived. So I just sat and chat because they wanted to tell me all sorts of things.

EL: He [the patient] asked to see me. I hadn't seen him properly for about six weeks. And he looked just—so kind-of withered, like an elderly man, really! Just so frightened. ... And it's still with me! Just a haunting picture. Yeah—I just had a really brief chat with him. I really felt I needed to go 'cause at the time I felt I couldn't do anything for him. I couldn't stay . It's not often I feel like that, really. But, it just made me very upset. I thought that, coming away I felt so very upset and wondered how I would cope with it.

EL: I got on the bus and came back to work. And that day I didn't talk to colleagues, which is unusual for me. I started doubting my professionalism and ability to do my job as well.

You mentioned several things there; what do you think it was that made it so difficult for you to recover from that?

EL: I think it was just a raw sadness, really, of knowing someone for such a long time—eighteen months—and who had gone through so much. I mean, you see patients go through lots of things, but some just seem to have an unfair helping of suffering. And I think he really, really suffered, physically; but he also had psychosis at one time and, I mean, he really had the works. And he'd been sectioned, I think.

EL: Yeah, it just seemed to be this accumulation of all this suffering. I had a brief moment of thinking, what's the point here? I mean we're supposed to relieve this guy's pain in all sorts of ways but we were utterly helpless and had no control. This situation defeated me. I couldn't see any silver lining. I think we may've helped in some ways, in small ways. But in time, it was written all over his face. We could do nothing for him. I suppose I felt like a failure.

EL: I felt that I just didn't have the power to deal with the situation. For some reason I couldn't see this as something I had the experience to deal with. I tried to get him the right help but I just hit a brick wall.

EL: I know that support is important in these difficult times but I just couldn't talk to anyone. I felt completely blown away by it. It took me a long time to get over it.

Thanks so much for sharing that personal story with me. Is there anything else you'd like to add about how you dealt with that situation?

EL: You know, I think I have pretty much told you everything I can remember.

Interview ends.

Appendix 6: Questionnaire Study 4 (all study measures)

INFORMATION SHEET

Project title: Exploring resilience in palliative care workers

Name of Researcher: Antonio Pangallo

Purpose of the study:
As part of my PhD research, I am developing a reliable and valid measure of psychological resilience for palliative care workers. Your answers will help validate and refine the measure, so it can be used in workplaces such as your own.

Why have you been chosen?
Your experiences at work and in particular how you prefer to deal with challenges make you an ideal candidate for participating in this research. You will be asked questions about how you would behave in particular workplace situations. Your answers will help me understand which items may be best suited to measuring resilience in palliative care settings. **Please note: there are no right or wrong answers.** I am looking to validate the items on this measure to determine whether they should be kept in the final version.

What will I be expected to do?
You will be asked a series of survey questions about aspects of your personality and how you tend to behave in general situations. The survey should take about **twenty minutes** depending on your rate of responding. Your responses will help me to develop a better understanding of the resilience construct.

Will my taking part in this study be kept confidential?
All information collected for this research will be kept strictly confidential and anonymous. I will be the only person that will access this survey data.

What will happen to the results of the research study?
All survey data will be grouped together, analysed collectively (not individually), and subsequently published (thesis and journal articles).

Who is organising and funding the research?
This an independent study conducted and funded by City University London. Ethics approval has been given by the Ethics Committee of the School of Arts and Social Sciences of City University London (approval number PSYETH 11/002) and hospice ethics committee. If you have any comments or complaints about the conduct of the study or your experiences as a participant, please contact Samantha Dunmur [redacted] .

Contact for further information about the study
Antonio Pangallo ([redacted] Thank you in advance for taking part in this study and please remember this is completely voluntary.

INFORMED CONSENT

If you wish to continue, please provide your consent to participate in this study by ticking all four boxes below:

- ❑ I confirm that I have read and understood the information sheet for this study
- ❑ I understand that my participation is voluntary and that I am free to withdraw at any time (by oral/written communication), without giving any reason, and without any consequences.
- ❑ I understand that all personal information provided by myself will remain confidential and no information that identifies me will be made publically available
- ❑ I agree to take part in this research.

I will be testing the reliability of this measure - this will involve completing a shorter version of this measure in about 2-3 weeks time. In order to do so, I will need to collect an email address from you and your initials. This way, I can make sure I am matching up your data for the two surveys. If you are happy to take this survey again, please fill in the boxes below.

Email (this will be kept strictly confidential)

Your initials (for matching purposes only)

DEMOGRAPHICS

1. What is the highest level of education you have completed?

- ❍ None
- ❍ High School / O level
- ❍ A level or equivalent
- ❍ Undergraduate Degree
- ❍ Postgraduate Degree (includes PG Certificates)
- ❍ Doctoral Degree

2. Gender

- ❍ Male
- ❍ Female

Age _____

3. What is your job role?

- ❑ Allied Health Professional
- ❑ Consultant
- ❑ Doctor
- ❑ Mental Health Professional
- ❑ Nursing Professional
- ❑ Social Worker
- ❑ Other _____

4. Where do you work - select one or more options

- ❑ Hospice
- ❑ Hospital
- ❑ Community

How often do you have formal supervision?

- ❍ *Weekly*
- ❍ *Fortnightly*
- ❍ *Monthly*
- ❍ *Every 2-3 Months*
- ❍ *Every 6 months*
- ❍ *Yearly*
- ❍ *Randomly*
- ❍ *Never*

Michigan Organizational Assessment Questionnaire (MOAQ*)*

The next questions are about you and your job. When answering keep in mind the kind of work you do and the experiences you have had at work.

	Strongly Disagree	*Disagree*	*Slightly Disagree*	*Neither Agree nor Disagree*	*Slightly Agree*	*Agree*	*Strongly Agree*
All in all I am satisfied with my job	❍	❍	❍	❍	❍	❍	❍
In general, I like working here	❍	❍	❍	❍	❍	❍	❍
In general, I don't like my job	❍	❍	❍	❍	❍	❍	❍
What happens to my employer/organization is really important to me	❍	❍	❍	❍	❍	❍	❍
I don't care what happens to my employer/organization as long as I get paid	❍	❍	❍	❍	❍	❍	❍
I often think about quitting my job	❍	❍	❍	❍	❍	❍	❍
I will probably look for a new job in the next year	❍	❍	❍	❍	❍	❍	❍

Resilience Scale for Adults (RSA)

Please think of how you usually are, or how you have been the last month, how you think and feel about yourself, and about important people surrounding you. Please select the option that is closest to the end statement that describes you best.

Please indicate to what extent you agree with the following statements

	Not true at all 1	2	3	4	5	6	Very true 7
My family's understanding of what is important in life is quite different to mine	❍	❍	❍	❍	❍	❍	❍
I feel very happy with my family	❍	❍	❍	❍	❍	❍	❍
My family is characterised by disconnection	❍	❍	❍	❍	❍	❍	❍
In difficult periods my family keep a positive outlook on the future	❍	❍	❍	❍	❍	❍	❍

In front of other people, my family acts unsupportive of one another	❍	❍	❍	❍	❍	❍
In my family we like to do things on our own	❍	❍	❍	❍	❍	❍
I can discuss personal issues with no one	❍	❍	❍	❍	❍	❍
The bonds among my friends is weak	❍	❍	❍	❍	❍	❍
I get support from friends and/or family	❍	❍	❍	❍	❍	❍
When needed, I have no one who can help me	❍	❍	❍	❍	❍	❍

Psychological Capital Questionnaire (PCQ)

Below are statements that describe how you may think about yourself right now. Use the following scale to indicate your level of agreement or disagreement with each statement

	Strongly Disagree 1	Disagree 2	Somewhat Disagree 3	Somewhat Agree 4	Agree 5	Strongly Agree 6
I feel confident in representing my work area in meetings with management	❍	❍	❍	❍	❍	❍
I feel confident contacting people outside the organization (e.g., suppliers, customers) to discuss problems	❍	❍	❍	❍	❍	❍
I feel confident presenting information to a group of colleagues	❍	❍	❍	❍	❍	❍
At the present time, I am energetically pursuing my work goals	❍	❍	❍	❍	❍	❍
Right now I see myself as being pretty successful at work	❍	❍	❍	❍	❍	❍
I can think of many ways to reach my current work goals	❍	❍	❍	❍	❍	❍
At this time, I am meeting the work goals that I have set for myself	❍	❍	❍	❍	❍	❍
I usually manage difficulties one way or another at work	❍	❍	❍	❍	❍	❍
I can get through difficult times at work because I've experienced difficulty before	❍	❍	❍	❍	❍	❍
I always look on the bright side of things regarding my job	❍	❍	❍	❍	❍	❍
I'm optimistic about what will happen to me in the future as it pertains to work	❍	❍	❍	❍	❍	❍

Connor Davidson Resilience Scale (CD-RISC-10)

Over the last month, please indicate how much you agree with the following statement. If a particular situation has not occurred recently, answer according to how you think you would have felt

	Not true at all (1)	Rarely True (2)	Sometimes true (3)	Often true (4)	True nearly all of the time (5)
I am able to adapt when changes occur	❍	❍	❍	❍	❍
I can deal with whatever comes my way	❍	❍	❍	❍	❍
Having to cope with stress can make me stronger	❍	❍	❍	❍	❍
I think of myself as a strong person when dealing with life's challenges and difficulties	❍	❍	❍	❍	❍
I am able to handle unpleasant or painful feelings like sadness, fear and anger	❍	❍	❍	❍	❍

Single Item Measure of Personality (SIMP*)*

How much does each description sound like you? Below are five pairs of descriptions. Click a point on the scale that matches a description that sounds like you. For example, if you think you are a combination of both descriptions you would click on a point in the middle of the scale.

	1	2	3	4	5	6	7	8	9	
someone who is talkative, outgoing, is comfortable around people, but could be noisy and attention seeking	❍	❍	❍	❍	❍	❍	❍	❍	❍	someone who is a reserved, private person, doesn't like to draw attention to themselves and can be shy around strangers
someone who is forthright, tends to be critical and find fault with others and doesn't suffer fools gladly	❍	❍	❍	❍	❍	❍	❍	❍	❍	someone who is generally trusting and forgiving, is interested in people, but can be taken for granted and finds it difficult to say no
someone who is sensitive and excitable and can be tense	❍	❍	❍	❍	❍	❍	❍	❍	❍	:someone who is relaxed, unemotional, rarely gets irritated, and seldom feels blue
someone who likes to plan things, likes to tidy up, pays attention to details, but can be rigid or inflexible	❍	❍	❍	❍	❍	❍	❍	❍	❍	someone who doesn't necessarily work to a schedule, tends to be flexible, but disorganised and often forgets to put things back in their proper place
someone who is a practical person who is not interested in abstract ideas, prefers work that is routine and has few artistic interests	❍	❍	❍	❍	❍	❍	❍	❍	❍	someone who spends time reflecting on things, has an active imagination and likes to think up new ways of doing things, but may lack pragmatism

SJT Items

The following scenarios ask how you would behave in a particular situation. Please remember that there is no right or wrong answer. If you have not experienced one of the situations you are being asked about, try and think about how you or a colleague might behave in that situation.

Item 1.

You are working in an acute ward caring for an elderly patient, Mrs Amagra, who is reaching the end stage of her disease. You are trying to prepare her son for her imminent death, but he refuses to discuss the matter. Mrs Amagra's son is convinced there is a cure for his mother's disease. You are unable to communicate directly with Mrs Amagra as she speaks very little English and instead communicates through her son. Her son becomes angry with you because you will not discuss cures with him

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Explore the reasons why her son is insistent on finding a cure and does not accept the recommendations of the multi-disciplinary team
- ❑ Grab the nearest person who speaks Mrs Amagra's language to asssit with translation
- ❑ Explain to her son that many people have worked together to reach the decision to stop looking for cures
- ❑ See if you can communicate directly with Mrs Amagra via interpreter
- ❑ Tell her son you are looking into cures to keep him calm
- ❑ Keep using her son as an interpreter
- ❑ Insist that her son tell Mrs Amagra that there is no cure

Item 2.

Anita Patel has end stage HIV. Anita has isolated herself from her family due to her shame about having contracted HIV. One day unexpectedly, Anita asks you to contact her mother as she wishes to say goodbye to her. When Anita's mother arrives at the hospice, she is distraught. She has not seen her daughter in months and barely recognises her daughter's frail body. Her mother drops to the floor and is wailing in grief.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation

- ❑ Comfort the mother and support Anita
- ❑ Do nothing, just be there
- ❑ Leave the room and return in a few minutes
- ❑ Go and get someone else to help
- ❑ Try and help Anita's mother to stop wailing
- ❑ Tell Anita's mother you know how she feels
- ❑ Gently let Anita's mother know she is distressing other patients

Item 3.
Jamie is 22 with advanced cancer. Jamie has returned from an outpatient appointment and has been told by his oncologist that he has no treatment options available. Despite being told about his prognosis, Jamie asks you to discuss his treatment options. You gently explain to him that he has a poor prognosis. Jamie becomes very distressed and asks if you'll sit with him for a while. There are several more patients you need to urgently attend to in the hospice this morning

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation

- ❑ Delegate your other tasks and stay with Jamie
- ❑ Find someone that knows Jamie well to sit with him
- ❑ Get a colleague to sit with him, whilst you do your rounds
- ❑ Explain to him that you are not the right person to talk to about this
- ❑ Reassure him that he will not be left alone
- ❑ Explain that you have many other patients to see and that you do not have the time right now
- ❑ Remind Jamie that things could be so much worse
- ❑ Tell him you need to arrange cover and you will return instantly

Item 4.
Marion McNally is approaching the end of her life. You have grown very fond of Marion. During your shift one day, you hear Marion's boyfriend telling her that this illness is "God's revenge" because he had left the priesthood.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation

- ❑ Examine whether this is any of your concern
- ❑ Ask someone else to speak with the couple
- ❑ Speak to a Chaplain about the situation
- ❑ Explore with Marion any concerns she has about her boyfriend's comment
- ❑ Explain that God wouldn't do this
- ❑ Explore the boyfriend's comment with him
- ❑ Adopt a non-judgemental position and accept the situation

Item 5.
A formal complaint has been lodged against you at work. The husband of your patient, Mrs Jones, who died less than a week ago accuses you of killing his wife. You are asked to prepare a statement and understand the matter is being investigated.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Find someone you trust to talk to about the situation
- ❑ Seek support from a professional body
- ❑ Talk to external sources/media
- ❑ Take time off to prepare yourself for the investigation
- ❑ Seek advice on the process/steps involved in the investigation
- ❑ Complete the statement and continue as normal
- ❑ Let all your colleagues know what is going on
- ❑ Make sure Mr Jones is getting support for his grief

Item 6.
Sharif is a 20-year old man with a history of drug abuse. He is not responding to pain medication and is in an enormous amount of pain. Sharif pleads with you to contact his family. Upon doing so, his family inform you that they cannot bring themselves to see him despite the fact that he is dying. As he reaches the end of his life, he cries out for his mum and dad.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Provide the usual care to Sharif
- ❑ Make excuses for his family not being there
- ❑ Arrange for someone to be with Sharif all the time
- ❑ Explore with the family whether there is any way of getting to his bedside
- ❑ Let Sharif know you are in contact with his family
- ❑ Accept the situation for what it is; there is only so much you can do
- ❑ Tell Sharif his family are on their way
- ❑ Remind yourself that Sharif brought this on himself

Item 7.
Suzie Wong is a young mother with four children and still coming to terms with her recent diagnosis of advanced cancer. Although she is paralyzed, she wants to go home. Suzie's husband asks to speak to you privately and tells you that he is not capable of looking after Suzie and their four children at home.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Explore what is behind the husband's concerns
- ❑ Help Mr Wong get help/support or package of care
- ❑ Facilitate a dialogue between Mr and Mrs Wong
- ❑ Let Mr Wong know you will not abandon him
- ❑ Delay the discharge for as long as you can
- ❑ Try and find a practical solution for the couple
- ❑ Try and persuade Suzie or her husband to change his/her mind

Item 8.
You are working the weekend and alerted to the death of Wasima Fayed. This is completely unexpected as Wasima has been relatively stable over recent weeks. You come into the hospice to deliver the news to her husband, after which he becomes extremely angry and accuses the hospice of neglect. Wasima's husband threatens you personally and you begin to feel physically threatened.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Acknowledge his experience/distress
- ❑ Attempt to listen and try your best to discuss the situation with him
- ❑ Inform Mr Fayed that his behaviour is unacceptable and inappropriate and you cannot continue the conversation
- ❑ Give Mr Fayed the complaints procedure
- ❑ Remove yourself from the situation
- ❑ Get angry back
- ❑ Admit the hospice is at fault

Item 9.
You are pregnant and beginning to show. Many of your patients keep asking you about the pregnancy. You find yourself excitedly talking about your pregnancy then realise that you will have to discuss life endings with these same patients.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Think carefully beforehand how you'll handle the situation
- ❑ Keep your personal life and professional life separate
- ❑ Change the subject
- ❑ Talk to everyone about your pregnancy
- ❑ Take the lead from each patient individually
- ❑ Encourage discussion about new beginnings
- ❑ Remind patients that this is your personal life and not of concern to them
- ❑ Turn the focus of the conversation back to the patient

Item 10.
Ruby is a young woman who has just died on the ward. Her brother, Robbie, is en route from Australia and was hoping to see her before she dies. Ruby's family are now at home waiting for Robbie's arrival. Robbie's father insists on telling him about his sister's death himself. Unfortunately, Robbie decides to come directly to the ward instead of going home. He demands to see his sister.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Tell Robbie his sister is in the bath or seeing the doctor
- ❑ Be honest and ask if he'd like to see her
- ❑ Tell Robbie he needs to speak to his father
- ❑ Call the father and inform him that you have to tell Robbie about his sister's death
- ❑ Tell Robbie on arrival his sister is dead
- ❑ Delay Robbie and call the father, so that the father can deal with the situation
- ❑ Ask Robbie to wait until his family arrive so they can all go in together

Item 11.
Mrs. Jordan, a patient of yours with a history of mental health issues has committed suicide on the ward. You have concerns about the level of care that was delivered to Mrs Jordan due to limited resources available. You have been asked to write a report to the coroner to inform the inquest. Your manager reviews the report and is unhappy with the content as she thinks it reflects badly on the organisation. She asks you to amend some of the facts in the report.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Explain to your manager that you are not happy about her request and will not amend the report
- ❑ Immediately begin documenting all communication referring to this incident
- ❑ Seek external support from your professional governing body
- ❑ Get advice from as many colleagues as you can
- ❑ Change the report and comply
- ❑ Talk to a trusted friend about the situation
- ❑ Ask to be moved to another unit until the issue is resolved

Item 12.
There are an overwhelming number of issues you are required to deal with on a daily basis. You are beginning to feel like you cannot meet the demands placed upon you. You have just had lunch with a colleague who expresses concern for your wellbeing. She gently comments that you are showing signs of burnout.

Response Instructions: From the list below, **select the three most effective actions** you would take in this situation.

- ❑ Take it on board - reflect on it
- ❑ Acknowledge and take responsibility for your own well being
- ❑ Take time off
- ❑ Ignore your colleague's comments
- ❑ Ask your friend to stop interfering
- ❑ Tell your friend it is normal to work this hard – everyone else does
- ❑ Acknowledge that you are failing
- ❑ Arrange to discuss the issue with your line manager