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**Is it really theoretical? A review of sampling in grounded theory studies in nursing
journals**

Abstract

Background. Grounded theory is a distinct method of qualitative research, where core features are theoretical sampling and constant comparative analysis. However, inconsistent application of these activities has been observed in published studies.

Aim. This review assessed the use of theoretical sampling in grounded theory studies in nursing journals.

Design. An adapted systematic review was conducted.

Method. Three leading nursing journals (2010 - 2014) were searched for studies stating grounded theory as the method. Sampling was assessed using a concise rating tool.

Results. A high proportion (86%) of the 134 papers described an iterative process of data collection and analysis. However, half of the studies did not demonstrate theoretical sampling, with many studies declaring or indicating a purposive sampling approach throughout.

Conclusion. Specific reporting guidelines for grounded theory studies should be developed to ensure that study reports describe an iterative process of fieldwork and theoretical development.

Key words

Grounded theory, research methods, qualitative research, theoretical sampling, nursing research

Summary statement

Why is this research needed?

- *Grounded theory is a commonly used method of qualitative research and although it has evolved into distinct approaches, a uniform requirement is that theory must be grounded in the data*
- *Theoretical sampling is a key component of grounded theory studies*

What are the key findings?

- *Theoretical sampling is not consistently applied in nursing studies*
- *It is not always clear whether theoretical sampling was performed from the presentation of the method and conduct of studies*

How should the findings be used to influence research?

- *A consensus is needed on standards for conduct and reporting of grounded theory studies*
- *The term grounded theory should only be used for studies befitting the model*

Introduction

Qualitative research is a ‘broad church’. However, grounded theory is a distinct method for which specific principles and practices should be applied, generating theory that is transparently grounded in the data. This paper examines the fundamental activity of theoretical sampling, through a systematic enquiry in grounded theory studies published in nursing journals.

Background

As a human endeavour, nursing has a strong tradition of qualitative enquiry. Grounded theory, a method closely associated with nursing throughout its development, was devised by social scientists Barney Glaser and Anselm Strauss (1967) while working on a study of awareness of dying at the University of California, San Francisco. Glaser and Strauss found that existing methodology prioritised testing over discovery, while there was no robust qualitative method to bridge the yawning gap between grand theory and ‘real world’ data. The philosophical roots of grounded theory are in symbolic interactionism, which originated in the work of George Herbert Mead and fellow ‘Chicago School’ sociologists (Blumer, 1969). The assumption of symbolic interactionism is that people act towards things or people on the basis of meanings, which arise from social interaction. As society functions as a dynamic process of interpretation, individual perspectives are vital to theoretical understanding (Blumer, 1969). Contrasting with the prevailing deductive orientation of science, grounded theory is inductive: theory is generated from data. In a radical departure from the linear logic of scientific enquiry, Glaser and Strauss created a simultaneous process of data collection and analysis.

Sampling is a major consideration in all research, but the requirements and challenges of quantitative and qualitative methods differ. For statistical sampling the aim is inference to a population, but in qualitative research participants are chosen not to represent others but for their likelihood of having information on the phenomenon of interest. As depth of enquiry is important, qualitative studies should not be judged by sample size; in grounded theory, sampling is determined by an emergent theoretical approach, as originally defined by Glaser and Strauss (1967, p. 45):

Theoretical sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes and analyzes his data and decides what data to collect next and where to find them, to develop his theory as it emerges.

Thus theoretical sampling is iterative, seeking and gathering data based on emerging categories and themes. It pertains to conceptual and theoretical development rather than to the population. The number and attributes of participants are not specified in advance, as Glaser (1978, p. 37) explained:

The analyst who uses theoretical sampling cannot know in advance precisely what to sample for and where it will lead him.

Theory, initially tentative, is developed, refined and verified through a process of constant comparative analysis. Data are coded by categories, each with properties and connections to other categories. The purpose of sampling is to encompass the full range of data and relationships, exploring similarity and differences and this continues until all categories are

saturated and integrated with emerging theory.

Grounded theory was rarely used until the 1980s, when Strauss and Glaser independently wrote expositions of the method. However, their guidance began to diverge. While Glaser is the purist who maintains grounded theory as an inductive model, Strauss responded to novice researchers' desire for procedural guidance, particularly in analysis. In 1990 the manual *Basics of Qualitative Research*, by Strauss and academic nurse Juliet Corbin, introduced a prescriptive process of analysing data deductively after each interview, using a coding framework to verify concepts and inform further fieldwork. Strauss and Corbin also guided researchers on theoretical sampling, which they described as a means to 'maximise opportunities to discover variation among concepts and to densify categories in terms of their properties and dimensions' (1998: 201). They created a typology of open, relational and variational and discriminate sampling. The final stage pursues data to saturate thematic categories. However, Glaser argued that these stages should occur naturalistically and that theory must be grounded in data not procedure; he saw deductive logic in data collection as a threat to theoretical sensitivity:

Strauss' pursuit is conventional sampling, not theoretical sampling. In conventional sampling the analyst questions, guesses and uses experience to go where he thinks he will have the data to test his hypotheses and find the theory that he has preconceived. Discovery to Strauss does not mean induction and emergence, it means finding his theory in data so that it can be tested (1992, p. 103).

Glaser accused his former partner of presenting an entirely different method, which he defined as 'full conceptual description' (1992, p. 124). In a diatribe dissecting each of the

chapters, Glaser demanded that Strauss and Corbin withdraw the book for correction of its perceived flaws. Although they dedicated their manual to Glaser, Strauss and Corbin were unrepentant, asserting their guidance as vital for the value of grounded theory to be realised. This was in the context of a 'qualitative revolution' in research, with rapid expansion and democratisation of methods (Denzin & Lincoln, 1994). Grounded theory was differentiated as 'classic' and 'Straussian' and the more instructive manual of the latter (Strauss & Corbin, 1990, 1998) proved popular with nursing researchers.

Strauss died in 1996 and Corbin added her own modifications in a third edition (Corbin & Strauss, 2008). She has also supported further departures from the original text. Kathy Charmaz, previously a student in a doctoral programme led by Strauss at the University of California, San Francisco, where she was taught grounded theory by Glaser, perceived an inflexible orthodoxy. She criticised classic grounded theory as naïve empiricism, whereby a supposedly neutral observer seeks external truth. While honouring Glaser and Strauss as pioneers of qualitative research, Charmaz (2008) attributed their stance to the prevailing positivism of their time of writing. Although Strauss and Corbin acknowledged reality as a product of interpretation, Charmaz believed that their manual unwittingly reinforced objectivism with its coding framework and verification.

Strauss and Corbin did not simply offer guidelines; they prescribed procedures as a path to qualitative success. *Basics of Qualitative Research* became something of a bible to novice researchers, who often interpreted the method in concrete ways (Charmaz, 2008: 399).

Inspired by the seminal *Social Construction of Reality* by Berger and Luckmann (1967),

Charmaz (2006) strove to revitalise grounded theory as a constructivist method. In a 'postmodern turn' (Clarke 2003), constructivist grounded theory emphasises reflexivity and shared realities. Glaser (2002) denounced this reformulation as prone to the bias of preconceived ideas (or ideology). However, a fellow traveller of Charmaz dismissed Glaser's claim to propriety, arguing:

Grounded theory is now used so widely and in such a variety of contexts and disciplines that any attempt to control the method, in the sense of maintaining one particular view, is bound to fail. It is a victim of its own success (Bryant 2007: 112).

Grounded theory has evolved as a family of methods, each distinct, but with much overlap. A recent textbook co-authored by Corbin (Morse *et al*, 2009) refers to developments to grounded theory as 'the second generation'. Yet essentially, the sampling strategy of grounded theory remains intact. While Strauss and Corbin (1998) suggested that purposive sampling might be pragmatically justifiable, they maintain an iterative, theoretically-driven enterprise:

Theoretical sampling begins after the first analytic session and continues throughout the research process (Corbin & Strauss, 2008, p. 149).

Nonetheless, as feared by Glaser (1992), grounded theory is at risk of becoming indistinct from other qualitative research methods. Grounded theory papers do not always convey a theoretical sampling approach (Baker *et al*, 1992; Draucker *et al*, 2007) and methodology textbooks may be muddying the water. Patton (1990) defined all qualitative sampling as purposeful, although in a list of 15 strategies, theoretical sampling was absent. According to

Coyne (1997), grounded theory researchers must initially seek participants purposively; otherwise how would they know where to begin? In a grounded theory handbook, Morse (2007) described a trajectory starting with convenience sampling, progressing to purposive sampling and finally to theoretical sampling. Confusion may arise when so many terms are used for a single study design. Explaining that early participants are located within a broad theoretical scope, Glaser (1992) rejected *a priori* sampling decisions. Despite disagreement over the method and its adaptations, theoretical sampling remains a core element of grounded theory: it is necessary, if not always sufficient.

Grounded theory research in nursing has been repeatedly criticised for lack of fidelity. A review by Benoliel (1996) showed that half of studies did not apply essential features of the method. A *Journal of Advanced Nursing* editorial (Webb, 2003) presented reporting guidelines for qualitative research, with specific requirements for grounded theory: concurrent data collection and analysis, theoretical sampling, a core category grounded in the data, stratified coding and theoretical saturation. However, as educators, journal referees and members of ethics committees, both authors of this paper have observed a tendency for researchers to state use of grounded theory (perhaps for scientific credibility) in studies that actually entail purposive sampling followed by thematic analysis. As observed by Coyne (1997), researchers often use the terms ‘purposeful’ and ‘theoretical’ interchangeably. This is not merely of academic concern. Nursing researchers strive to produce knowledge to inform care and treatment and a methodologically weak enquiry is likely to produce faulty evidence. Practitioners should be no less wary of qualitative findings than of spurious statistical results (McCrae, 2013). For grounded theory study findings to be truly grounded in data, theoretical completeness should be sought, which is not directly possible with purposive or convenience sampling. As in any form of research, study design must cohere with ontological assumptions

for knowledge claims to be credible and thus dependably indicative for practice.

The study

Aims

The aim of this review was to assess the use of theoretical sampling in grounded theory studies as reported in nursing literature.

Design

The enquiry followed a similar process to that of a conventional systematic review (Centre for Reviews & Dissemination, 2009), but with a methodological focus rather than a comprehensive account of a particular research topic.

Sample

The sample was based on pragmatic rationale, comprising studies published in specified nursing journals in recent years. We chose the three leading generic nursing journals, as shown below with impact factor (http://admin-apps.webofknowledge.com/JCR/JCR?RQ=LIST_SUMMARY_JOURNAL):

International Journal of Nursing Studies (IJNS) - 2.9

Journal of Advanced Nursing (JAN) - 1.7

Journal of Clinical Nursing (JCN) - 1.3

Reporting requirements for submissions to these journals are fairly similar. With a relatively high impact factor, studies published in these journals are more likely to be read and to have influence on other researchers. The time period of the last five full years (2010 - 2014) covered the availability of the most commonly cited textbooks, including the latest revision by Corbin and Strauss (2008).

Search strategy

We searched Medline for papers using the term ‘grounded theory’ in abstracts, in each journal by turn. This straightforward search strategy was based on the expectation that any researchers applying grounded theory would state this in their abstract. However, further papers were found by running a similar search in Google Scholar, where ‘grounded theory’ could appear anywhere in the article. Papers were screened to include only those actually applying grounded theory as the method; studies applying another method (e.g. phenomenology) while referring to the principles of grounded theory were excluded.

Data testing

Eligible papers were examined for methodological citations and sampling terminology. We devised a concise rating tool to assess whether the fundamental principle of theoretical sampling was followed, as described in core grounded theory textbooks (Glaser & Strauss, 1967; Charmaz, 2006; Corbin & Strauss, 2008). This required evidence of an iterative process of data collection and analysis, sampling informed by emerging concepts and data collection continuing until theoretical saturation:

A – Iterative data collection and analysis, with wholly or partially theoretical sampling and theoretical saturation

B – Iterative, but sampling not explicitly theoretical

C – Linear process: all data collected before analysis

Data analysis

The sampling method of each paper was examined in detail. We assessed whether theoretical sampling was applied in whole or part of the sampling process by carefully reading the method described by the authors and classifying papers by the criteria above. Papers where terms or description were lacking were set aside for further consideration and ultimately we exercised judgment in classification. Data were tabulated for descriptive analysis.

Rigour

Our rating tool was tested on a small sample of papers and was found to discriminate satisfactorily between papers on application of theoretical sampling. Each paper was assessed by both authors who concurred on a final verdict.

Ethical considerations

There were no ethical considerations in the conduct of this review.

Results

Over half of the 134 eligible papers were in *JCN*, while *IJNS* had an average of less than four per year. It is interesting to note the decline in grounded theory studies over the five-year period, with 31% of the papers appearing in 2010 and merely 15% in 2014.

Methodological citations

All but one paper (Redshaw *et al*, 2011) referred to a methodological text for grounded theory. The original text by Glaser and Strauss (1967) or later books by Glaser (1992) were cited in 42% of studies, with 29% following this guidance alone. Texts by Strauss (1987), Strauss and Corbin (1990, 1998) or Corbin and Strauss (2008) were cited in 49% of studies and followed exclusively in 34%. Constructivist grounded theory (Charmaz, 2000, 2006) was used in 29% of studies and as the only guidance in 10%. These findings suggest popularity of manuals that provide more procedural guidance than in the original text and of the modified methods of grounded theory. However, classic grounded theory was often cited alongside Straussian and constructivist versions and it was not always clear which was primarily applied (e.g. Berge *et al*, 2011; Abendroth *et al*, 2012). Other methodological citations included qualitative research manuals (by Holloway and Wheeler; Curtis and Curtis), an introductory text on grounded theory (by Wang) and papers on grounded theory (by Robrecht; Stern). Thornley and West (2010) stated a ‘Glaserian approach’, but cited a brief methodological paper by Stern rather than a grounded theory textbook.

Sampling terms

‘Theoretical’ was the most common sampling term, but merely 23% of papers reported this

strategy alone, while 28% applied purposive and theoretical sampling. A surprisingly high proportion of studies (43%) did not mention theoretical sampling in their method. Purposive alone was stated in 17% of papers. Other combinations of terms included ‘sequential, purposive and theoretical’ (De la Cuesta-Benjumea, 2010) and an elaborate mix of purposive, ‘criterion-based’, ‘maximum variation’, snowball and theoretical (Matthew-Maich *et al*, 2013). While all papers described recruitment and participants, a fifth did not use any terminology for the study sample.

Numbers are too small for meaningful analysis, but there was no indication that researchers stating a purely theoretical sampling strategy were more likely to cite particular texts, compared with those using other sampling terms. Of the 39 papers citing only classic grounded theory textbooks for methodological guidance, merely 9 stated a purely theoretical sampling strategy. Most of these papers reported that sampling began purposively; for example, Bøttcher Berthelsen and colleagues (2014) stated that ‘the first two relatives were recruited through purposive sampling and further recruitment was guided by emerging concepts and theory, through theoretical sampling’. A similar progression was commonly stated in papers citing Straussian grounded theory.

Assessment of theoretical sampling

As should be expected with grounded theory, our review found a concurrent process of data collection and analysis in most reports. Good descriptions of theoretical sampling were found in papers from all three journals. For example, Sørensen and colleagues (*IJNS*, 2013) presented an authentic Glaserian approach with a detailed account of theoretical sensitivity and constant comparative analysis in a study of nurses’ collaboration with pulmonary disease

patients. A Charmaz-guided study by Sævareid and Balandin (*JAN*, 2011) described various levels of coding and development of a central category from iterative interviewing and analysis. Following the manual of Strauss and Corbin, Kuo and colleagues (*JCN*, 2013) reported use of memos to record analytic process and constant comparative method with open, axial and selective coding.

Theoretical sampling was not evident in half of the papers: this included most of those that stated other sampling strategies, but also included 12 papers that claimed to have wholly or partially sampled theoretically. For example, Denier and colleagues (2010), in stating that ‘sampling aimed for diversity regarding characteristics of both participants and hospitals’, recruited on the basis of attributes rather than concepts. Most of the papers that did not specify a sampling term failed to convey a theoretically-driven approach. For example, Bryon and colleagues (2010) stated: ‘We selected 21 nurses for interview, with the aim of obtaining a sample diverse (*sic*) personal characteristics and experiences with the subject matter’. Another example is by Long-Sutehall and colleagues (2011), who purportedly followed the Charmaz model of grounded theory:

While the intended sample for this study was 16 nurses (rising to 20 if needed for theoretical saturation), 70 recruitment packs were sent out with 18 nurses responding. Of these 18, four potential participants were not recruited as changes in shift patterns meant that interviews had to be cancelled...One potential participant withdrew prior to interview due to sickness. The final sample therefore comprised of (*sic*) 13 nurses. Recruitment initiatives achieved the desired sample for three out of the four specialities.

Some researchers gave reasons for applying purposive rather than theoretical sampling, although the justification was sometimes dubious. Manzano and colleagues (2013) stated: ‘We adopted a purposive sampling strategy in that we sought participants with advanced cancer who were experiencing pain, living at home and over 25’, but these were simply eligibility criteria. Mottram (2010, 2011a, 2011b) had papers in all three of the selected journals, on the same study. Recruiting a very large ‘purposive’ sample (245 participants) and a longitudinal design with multiple interviews, it would have been a Herculean task to conduct this as a grounded theory study. Data for a study by Laitinen and colleagues (2010) comprised every third patient record. We frequently found that papers presented more detail on sample demography than the progress of theoretical sampling.

Several papers stated that data collection ended at theoretical saturation despite specifying or inferring a wholly purposive or convenience sampling approach. The term ‘data saturation’ was sometimes used and some researchers stated that fieldwork continued until no new categories emerged. While data saturation may be pursued in any form of qualitative research, theoretical sampling continues until saturation of conceptual categories and discovery of an overarching theory. The constant comparative method was often described in the analysis section of papers without clear evidence of sampling on a theoretical basis; for example, Rasmussen and colleagues (2011) reported constant comparative analysis and theoretical saturation but the sampling strategy was vague. Less than a seventh of papers did not describe an iterative process of data collection and analysis. In some cases analysis was explicitly conducted after completion of fieldwork (e.g. Riley *et al*, 2012). A linear process was also apparent in a study supposedly following the manual of Strauss and Corbin but applying the model of Miles and Huberman for analysis (Verbrugge *et al*, 2013) and a ‘content analysis following a grounded theory approach’ (Redshaw *et al*, 2011).

Discussion

This review shows much inconsistency in application of theoretical sampling in grounded theory studies in nursing. As an inductive method of enquiry, grounded theory does not test hypotheses; it is not intended for preconceived comparisons and the number of participants should not be set before data collection. Whereas sampling in other forms of research is by the structural attributes of participants, grounded theory is a means of studying social processes rather than individuals or groups *per se*. Freedom from the boundaries of unit analysis allows grounded theory to go beyond description of circumstance to a deeper theoretical investigation (Bigus *et al*, 1994), yet our review suggests that many researchers are not fulfilling this potential.

As suggested by a *Journal of Advanced Nursing* editorial (Bagnasco *et al*, 2014), researchers' tendency to predetermine sample size may be due to the expectations of funding bodies and ethics committees, although it should be acceptable to provide an estimate of the numbers required. Researchers may want to be inclusive on characteristics such as ethnicity, but grounded theory may not be possible if decisions are made in advance about which groups to pursue, as Glaser and Strauss asserted in their original text (1967, p. 48):

Data collected according to a preplanned routine are more likely to force the analyst into irrelevant directions and harmful pitfalls.

In many studies a combination of purposive and theoretical sampling was applied, as encouraged by the modified formulation of grounded theory by Charmaz (2006). This is a

departure from the classic method of Glaser and Strauss (1967), but it should be acknowledged that no qualitative enquiry is entirely free of deductive thought and action. In their original text, Glaser and Strauss advised researchers to ignore existing theory and not to start their enquiry with a detailed literature review, but as Charmaz (2006) argued, this is neither realistic nor necessarily desirable. As in Heidegger's revision of Husserl's model of phenomenology, reflexivity is now considered as an asset to a study, rather than the bracketing out of preconceptions. Moreover, all research occurs on a cycle of deductive and inductive logic. A sequential approach of purposive and theoretical sampling may be appropriate if the former is used to seed the latter.

Nonetheless, in this review it was not always clear when purposive recruitment started and theoretical sampling began. This has been observed previously in reviews of nursing literature, Thompson (1999) finding few qualitative studies giving sufficient description of how participants were sampled to contribute to emerging theory. As Morse (2008) noted, researchers often present plenty of detail on the demographic features of the sample, without explaining how these related to the development of theory. We suspect that some researchers applied the principle of theoretical sampling late in data collection, to decide when to stop interviewing.

A major factor in the sampling anomalies observed here may be the diversification of grounded theory, which may have the unintended effect of blurring the distinct features of this model. Research methods are continually evolving and the classic grounded theory of fifty years ago should not be preserved in aspic. However, researchers should be aware of the controversy over the modifications to grounded theory, from the dispute between the co-originators to the recent constructivist reformulations. One type of grounded theory should be

cited and used in each study (Cutcliffe, 2000) and researchers should justify use of a modified version such as by Charmaz (2006). It would be appropriate in any grounded theory study for the authors to cite the original text, but referring to different grounded theorists throughout the sampling and analytic process suggests a lack of appreciation of the differences between these approaches. It is hard not to empathise with Glaser's (2014: 12) fear of grounded theory becoming an 'anything goes' method. Novice researchers could be misled by published studies that do not adequately demonstrate theoretical sampling.

While a broader methodological debate is beyond the scope of this paper, we believe that substantial deviations from the original text raise questions of legitimacy: should such adaptations be accepted as methodological progression? Considering radical revisions by Charmaz (2006) and others, perhaps qualitative research methodologists should seek a consensus on the extent to which a model can be changed before it becomes something else. The term 'evolution' is often used for adaptations of grounded theory, but a subspecies may evolve to the extent that forms a new species. If defining features of grounded theory were to be deemed unnecessary, a new method may have emerged and should be labelled accordingly. This is not merely about intellectual property, but more importantly theoretical credibility. If grounded theory is to be a unified method, its unique features should be reinforced in methodological texts, or perhaps 'constructivist grounded theory' should be afforded status as a distinct method.

Creativity is important in qualitative research, but there is also a need for methodological rigour and some of the studies reviewed here betrayed lack of comprehension of the distinct philosophy of grounded theory. Perhaps the decline in use of grounded theory observed here is due to growing acceptance of generic qualitative methods, often labelled as 'thematic

analysis'. It would be a pity, however, if grounded theory were to be avoided in favour of approaches that may seem easier to apply, but which lack the systematic, iterative process that enables researchers to produce knowledge at an advanced theoretical level.

Limitations

Limitations of this review should be considered. Methodological reviews can only examine what was reported, not what was actually done. The extent of deviation from the principle of theoretical sampling may be underestimated, as authors could have retrospectively embellished their method at the stage of writing (it is also possible that some papers did not do justice to the conduct of the study). Our rating tool has not been externally validated, although it has obvious validity in its focus on the essential features of sampling strategy in grounded theory and reliability in their ease of identification. Future work could include further refinement of this and its integration with broader grounded theory reporting guidelines.

Conclusion

While good practice was observed in many papers, this review shows continuing problems with the reporting of grounded theory studies in nursing journals. We recommend further development in reporting guidelines for grounded theory papers, not to stifle creativity or to impose rigid procedures, but to maintain the value of grounded theory as a means of systematic investigation of human phenomena. This would be in tune with wider progress in research standards. For example, CERQual (Confidence in the Evidence from Reviews of Qualitative Research; <http://cerqual.org>) provides a framework for assessing the confidence

one might have in evidence from reviews of qualitative research. Qualitative researchers should demonstrate a clear link from data to theory and an inductive design should have evidence of induction. Otherwise, grounded theory is in danger of slipping from its philosophical anchor into a sea of undifferentiated qualitative methodology. A step-by-step linear process may appeal to researchers, but theoretical sampling and constant comparative analysis cannot be conducted in this way. Finally, we agree with the advice of Schreiber and Stern (2001) that nursing researchers should be supervised by a researcher with grounded theory expertise.

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