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Mental distress and its relationship to distance education students' work and family roles

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To date, research concerning the work-family-study interface remains limited and has focused on younger students enrolled in campus-based courses. In this study we used self-reported data from 318 distance education final-year undergraduates to examine first the associations between students' levels of mental distress with their work and family roles. Secondly, we examined the associations between students' levels of mental distress with their perceived levels of role conflict and role

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facilitation. Conflict and facilitation both in the direction from work to studying, and from family to studying were considered. Multinomial regression was used to explore relationships, controlling for age, sex, ethnicity, and educational attainment at registration. Our study revealed unpaid caring responsibilities, reported work-study conflict, and family-study conflict were associated with an increased risk of reporting higher levels of mental distress, and work-study facilitation and family-study facilitation were associated with a lower risk of reporting higher levels of mental distress.

Keywords: mental distress; distance education; work; family; students; higher education

Introduction

In the last decade, technological advances have resulted in rapid global growth in online distance education, although trends in the field vary between countries (Qayyum & Zawacki-Richter, 2019). The growth in distance education is likely to be accompanied by a need to adjust the supports offered, so that universities adequately address the requirements of all students, particularly beyond those often perceived to be atypical undergraduate student. For instance, distance education courses tend to attract older students who have a range of personal and work commitments that are ongoing throughout their studies (Latanich et al., 2001; Ortagus, 2017; The Open University, 2020). Moreover, research on student attrition in distance education has already highlighted the importance of life circumstances, including paid work and family factors. For example, Stoessel et al.'s (2015) statistical analysis of 4599 graduates and

dropouts in distance education programs at a German university found students' paid employment significantly increased the likelihood of their dropping out. Further supporting this finding, qualitative work among Australian distance education students has suggested that employment appears to increase the risk of dropout as students fail to complete assessments due to unavoidable or unexpected work demands (Moore & Greenland, 2017). In relation to family roles, in Perry et al.'s (2008) qualitative research conducted with online nursing students, the theme of priorities and families getting "the short end of the stick" (p. 7) was discussed as a major reason for a student's withdrawal.

In comparison to the work carried out in relation to student attrition, there has been less research on the mental distress or health of distance education students, despite the United Kingdom (UK) government calling for all universities to improve student mental health services (Department for Education, 2018). The World Health Organization (WHO, 2020) has defined mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community". Therefore, WHO frames mental health in a rather holistic manner where a person's state of well-being is much more than the absence of disease or infirmity. In contrast to WHO's conceptualization of mental health, recent policy reports and research on student mental health actually tend to have a more specific focus on mental distress, for example the rise in the reporting of, and supporting students with, diagnosed mental health conditions or self-reported mental distress (e.g., Education Policy Institute, 2018; Hubble & Bolton, 2020; Universities UK, 2018). In line with this recent turn toward student mental distress, in this current study we examined mental distress. Mental distress has been defined as "a state of emotional

suffering characterized by symptoms of depression and anxiety” (Drapeau et al., 2012, p. 105).

Bewick et al.’s (2010) longitudinal analysis of self-reported symptoms of anxiety and depression found levels among students, at a predominantly campus-based UK university, to be higher in all years of study compared to their baseline preuniversity levels. Their depressive symptom scores (on average) increased steadily and were highest in the final year of university. Reports of student distress could be associated with the transition to the role of a tertiary student, which has become more challenging because of factors such as increasing academic demands, social stresses, and the financial pressures associated with rising course fees and living expenses. While distance education students may experience some of the same stressors as their campus-based counterparts, for example, academic demands, their demographic profile means they are more likely to face pressures associated with juggling their studies with work and family responsibilities (e.g., see Raddon, 2007). Furthermore, they are more likely to face certain pressures associated with social and geographical isolation (Markova et al., 2017) as well as problems adapting to an online mode of study (Song et al., 2004).

Student services usually have responsibility for mental health support at UK universities, where they are frequently structured across three separate teams or services (Universities UK, 2018); in particular, well-being services (for low-level intensity services and support), counseling services (for those with at least moderate levels of mental distress), and disability services (usually targeted at students with diagnosed mental health conditions that have been disclosed) (Universities UK, 2018).

Universities have reported increasing demand for mental health student support services and also increased waiting lists (Universities UK, 2018). However, this is unlikely to

have captured the true levels of demand. For example, qualitative studies conducted among undergraduate students at UK universities reveal students' reluctance to seek professional help in relation to their mental health due to their experience of stigma from friends and family, difficulties with them not recognising that their experiences may constitute a mental health issue, and not wishing to "burden" (Quinn et al., 2009, p. 410) others with their difficulties. Studies also identified a lack of knowledge as a barrier to seeking professional support. (Laidlaw et al., 2016; Quinn et al., 2009). Although these studies were conducted among campus-based students, such difficulties are likely to also apply to distance education students. Distance education students will also struggle because they will have limited (if any) access to campus-based mental health services (Russo et al., 2016). In Quinn et al.'s (2009) study of campus-based students, participants spoke of the importance of peer support from other students' with mental health problems in encouraging them to seek institutional support. Studies related to distance education have found that a significant minority of students report isolation as a challenge (Croft et al., 2010; Markova et al., 2017). Therefore, distance education students may have fewer opportunities to build these peer networks compared to campus-based students, which by extension places them at increased risk of not seeking or being able to obtain the support they need.

The literature has pointed to differences in stressors experienced by distance education and campus-based university students. Nonetheless, there are knowledge gaps, specifically around the needs of distance education students in relation to the signs and symptoms of mental distress that affect their study. Additionally, practical knowledge is needed in how best to support them to study remotely while acknowledging they may experience mental distress, as they also adequately strike to

fulfil their work and family roles. Therefore, our study focused on common symptoms of mental distress pertaining to depression, anxiety, and stress (as captured using the Depression, Anxiety and Stress Scale (DASS-21, Lovibond & Lovibond, 1995) and students' work and family roles, their perceptions of work-study conflict, family-study conflict, work-study facilitation and family-study facilitation, in a distance education context.

Literature review

Role theory posits that individuals enact various roles over their lifetime, and these roles inhabit different social positions (e.g., a worker, a mother, a sister, a student) (Katz & Kahn, 1978). Much of the literature on the interface between multiple roles has focused on the spheres of work and family (particularly parenthood, in terms of family roles) (for reviews, see Allen & Martin, 2017; Eby et al., 2005; French & Johnson, 2016; Greenhaus & Allen, 2011). Mechanisms frequently theorized as linking the work-family interface to organizational, family, and individual outcomes are those of *role conflict* and *role facilitation* or *enhancement*. In their seminal work, Greenhaus and Beutell (1985) defined work-family conflict as:

A form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by the virtue of participation in the family (work) role. (p. 77)

A conservation of resources approach (Hobfoll, 1989) assumes that properties, such as an individual's time, energy, and attention, are understandably limited. Hence, the extensive use of finite resources in one role will by extension reduce the availability of resources in a second role, and this will then have an impact on role performance and

in turn well-being. In contrast, Marks' (1977) influential work argued resources such as time are not truly finite, but can actually be manipulated, for example, in terms of an individual employing more efficient time planning and organizational skills. The theory of inter-role facilitation or enhancement posits that engagement in multiple roles can result in the expansion of resources, and that engagement in one role can actually help facilitate performance in a second role (Greenhaus & Powell, 2006).

In comparison to the extensive literature on the work-family interface, there has been less research into the combination of "*school*" (the term school extends to university study in the research literature) with paid employment and/or family roles, such as parenthood. Research has predominantly focused on the potential conflict that students can experience when combining multiple roles. Survey-based research among 443 adult women on social work and nursing programs in Canada engaged in paid work, and with identified family responsibilities, found that mothers of children under the age of 13 were more likely to report role conflict. Similarly, a quantitative analysis of 375 undergraduates at a university in the United States of America found the student's number of children was a predictor of family-school conflict, and average hours worked in employment as a predictor of work-school conflict (Hammer et al., 1998). More recent research among adult learners enrolled in blended learning courses (consisting of face-to-face weeknight and weekend classes along with online learning) found work stressors to be associated with the experience of role conflict. These studies confirm the need for universities to consider the "life-world environment" (Giancola et al., 2009, p. 258) of their students in order to better understand factors that affect student experience. While these studies focused on students engaged in face-to-face or blended learning courses, the literature on distance education attrition has revealed paid

employment and family as reasons for withdrawal (Moore & Greenland, 2017; Perry et al., 2018; Stoessel et al., 2015), suggesting that role conflict is also experienced by distance education students.

Increasingly, research is recognizing the potential for students to have positive experiences of combining their work and family roles with studying as seen by the inclusion of measures of role enrichment or facilitation in studies. For instance, Nicklin et al.'s (2018) study among full- and part-time postgraduate students at a university in the United States of America collected information on enrichment in the domains of work, personal life, and school, which included knowledge and skill development as well as affect and mood. In qualitative work, undergraduate students reported the benefits of undertaking paid employment during their studies, including employers easing access to data collection for dissertation projects, jobs providing an escape from studying, employment enhancing skills important for university study (e.g., time management and communication), and their work increasing their self-esteem and confidence (Broadbridge & Swanson, 2006). Broadbridge and Swanson's study was conducted among campus-based students engaged only in term-time employment, which invites questions as to whether paid employment for distance education students results in facilitation which is beneficial to support them in their role as a student.

The consideration of student distress in relation to students' work and family roles has been less considered. Park and Sprung's (2013) longitudinal study of students reported that work-school conflict at the second month of an academic semester was a significant predictor of mental distress (as measured by Goldberg's (1978 cited in Jackson, 2007) General Health Questionnaire) 2 months later, at the end of the semester. Furthermore, Park and Sprung's found work-study facilitation acts as a buffer

against the negative relationship between work-school conflict and mental distress. Using the same measure of mental distress, Giancola et al. (2009) found a similar correlation between work-study conflict and health among adult learners enrolled in a blended learning course in the United States of America. Therefore, the need to examine how work roles negatively impact student mental distress is key. Distance education students are more likely to work full-time while studying (Latanich et al., 2001; Ortagus, 2017)—understandably so as this mode of study is often selected due to its increased flexibility, which is argued to ease the combination of study and individual’s work commitments (Lane, 2012). Therefore, particular attention needs to be paid to distance education students due to the significance of their work role and the greater likelihood that they will be in full-time work.

In terms of family, Giancola et al. (2009) found family-school conflict to be correlated with mental distress as measured by the General Health Questionnaire (Jackson, 2007). Using a measure of psychological stress, Nicklin et al. (2019) found a significant negative correlation between role enrichment and stress, where increases in scores on a role enrichment scale were associated with lower stress. Furthermore, Nicklin et al. found a significant positive correlation between role conflict and stress, whereby increased conflict was associated with higher levels of stress. While their measure of conflict and enrichment combined items concerning work, family, and study domains, they did not explore whether relationships differed according to the specific and different sources of conflict and enrichment, relating to one’s work, family, or study. Therefore, further detailed exploration of the nature of these different roles on each other is required. The relative dearth of research exploring the potential conflict and facilitation between studying and family life may be as a result of the focus on

younger students (and campus-based institutions and programs). For example, the average ages in Creed et al.'s (2015) and Park and Sprung's (2013) studies were 22.7 years and 19.80 years respectively.

Our paper reports on the results of an online survey carried out among students enrolled in final-year undergraduate modules in a single faculty at a large distance education university in the United Kingdom. In this study we first examined the associations between students' levels of mental distress with their work and family roles. Secondly, we examined the associations between students' levels of mental distress with their perceived levels of role conflict and role facilitation. Conflict and facilitation both in the direction from work to studying, and from family to studying were considered. The study will contribute to the literature in two key ways: First, while there is a growing literature examining work-"school" (university) conflict and facilitation and its relationship to individual student mental distress or health, less is known about the relationship between family-school conflict and facilitation in this regard. Second, research has predominantly focused on younger students enrolled in campus-based courses. The increase in distance education provision over the last decade, coupled with the lack of exploration into the particular and unique needs of distance education students, it is timely to examine student mental health and mental distress in the distance education context.

Methods

Procedure

The focus of this study was to measure levels of student mental distress and their relationship to students' work and family roles, as well as students' experience of

combining these roles with studying. Data was collected using an online questionnaire (Jisc Online Survey) (Jisc, 2020), which took approximately 15 min to complete. The questionnaire was subject to piloting by five individuals during its development (testers included current students at the university), and the survey was refined based on the feedback provided. The study received ethical approval from The Open University Human Research Ethics Committee (HREC/3165/Waterhouse).

Participants

Eligible participants were a random sample of 1436 students studying final-year undergraduate modules in the School of Health, Wellbeing and Social Care and the School of Education, Childhood, Youth and Sports. Eligible students were those who had previously agreed that they could be contacted to participate in research and had not been contacted to take part in another research project in the 3 months preceding this survey. Individuals were invited to take part via an email in April 2019 which contained a link to the information sheet and questionnaire. The online questionnaire remained open for three weeks. Respondents provided informed consent for the use of the data provided.

Measures

Working status

Students' working status was measured using an item adapted from the 2011 UK census (Office of National Statistics (ONS), 2011) beginning "Over the past month, were you (tick all that apply include any paid work, including casual or temporary work, even if only for one hour)". Respondents who ticked "working as an employee", "on a government sponsored training scheme", "self-employed or freelance", "working paid

(or unpaid) for your own or your family's business", "doing any other kind of paid work", or "away from work ill, on holiday or temporarily laid off" were classified as working. All those who responded they had been away from work ill, on holiday or temporarily laid off in the past month also ticked a further category of work activity. Respondents who ticked "on maternity or paternity leave" or "none of the above" were classified as not working. Only two individuals reported being on maternity or paternity leave.

Family roles

Questions on unpaid care and children were informed by the 2011 UK census (ONS, 2011). The presence of children in the household was measured using the question "Do you have children 18 years or younger living in the same household (for at least three days a week)?" This reflects the treatment of children with parents who live apart in the UK census as being included in the household where they spend the majority of their time. Individuals were classified as being an unpaid carer based on their response to a question on how many hours per week, on average, they spent on the provision of unpaid help and support to others due to long-term disability or mental ill-health or problems related to old age. For the purpose of the multivariate analysis, the four-category variable (none; yes, 1–19 hr a week; yes, 20–49 hr a week; yes, 50+ hr a week) was collapsed into a binary variable (yes, unpaid carer; no, not an unpaid carer). Partnership role was a binary (yes/no) variable created in response to the question "Are you currently married, in a civil partnership or cohabiting with a partner?".

Role conflict

Work-study conflict and family-study conflict were measured using adapted questions

from Netemeyer et al.'s (1996) measures of work-family conflict (whereby work responsibilities interfere with the fulfilment of family responsibilities) and family-work conflict (whereby family responsibilities interfere with the fulfilment of work responsibilities). For example, the item "Thing I want to do at home do not get done because of the demands my job puts on me" in Netermeyer's et al.'s (1996) work-family conflict scale was adapted to "Things I want to get done with studying do not get done because of the demands my job puts on me". Each scale was formed of five questions with 5-point Likert scale responses (plus *not applicable*) ranging from 1 = *strongly disagree* to 5 = *strongly agree*. In order to create the summary scores, the mean of the response scores for the five items on each scale was used. Higher scores on the conflict measures indicate greater perceived conflict. The Cronbach alpha for the work-study conflict scale was 0.93. The Cronbach alpha for the family-study conflict scale was 0.91. Both Cronbach alpha scores indicate high internal consistency for these scales with this specific sample.

Role facilitation

Work-study facilitation and family-study facilitation was measured using adapted questions from Grzywacz and Marks' (2000) measure of positive spillover from work to family. For example, the item "Having a good day on your job makes you a better companion when you get home" on Grzywacz and Marks' measure was adapted to "My involvement with work puts me in a good mood and this helps me study" and "Spending time with my family puts me in a good mood and this helps me study". Each scale was formed of five questions with 5-point Likert scale responses (plus *not applicable*) ranging from 1 = *never* to 5 = *always*. The mean score on each five-item scale was used. Higher scores on the facilitation measure indicate greater perceived

facilitation. The Cronbach alpha for the work-study facilitation scale was 0.89. The Cronbach alpha for the family-study facilitation scale was 0.81. Both Cronbach alpha scores indicate high internal consistency for these scales with this specific sample.

Mental distress

Mental distress was measured using the DASS-21 (Lovibond & Lovibond, 1995), a standardized self-reported assessment of symptoms of depression, anxiety, and levels of stress. The DASS-21 consists of three subscales formed of seven items each with a 4-point scale which describes how frequently respondents experienced depression, anxiety, or stress in the week preceding the survey (0 = *Did not apply to me at all* to 3 = *Applied to me very much*). As recommended for the DASS, items on the same subscale were summed to produce a total score, with higher scores indicating greater levels of distress. The DASS-21 is a shortened version of the DASS-42 scale, which is formed of 42 items. We multiplied the DASS-21 scores obtained from our study so that they are comparable for those calculated using the DASS-42 scales as advised by Antony et al. (1998).

Data analysis

The overall response rate for the online questionnaire was 24.2% ($n = 348$). Chi-square tests and t tests were conducted to explore whether there were statistically significant differences ($p < 0.05$) between eligible participants who responded to the survey and those who did not respond with regards to their sex, age, White/Non-White status, and educational attainment at registration for university study. Response likelihood significantly differed for two of the four variables examined, specifically, sex and age,

with females and those in the older age categories (34–39 years, 40+ years) being more likely to respond. Nonresponse weights, based on sex and age, were therefore calculated for use in the descriptive analyses of mental distress.

Among the 348 respondents, there was missing data for 2.3% ($n = 8$) students with regards to their ethnicity and 6.6% ($n = 23$) for prior educational attainment. Those with missing data were excluded from the analysis, as these variables could not be controlled for these students, resulting in 318 individual students (92% of those who participated in the study) being included in the final analyses.

Descriptive statistics were calculated for the sample in terms of work and family roles, mental health, and sociodemographics. The DASS-21 has recommended cutoff scores for various severity levels (normal, mild, moderate, severe, extremely severe), and these are presented as part of the descriptive statistics. Multinomial regression was used to analyze first the relationships between students' levels of mental distress and students' work and family roles (in terms of partnership status, children present in the household and unpaid caring responsibilities). In this first step, we analyzed the relationships between students' work and family roles and depression (model 1), the relationships between students' work and family roles and anxiety (model 2) and the relationships between students' work and family roles and stress (model 3).

Secondly multinomial regression was also used to analyze the relationships between students' levels of mental distress and perceive work-study conflict and work-study facilitation. In this second step, the sample was restricted to those reporting a work role, and we analysed the relationships between work-study conflict and work-study facilitation and depression (model 4), work-study conflict and work-study

facilitation and anxiety (model 5) and work-study conflict and work-study facilitation and stress (model 6).

Lastly, multinomial regression was used to analyse the relationships between students' levels of mental distress and perceived family-study conflict and family-study facilitation. In the final step, the sample was restricted to those reporting a parent, partner and/or carer role, and we analysed the relationships family-study conflict and family-study facilitation and depression (model 7), family-study conflict and family-study facilitation and anxiety (model 8) and family-study conflict and family-study facilitation and stress (model 9).

Ordinal regression is typically used where the outcome variable is ordinal (categories have a meaningful order). However, in this study, multinomial regression was performed due to the violation of the assumption of the proportional odds in some models when conducting ordinal regression in the first instance. Due to small cell sizes, for the purpose of this analysis, the five severity categories for the three DASS-21 subscales (depression, anxiety, and stress) were collapsed to create three category variables (normal, mild, or moderate/severe/extremely severe—the last category referred to for brevity from this point on as high). . All models included covariates for age category, educational attainment at registration at university, ethnicity, and sex. Data are presented as relative risk ratios (RRR). All statistical analyses were conducted using Stata software version 14 (<https://www.stata.com/stata14/>).

Results

Descriptive statistics

Table 1 presents the characteristics of the sample. The majority (89.3%) were working in the 4 weeks preceding the survey, 67.3% were currently married, in a civil partnership, or cohabiting, while 52.5% had a child (or children) aged 18 years or younger living in the same household, for at least 3 days per week. 32.7% reported unpaid caring responsibilities, with 12.6% reporting, on average, performing 20 hr or more of unpaid care work per week.

INSERT TABLE 1 HERE

The weighted mean scores for each of the DASS-21 subscales were between the normal and mild severity range (Table 2). The table also presents a breakdown of the severity of symptoms for each of the three subscales using recommended cutoffs. Almost two-thirds were in the normal range for all three subscales. 11.5% were classified in the moderate range for depression, with the corresponding figure for anxiety and stress being 16% and 14.6% respectively. 15.2% of the sample were classified in the severe or extremely severe range for depression, with the corresponding figures for anxiety and stress being 16.0% and 14.6% respectively. ***INSERT TABLE 2 HERE***

Regression results

The multinomial models reporting the adjusted relationship between work and family roles and depression, anxiety, and stress are shown in Table 3 (i.e., models 1 to 3). The reporting of being an unpaid carer was significantly associated with mental distress in terms of severity of depression (model 1), anxiety (model 2), and stress (model 3). Relative to reporting symptoms classified as ‘normal severity’, respondents who reported unpaid caring responsibilities were at increased risk of reporting mild

symptoms for depression (RRR 2.12; 95% Confidence Interval (CI) 1.01–4.43) or stress (RRR 2.87; 95% CI 1.34–6.16) and “high” (i.e., moderate/severe/extremely severe) symptoms on all three DASS-21 subscales (depression RRR 2.14; 95% CI 1.24–3.75, anxiety RRR 1.87; 95% CI 1.10–3.18, stress RRR 1.79; 95% CI 1.02–3.14). In terms of anxiety, relative to reporting symptoms classified as normal severity, those reporting living with children were at an increased risk of reporting mild symptoms (RRR 2.87; 95% CI 1.10–7.50). Those reporting paid work in the 4 weeks preceding the survey were significantly at lower risk of reporting high symptoms of anxiety (RRR 0.40; 95% CI 0.18–0.87).

INSERT TABLE 3 HERE

The multinomial models showing the adjusted relationship between work-study conflict and facilitation and family-study conflict and facilitation are shown in Table 4. In the first step, the sample was restricted to those reporting working in the 4 weeks preceding the survey. Higher work-study conflict scores were significantly associated with higher distress in terms of symptoms of anxiety and stress levels. A unit increase in work-study conflict score increased the risk of reporting high symptoms (relative to normal levels) on the anxiety (RRR 1.46; 95% CI 1.08–1.97) and stress (RRR 1.38; 95% CI 1.01–1.88) subscales. In contrast, higher scores on the work-study facilitation scale reduced the risk of reporting high symptoms on the depression (RRR 0.49; 95% CI 0.34–0.71) and stress (RRR 0.56; 95% CI 0.38–0.80) subscales. In the final stage, the analysis was restricted to those reporting a family role (partnership, living with child, or unpaid caring). An increase in family-study conflict score was significantly associated with an increased risk of reporting high scores (relative to normal symptoms) on the depression (RRR 2.08; 95% 1.48–2.90), anxiety (RRR 1.67; 95% CI 1.26–2.22)

and stress (RRR 2.19; 95% CI 1.58–3.03) subscales. An increase in family-study facilitation scores was associated with a decreased risk of reporting high scores on the depression (RRR 0.51; 95% CI 0.32–0.80) and stress (RRR 0.56; 95% CI 0.36–0.88) subscales.

INSERT TABLE 4 HERE

Discussion

This study examined the association between distance education students' work and family roles and mental health, as well as the association between perceived role conflict (in the direction of both work to study and family to study) and role facilitation (in the direction of both work to study and family to study) with mental health.

Respondents had mean scores on the three DASS-21 subscales falling between the normal and mild severity range. This is higher than mean scores for the general UK population, which research have found to fall in the normal range (Henry & Crawford, 2005) indicating higher distress of our student group. The DASS-21 results of the current study are consistent and comparable to a previous study conducted at The Open University among final-year law students (Jones et al., 2019), whereby the law students mean scores also suggested elevated mental distress, highlighting that mental health of distance education students may be similar across disciplines. This could represent an important opportunity to create cross-faculty and university-wide mental health support regardless of the specifics of an individual's course choices and demands. The international literature on university student mental distress, based on studies that used the DASS-21 or DASS-42, shows consistency in mean scores on the DASS subscales, where scores for students generally fall in the upper end of the "normal" or "mild"

severity range (e.g., Bayran & Bilgel, 2008; Larcombe et al., 2014; Osman et al. 2012; Wong et al., 2006).

Our results point to understanding students' work and family roles to better gauge risks to their mental health. In particular, those with unpaid caregiving responsibilities had greater risk of poor mental health. Those with informal caregiving responsibilities were significantly at increased risk of reporting greater issues across the three DASS-21 subscales. Caregivers, particularly carers supporting close kin, have consistently been found to be at risk of compromised mental health (Rafnsson et al., 2017; Smith et al., 2014; Stansfeld et al., 2014). These results provide further support for the imminent need to provide targeted support and interventions to students who are caregivers. Of importance, students' work and family roles, and the combination of these, do not necessarily have negative impacts on their mental health. Those who reported working in the month preceding the survey had a lower risk of reporting higher symptoms of anxiety, but not stress or depression. This could reflect a "*healthy worker effect*" (Li & Sung, 1999) and highlights that students' multiple roles may not always have negative consequences for their health, which is reinforced by our findings that when experiencing work-study facilitation, there is a reduced risk of students reporting severe depression and stress.

Similar to research conducted with campus-based or blended learning students (Giancola et al. 2009; Park & Sprung, 2013), our study found a significant association between inter-role conflict and facilitation and mental distress. Increases in reported conflict caused by work to studying was associated with an increased risk of reporting higher levels of anxiety and stress, while family-study conflict increased the risk of reporting high symptoms on all three DASS-21 subscales, suggesting that

noncompatibility between roles may cause perceived strain or be resource-depleting (Hobfoll, 1989). Our study provides useful findings indicating that inter-role facilitation in the direction of the family or work to studying was associated with a lower risk of reporting more severe levels of depression and stress. This suggests that the combination of roles under certain conditions has the potential to be resource-enhancing and there are further avenues to explore the mechanisms by which facilitation occurs as well as how universities can better support role facilitation. Role facilitation has been underinvestigated in place of role conflict, and strategies to enhance role facilitation is comparatively overlooked by universities. Universities and future research need to further investigate the antecedents of role facilitation in distance education students.

Considering the practical implications of this study, the results demonstrate the importance of universities recognizing the wider context of students' lives to understand their study experience, and the need to provide support to students with the experience of combining studying with their multiple other roles. Giancola et al.'s (2009) quantitative analyses of the relationship between work, family and school stressors and student mental distress, and the possible mediation of cognitive evaluation and coping ,highlight the importance of students' appraisal (negative or positive) of their experiences as well as adaptive and maladaptive coping styles. The importance of students' perceptions and appraisals has also been found by McNall and Michel (2011)'s quantitative analysis of students' core self-evaluations (e.g., self-esteem, locus of control, and self-efficacy) and reported work-school conflict and enrichment. McNall and Michel suggested universities could deliver workshops that focus on building self-efficacy and self-control, while Park and Sprung (2013) as well as McNall and Michel suggested training in areas such as time management may be beneficial for students.

These interventions could also be applicable to distance education students experiencing multiple role demands and could be delivered in an online context. Giancola et al. have recommended that universities provide further opportunities for the integration of families into university life, for example, with the provision of on-site childcare services and the inclusion of families in orientation events. While the first suggestion of childcare services is unlikely to benefit many distance learning students who do not reside near to their university campus, the invitation of family members to special events, such as inductions, may facilitate family members' understanding of the demands of tertiary studies.

Strengths and limitations

A key strength of the study was the use of a standardized measure of mental distress (i.e., the DASS-21), which is an internationally validated measure (Lovibond & Lovibond, 1995; Antony et al., 1998). Studies in this field of research rarely report their response rate (e.g., Larcombe et al., 2014; Osman et al., 2012; Shamsuddin et al., 2013); however, we have provided this information. Furthermore, our response rate of 24.2% is broadly comparable to that in Wong et al.'s (2006) study (i.e., 27.5%), which was conducted among undergraduate students in Hong Kong. The study has limitations including the use of a cross-sectional design. In order to explore the direction of relationships, longitudinal research should endeavour to measure students' mental well-being from entry into their program through to graduation. Second, the sample was homogeneous, being predominantly made up of older females and those reporting White ethnicity. While to some degree, this reflects the demographics of distance education students and the modules the respondents were enrolled in, it will affect generalizability to other disciplines where student demographics differ (e.g., modules

where most students are male). The quantitative focus of this paper is a limitation to the findings. An in-depth qualitative investigation could have explored students' perceived impact of the combination of their multiple roles on their mental health and levels of mental distress.

Conclusion and recommendations

This study provides new insights into the work-family-school interface by focusing on a distance education context. Our findings demonstrate the relevance of students' informal caring responsibilities on their mental health, and we would recommend that future research on student retention, attrition, and well-being seeks to include items that measure the caring burden that students may face. Equally, we advise universities to ensure that they are aware of the caring responsibilities students undertake, should students wish to share this data with the university. In response, universities should seek to ensure that student support strategies are appropriate and targeted for this group of vulnerable students. Students registering for degree-level distance education study are commonly motivated by the increased flexibility offered by this mode of learning, which can enable them to manage existing family and work commitments (Lane, 2012). The results of this study suggest that working or being a parent do not always have negative implications for students' mental health, but what is important is the degree of role conflict and role facilitation that students experience in the combination of their multiple roles. Yet, there has been relatively little research that considers distance education students' experiences of combining multiple roles and the implications that this could have for individual outcomes.

This work could be extended in several ways. There is now a need to design supports and interventions that help students in the distance education context to

combine and facilitate their work and family roles with studying. In the first instance, it is important to identify work, family, and study demands and resources that are antecedents to inter-role conflict and facilitation, as this will help inform intervention design. Although Butler (2007) and Creed et al. (2015) have already considered work-based demands and resources, further efforts are required to explore the resources and demands in the family domain, specifically around how these are applied to the distance education context. Notably, detailed qualitative research on the conditions and factors that underpin positive perceptions of role transfer between work and study, and between family and study domains, is now required. By better understanding successful role facilitation between distance education students' various life domains, universities will be more able to create and embed helpful strategies for students. Equally, a deeper understanding through qualitative enquiry of how role conflict is experienced by distance education students can help universities design mental health supports that enable students to identify and respond to issues relating to feelings of conflict during their studies and may normalise their experiences. Lastly, this study has highlighted that those with caregiving responsibilities are an at-risk group in terms of mental distress. Unpaid carers can face social exclusion and limited educational opportunities, and adult students who are carers within higher education are often a hidden group, and the existing services or supports are not targeted to their needs (Carers Trust, 2015). Distance education has been identified as a means of widening participation, but further research is required in relation to how institutions can further support this specific group.

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No potential conflict of interest was reported by the authors. The authors were not the modules chairs for any of the modules sampled for this research.

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Data

The data that support this study are available upon request from Dr. Philippa Waterhouse (philippa.waterhouse@open.ac.uk)

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Tables

Table 1. Sociodemographic characteristics and work and family roles of students in this study ($n = 318$).

Variable	<i>n</i>	%
<i>Worked in past month</i>		
Yes	284	89.31
No	34	10.69
Currently married, in civil partnership, or cohabiting		
Yes	214	67.30
No	104	32.70
Children aged 18 years and younger living in same household		
Yes	167	52.52
No	151	47.48
Unpaid carer		
No	215	67.61
Yes, 1–19 hr a week	63	19.81
Yes, 20–49 hr a week	16	5.03
Yes, 50+ hr a week	24	7.55
Sex		
Female	279	87.74
Male	39	12.26
Ethnicity		
White	270	84.91
Non-White	48	15.09
Highest educational attainment at time of registration to university		
Less than A levels	75	23.58
A levels or equivalent	130	40.88
Higher education attainment	113	35.53
Age (years)		
19–24	33	10.38
25–29	48	15.09
30–34	52	16.35
35–39	54	16.98
40+	131	41.19

Table 2. Severity of depression, anxiety, and stress (DASS-21) among students ($n = 318$).

DASS-21 subscale			
Severity	Depression	Anxiety	Stress
Normal	60.83	60.54	60.83
Mild	12.51	8.93	12.41
Moderate	11.45	14.57	12.22
Severe	5.64	5.60	9.38
Extremely severe	9.57	10.36	5.16
Mean (L.SE)	9.73 (0.59) ^a	7.20 (0.48) ^b	14.08 (0.58) ^c

Note. Weighted percentages for this study based on 318 cases. L.SE: Linearized standard error.

^aDepression: 0–9 scores indicate normal range, 10–13 mild, 14–20 moderate, 21–27 severe, 28+ extremely severe. ^bAnxiety: 0–7 scores indicate normal range, 8–9 mild, 10–14 moderate, 15–19 severe, 20+ extremely severe. ^cStress: 0–14 scores indicate normal range, 15–18 mild, 19–25 moderate, 26–33 severe, 34+ extremely severe.

Table 3. Relative risk ratios for the relationships between work and family roles and DASS-21 subscales.

Severity	Model 1 (depression)			Model 2 (anxiety)			Model 3 (stress)		
	RRR	95% CI		RRR	95% CI		RRR	95% CI	
Normal (Ref)									
Mild									
Working									
No (Ref)									
Yes	1.91	0.42	8.75	0.74	0.19	2.90	2.33	0.48	11.21
Unpaid carer									
No (Ref)									
Yes	2.12*	1.01	4.43	1.26	0.53	2.99	2.87*	1.34	6.16
Children									
No (Ref)									
Yes	0.81	0.38	1.75	2.87*	1.10	7.50	2.10	0.93	4.723
Partnership									
No (Ref)									
Yes	0.99	0.44	2.22	0.86	0.35	2.09	1.24	0.53	2.89
'High'									
Working									
No (Ref)									
Yes	0.58	0.26	1.29	0.40*	0.18	0.87	0.60	0.27	1.33
Unpaid carer									
No (Ref)									
Yes	2.14*	1.24	3.75	1.87*	1.10	3.18	1.79*	1.02	3.14
Children									
No (Ref)									
Yes	1.09	0.61	1.94	0.87	0.50	1.49	1.12	0.63	1.98
Partnership									
No (Ref)									
Yes	0.65	0.37	1.15	0.85	0.49	1.47	0.59	0.33	1.04

Note. Models also include age group, White/Non-White, educational attainment at registration to the university, and sex. Severity ranges: normal (reference category), mild and higher (consisting of moderate, severe and extremely severe categories). Working defined in response to paid, including temporary and casual work, engaged in the 4 weeks preceding the survey. Partnership role defined as being married, in a civil partnership, or cohabiting with a partner. Presence of children in the household as indicated in response to the question “Do you have children aged 18 years or younger living in the

same household (for at least three days a week)?” Unpaid carer defined as spending on average more than 1 hr a week on the provision of unpaid help and support to others due to long-term disability or mental ill-health or problems related to old age. RRR: relative risk ratios.

CI: Confidence interval Ref: Reference group category

Bold denotes significant at the 1 or 5% level; *denotes $p < 0.05$; **denotes $p < 0.01$

Table 4. Relative risk ratios for the relationships between work/family-study conflict and facilitation and DASS-21 subscales.

Severity	Model 4 (depression)			Model 5 (anxiety)			Model 6 (stress)		
	RRR	95% CI		RRR	95% CI		RRR	95% CI	
Normal (Ref)									
Mild									
Work-study conflict	1.15	0.78	1.70	1.76*	1.11	2.81	1.14	0.78	1.67
Work-study facilitation	1.05	0.64	1.71	0.93	0.54	1.59	0.90	0.55	1.45
Higher									
Work-study conflict	1.35	0.99	1.85	1.46*	1.08	1.97	1.38*	1.01	1.88
Work-study facilitation	0.49**	0.34	0.71	0.75	0.53	1.06	0.56*	0.38	0.80
Severity	Model 7 (depression)			Model 8 (anxiety)			Model 9 (stress)		
	RRR	95% CI		RRR	95% CI		RRR	95% CI	
Normal (Ref)									
Mild									
Family-study conflict	1.04	0.74	1.48	2.24*	1.36	3.69	1.47	0.97	2.18
Family study facilitation	1.01	0.56	1.82	0.98	0.50	1.91	0.68	0.38	1.22
High									
Family-study conflict	2.08**	1.48	2.90	1.67**	1.26	2.22	2.19**	1.58	3.03
Family study facilitation	0.51*	0.32	0.80	0.67	0.44	1.02	0.56*	0.35	0.88

Note. Models also include age group, White/Non-White, educational attainment at registration to the university, and sex. Severity ranges: normal (reference category), mild and ‘higher’ (consisting of moderate, severe and extremely severe categories). Working defined in response to paid, including temporary and casual work, engaged in the 4 weeks preceding the survey. Partnership role defined as being married, in a civil partnership or cohabiting with a partner. Presence of children in the household as indicated in response to the question “Do you have children aged 18 years or younger living in the same household (for at least three days a week)?” Unpaid carer defined as spending on average more than 1 hr

a week on the provision of unpaid help and support to others due to long-term disability or mental ill-health or problems related to old age. Bold denotes significant at the 1 or 5% level; * denotes $p < 0.05$; **

denotes $p < 0.01$ RRR: Relative Risk Ratio

CI: Confidence Interval

Ref: Reference group category