Midwives in the United Kingdom: Levels of burnout, depression, anxiety and stress and associated predictors

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ABSTRACT

Objective: The overall study aim was to explore the relationship between the emotional wellbeing of UK midwives and their work environment. Specific research questions were to: assess levels of burnout, depression, anxiety and stress experienced by UK midwives; compare levels of burnout, depression, anxiety and stress identified in this sample of UK midwives, with levels reported in Australia, New Zealand and Sweden; identify demographic and work-related factors associated with elevated levels of burnout, depression, anxiety and stress.

Design: Cross sectional research design using an online survey. The WHELM survey tool was developed within the Australian maternity context and includes a number of validated measures: The Copenhagen Burnout Inventory (CBI), Depression, Anxiety and Stress Scale (DASS-21), as well as items from the Royal College of Midwives 'Why Midwives Leave' study (Ball et al., 2002).

Setting: United Kingdom

Participants: An on-line survey was distributed via the RCM to all full midwife members in 2017 (n= 31,898).

Data Analysis: The demographic and work-related characteristics of the sample were analysed using descriptive analyses. Levels of depression, anxiety, stress and burnout, measured by the CBI and DASS scores, were analysed using non-parametric statistical tests. Comparisons were made between groups based on demographic and work characteristics. Mann-Whitney U tests were used for two group comparisons, and Kruskal Wallis tests were used for groups with 2+ groups. Given the large number of analyses undertaken, statistically significant comparisons were identified with a conservative alpha level ($p<.01$).

Findings: A total of 1997 midwives responded to the survey, representing 16% of the RCM membership. The key results indicate that the UK's midwifery workforce is experiencing significant levels of emotional distress. 83% (n = 1464) of participants scored moderate and above for personal burnout and 67% (n = 1167) recorded moderate and above for work-related burnout. Client-related burnout was low at 15.5% (n = 268). Over one third of participants scored in the moderate/severe/extreme range for stress (36.7%), anxiety (38%) and depression (33%). Personal and work-related burnout scores, and stress, anxiety and depression scores were well above results from other countries in which the WHELM study has been conducted to date. Midwives were more likely to record high levels of burnout, depression, anxiety and stress if they were aged 40 and below; reported having a disability; had less than 10 years' experience; worked in a clinical midwifery setting, particularly if they worked in rotation in hospital and in integrated hospital/community settings.

Key conclusions and implications for practice:

Many UK midwives are experiencing high levels of stress, burnout, anxiety and depression, which should be of serious concern to the profession and its leaders. NHS employed clinical midwives are at much greater risk of emotional distress than others surveyed, which has serious implications for the delivery of high quality, safe maternity care. It is also of serious concern that younger, more recently qualified midwives recorded some of the highest burnout, stress, anxiety and depression scores, as did midwives who self-reported a disability.

There is considerable scope for change across the service. Proactive support needs to be offered to younger, recently qualified midwives and midwives with a disability to help sustain their emotional wellbeing. The profession needs to lobby for systems level changes in how UK maternity care is resourced and provided. Making this happen will require support and commitment from a range of relevant stakeholders, at regional and national levels.

HIGHLIGHTS

- UK midwives are experiencing high levels of work-related and personal burnout

- One-third of participants scored moderate and above for depression, anxiety, stress
- Younger, more recently qualified midwives scored highest in the personal and work related burnout scores and are in need of support.

KEYWORDS

midwives; emotional wellbeing; burnout; depression; stress; workplace

Midwives in the United Kingdom: Levels of burnout, depression, anxiety and stress and associated predictors

INTRODUCTION

Supporting the emotional wellbeing of midwives is important not only for ensuring childbearing women receive quality care but also for retaining a healthy and motivated workforce (Royal College of Midwives RCM, 2016a). This applies not only to midwifery in the United Kingdom (UK), but also to midwifery globally (Filby et al., 2016).

A wealth of evidence demonstrates that midwifery work is emotionally demanding (Catling et al., 2016; Mollart et al, 2013; Pezaro et al., 2015; Yoshida and Sandall, 2013). Even straightforward pregnancies and childbirth can create anxiety for women and their families, who will look to midwives for support. This requires that midwives undertake considerable 'emotion work', which often goes unacknowledged (Hunter, 2010). If there are childbirth complications and negative outcomes for women, then midwives' emotion work will increase and they may even be at risk of vicarious secondary trauma (Leinweber and Rowe, 2010; Rice and Warland, 2013). In addition, a range of organisational and professional factors have been identified which may create workplace challenges for midwives and thus compromise their emotional wellbeing. These factors have been described in a recent review of the literature as modifiable and non-modifiable (Cramer and Hunter, 2018) and include excessive workload, staff shortages, shift working, bullying and poor quality managerial support (Ball et al., 2002, Mollart et al., 2013; RCM, 2016a, 2016b).

As a result there is an increasing body of evidence that suggests many midwives are suffering from burnout, depression, anxiety and stress (Creedy et al., 2017; Dixon et al., 2017; Henriksen and Lukasse, 2016; Hildingsson et al., 2013; Jepsen et al., 2017; Pezaro et al., 2015). There is a strong association between reported high levels of emotional distress and intention to leave the nursing and midwifery professions in both high and low income countries (Harvie et al., 2019; Heinen et al., 2013; Perry et al., 2017; Rouleau et al., 2012; Rudman et al., 2014; Stoll and Gallagher, 2018). In order to develop strategies that promote wellbeing it is imperative that we gain a greater understanding of the prevalence and associated factors of emotional distress within the midwifery workforce.

In the UK, there has been recent strong interest in the wellbeing of the midwifery workforce. This led to the development of the RCM's 'Caring for You' campaign which ran in 2016-2017, with the intention of improving members' health, safety and wellbeing at work so they could provide high quality maternity care for women and their families. (See campaign overview https://www.rcm.org.uk/sites/default/files/Caring%20for%20You%20-%20A3%20Charter%20Poster_4.pdf). NHS Trusts and Health Boards were invited to sign the 'Caring For You Charter' and commit to providing a positive work environment for the midwifery workforce (RCM 2016a).

As a result of its ongoing concern about workforce wellbeing, the RCM commissioned this study to enhance the existing knowledge generated by its membership surveys (e.g. RCM, 2016b), through the collection of empirical data using robust scientific methods and validated tools.

AIM

The overall aim of the study was to explore the relationship between the emotional wellbeing of midwives and the work environment within the UK context of maternity care.

The research questions were to:

a) Assess levels of burnout, depression, anxiety and stress experienced by UK midwives
b) Compare levels of burnout, depression, anxiety and stress identified in this sample of UK midwives, with levels reported in Australia, New Zealand and Sweden
c) Identify demographic and work-related factors associated with elevated levels of burnout, depression, anxiety and stress.

METHODS

This exploratory descriptive study used a cross sectional design which replicated the international Work, Health and Emotional Lives of Midwives (WHELM) survey developed at Griffith University, Australia (Creedy et al., 2017; Pallant et al., 2015; Pallant et al., 2016). A survey methodology was selected as it enabled description and exploration of the constructs and variables of interest, with a large sample representative of the population under investigation (Bowling, 2002). The survey included questions about personal and work-

related characteristics, and a number of well validated measures relating to emotional wellbeing (Copenhagen Burnout Inventory CBI and Depression, Anxiety and Stress Scale DASS-21). In addition, items from the RCM 'Why Midwives Leave' study (Ball et al., 2002) were included, with opportunities for free-text responses. For additional details of the study design and methods, please refer to the full report (Hunter et al, 2017).

Sample and recruitment

The target population was all registered midwives working in the UK, in any professional role or location. The aim of this study was to describe the levels of burnout, anxiety, depression and stress of the midwives in our sample, not to formally test a priori hypotheses. Therefore, no sample size calculation was conducted.

Recruitment was via the RCM, as the majority of midwives in the UK (estimated to be 90%) are RCM members. All midwife members were invited to participate via personal e-mail directly from the RCM. Wider publicity was also undertaken via the RCM website, social media, and the RCM's professional journal. The RCM was reponsible for all contact with participants, and the study team were blinded to the participants' identities.

The personal e-mail outlined the study aims and objectives, and provided the project manager's contact details should any clarification be needed. The e-mail included a live link to the online platform hosting the survey, and completing the survey implied consent. E-mail reminders were sent at 2 and 5 weeks.

Ethical approval was granted by X University School of Healthcare Sciences Research Ethics on 20th April 2017.

Data collection

As the original WHELM survey was conducted in Australia, some questions were adapted where necessary fro the UK context. No changes were made to the validated tools used in this study (CBI and DASS), however modifications were made to some of the demographic and work related questions to ensure that the survey was applicable to the UK context.

More detailed demographic questions were added to comply with the UK best practice, based on protected characteristics in the Equality Act 2010 - including gender identity, sexuality, ethnicity and disability. Region names (England South and Midlands, North England, Scotland, Wales, Northern Ireland) were included and sizes of towns/cities to denote urbanity or rurality were changed to suit UK town/city sizes. Qualification names, organisational structures and job titles/roles were adapted to the UK context. Questions were added related to work practices, including shift patterns, being on call, rostering and time off allocation. Options in the "reasons for considering leaving" questions were updated to include options from the "Why Midwives Leave" findings (RCM, 2016b).

Following these adaptations, the survey was pilot tested with 14 midwives who were asked to check for clarity, relevance and answerability. Further minor changes were made to further clarify some terms. Data were collected over eight weeks between May to July 2017.

During the early period of data collection (12 May 2017), a cyber-attack occurred which affected the NHS. Consequently, approximately 125 incomplete questionnaires could be attributed to the cyber-attack. The decision was made to include the content of any incomplete responses in the data if at least the full set of quantitative scales had been completed.

Data collection tools

Copenhagen Burnout Inventory (CBI)

The CBI was developed by Kristensen et al., (2005) and has been well validated in a number of different health professional groups including midwifery (Borritz et al., 2006; Creedy et al., 2017; Dawson et al., 2018; Dixon et al., 2017; Henriksen and Lukasse 2016; Hildingsson et al., 2013; Jordan et al., 2013; Newton et al., 2014; Winwood and Winefield 2004). The CBI has three burnout domains or subscales: personal, work-related, client-related (Kristensen et al., 2005). Creedy et al. (2017) argue that together these represent physical and emotional exhaustion according to source and causality. The personal domain consists of 6 items for example '*How often do you feel tired*?' and '*How often do you think: "I can't take it anymore"*? The work-related domain has 7 items which include items such as '*Does your work frustrate*

you?' and '*Is your work emotionally exhausting*'. The third domain has 6 items that target the clinician's relationship with the client. In the context of midwifery an example would be '*Do you find it hard to work with women (i.e. clients)?*' and '*Does it drain your energy to work with women (i.e. clients)?*'

All items use a 5-point scale with scores being adjusted so that the possible scores for all three domains range from 0 (low burnout) to 100 (severe burnout). A score of 50-74 is considered to represent moderate burnout while a score of 75 – 99 represents a high level of burnout. A score of 100 represents severe burnout. The internal consistency reliability of the CBI scales was assessed in this sample using Cronbach alpha. All values were above .84, indicating good reliability.

Depression, Anxiety and Stress Scale (DASS-21)

Developed by Lovibund and Lovibund (1995), the DASS has been used extensively and is reliable and well validated (Crawford and Henry, 2003). Each of the three subscales have 7 items. Examples include; *I felt down-hearted and blue (*depression); *I was aware of dryness of my mouth* (anxiety); and *I found myself getting agitated* (stress). Participants use a 4 point rating (0 'Never', 1 'Sometimes', 2 'Often', 3 'Almost always') to respond to the items. Scores are added together and classified into a number of clinical categories (normal, mild, moderate, severe, and extremely severe). The cut off scores are slightly different for each subscale. A score of 7 and above indicates depression; a score of 6 and above indicates anxiety and a score of 10 and above indicates stress. The internal consistency reliability of the three DASS scales in this sample was good, with all Cronbach alpha values exceeding 0.87.

Data Analysis

Statistical analysis

The demographic and work-related characteristics of the sample were analysed using descriptive analyses. Levels of depression, anxiety, stress and burnout, measured by the CBI and DASS scores, were analysed using non-parametric statistical tests. Comparisons were made between groups based on demographic and work characteristics. Some categories were collapsed or excluded to ensure sufficient cases for statistical comparison. The results tables report only variables with sufficient numbers. Mann-Whitney U tests were used for two group

comparisons, and Kruskal Wallis tests were used for groups with 2+ groups. Given the large number of analyses undertaken, statistically significant comparisons were identified with a conservative alpha level ($p<.01$).

RESULTS

Demographic data

A total of 1,997 midwives responded to the survey, representing 16% of the RCM's full membership at the time of data collection. The majority were female (n = 1981, 99.4%), reflecting the gender profile of UK midwifery (NMC, 2017), with a median age of 47 years (range 21 to 67 years). Seventy four percent (n=1477) stated that they had children, and nearly 84% (n=1615) had 'carer' responsibilities. Twelve and a half percent (n=249) of respondents identified as having a disability. The majority of participants (n=1639, 82.9%) worked in England. Table 1 provides additional demographic details.

In terms of qualifications and work characteristics, nearly 57% of participants (n=1128) had undertaken an initial undergraduate midwifery qualification (see Table 2 for details of the work-related characteristics of the cohort). Years of experience ranged from less than one year to 55 years, with a median of 15.1. The majority of respondents (92%) worked in clinical midwifery, with only 8.3% (n=315) working in a non-clinical role such as education, research, management, policy/administration.

Most participants (over 88%, n=1765) worked in the NHS. The majority (66.6%, n=1311) were based in a district general hospital or tertiary referral unit, with 9.6% of participants working in a Standalone or Alongside Birth Centre (n=189). Twenty percent of participants (n=390) worked solely in a community-based primary health care setting. Only 4% worked in the University sector (n=79) and less than one percent of the sample (n=11) worked in private/independent practice. The other 7% (n= 42) worked in a variety of employment situations, e.g. agency/bank work or a combination of roles (see table 2).

Just over a third of the sample (36%, n=719) were required to provide regular "on call" cover. In most cases, midwives were on call for general organisational/community cover. A minority (n = 63, 3.2%) indicated that they provided on call cover for a defined caseload of women. Of these, only 2.1% (n=43) worked in a full continuity model as defined by the survey (that is, as the "*designated named midwife to a defined caseload of women providing care across the childbirth continuum (pregnancy, labour and birth and transition to early parenting*)"; the other 20 midwives provided only antenatal and postnatal care for a defined caseload of women, described in the survey as a 'modified' continuity model.

Levels of burnout, depression, anxiety and stress

Burnout

Midwives' levels of personal and work-related burnout were moderate to high (Table 3). The mean score for personal burnout was 65.54, while the work-related mean score was 56.15 (a mean score over 50 is considered to represent burnout). In this study 44.1% of midwives (n=780 / 1769) reported moderate levels of personal burnout (scores 50 to 74), while another 33.1% (n=585) reported high levels (scores 75 to 99). There were 5.6% (n=99) midwives who scored 100 or above. In total, 83% (n=1464) of midwives scored moderate or above on the personal burnout domain. In terms of work-related burnout, 48.4% (n=838/1773) of midwives recorded moderate levels, while 18% (n=312) had high levels. One percent (n=17) had severe work-related burnout. In total 67% (n=1167) midwives registered moderate or above levels of work-related burnout.

In contrast, client-related burnout was low, with a mean score of 25.36. Of the 1730 midwives completing this scale, 84.5% (n=1462) had a score of less than 50. Of the remaining participants 12.3% (n=213), had a moderate level of client burnout, 2.4% (n=41) had high levels and less than one percent were noted to have severe client related burnout (n=14, 0.8%).

Depression, anxiety and stress

The DASS subscale scores were high, with approximately a third of the sample recording scores within the moderate/severe/extreme levels (DASS Depression 32.9%; DASS Anxiety

38%; DASS Stress 36.8%), see Table 3. There were strong, statistically significant correlations between the CBI Personal and CBI Work subscales and each of the DASS subscales (See Table 4), with all Spearman correlation coefficients exceeding rho=.6. Correlations between the CBI Client subscale were moderate, ranging from .32 (with DASS Anx) and .42 (with DASS Dep).

Comparison of levels of burnout, depression, anxiety and stress, with levels reported in Australia, New Zealand and Sweden

Personal and work-related burnout scores were much higher than scores from other countries in which the WHELM study has been conducted to date (See Table 7). The mean score on the CBI personal burnout scale for the UK sample was 65.54 (SD 18.63), compared with Sweden (Hildingsson et al., 2013), New Zealand (Dixon et al., 2017) and Australia (Creedy et al., 2017) which all reported mean scores less than 56. The same three countries all reported means of under 50 for work-related burnout whereas the UK was 56.15 (SD 19.38).

This UK sample also recorded higher scores on each of the three DASS scales (Stress, Anxiety and Depression) (see Table 7). A third of the UK sample recorded DASS scores in the moderate to extreme range, compared to between 12 - 17% for Depression, 8 to 21% for Anxiety and 11 to 22% for the other three comparative samples.

Factors associated with burnout, depression, anxiety and stress

A series of statistical analyses were conducted to identify demographic and work-related factors associated with elevated levels of burnout, depression, anxiety and stress (see Tables 5 and 6).

Younger midwives (those aged 40 and below) recorded significantly higher scores than older midwives on the personal and work-related burnout subscales ($p<.001$), and on each of the DASS scales ($p<.001$). Midwives who were married or cohabiting recorded lower levels of DASS Depression ($p<.001$). Those with children recorded lower Burnout-Client ($p=.001$) and anxiety scores ($p=.003$). Respondents with a self-reported disability recorded significantly ($p<.001$) higher scores on all scales, except Client-Burnout. Personal burnout scores varied across the UK countries and regions, with those midwives working in the Yorkshire, Humber

and the North East and North West of England recording the highest scores (see Table 5). Midwives with 30 or more years of experience recorded lower scores on the Burnout Personal, Burnout Work and the DASS scales ($p<.001$). There were no statistically significant differences across ethnic groups, however the sample was predominantly white, therefore the statistical power for considering differences across ethnic groups is low.

The highest burnout, stress, anxiety and depression scores ($p<.001$) were recorded for NHS employed midwives (88.6% of the sample) (Table 6). Midwives working in district general hospitals recorded high burnout ($p<.001$) and anxiety scores ($p<.001$), as did midwives who worked night shifts ($p<.001$). Working in a large town (but not a city) was linked to higher work-related burnout ($p=.002$) and anxiety scores ($p=.003$).

The principal role of the midwife had an impact on burnout and anxiety scores (Table 6). Clinical midwives working in hospital or community settings recorded high levels across all burnout scales ($p<.001$), particularly those working in rotation throughout the hospital and those working in integrated hospital/community settings. In contrast, midwives working in non-clinical roles such as education or management recorded much lower burnout and anxiety levels ($p<.001$).

DISCUSSION

This study has provided important insights into the emotional wellbeing of the UK midwifery workforce. In particular it has enabled us to:

a. Assess levels of burnout, depression, anxiety and stress experienced by UK midwives
b. Compare levels of burnout, depression, anxiety and stress identified in this sample of UK midwives, with levels reported in Australia, New Zealand and Sweden
c. Identify demographic and work-related factors associated with elevated levels of burnout, depression, anxiety and stress.

The results indicate that the UK's midwifery workforce is experiencing significant levels of emotional distress, with over three quarters of the sample scoring moderate and above for personal burnout and two thirds having moderate and above scores for work-related burnout. Over one third of participants scored in the moderate/severe/extreme range for stress (36.7%), anxiety (38%) and depression (33%). All these scores were well above results

from other countries where the WHELM study has been conducted. A number of demographic and work related factors were associated with high levels of burnout, depression, anxiety and stress, including age, length of experience and clinical role.

The results are discussed in more detail in the following sections.

Prevalence: Levels of burnout, depression, anxiety and stress experienced by UK midwives

A total of 1997 midwives responded to the survey, representing 16% of the RCM membership. When compared with the most recent UK Nursing and Midwifery Council statistics (NMC, 2017) relating to the profile of the UK midwifery workforce, participants tended to be older, were more likely to be from a White British background and to disclose a disability. It is interesting to note that the disability rate of twelve and a half percent was over twice that of the national UK average for midwifery. NMC data (NMC, 2017) reveal that 5% of midwives disclosed a disability, however, as another 16.6% of their respondents did not answer this question, the actual situation is difficult to ascertain. It may be that the broad definition of disability used in the WHELM survey ('Do you consider yourself to have a disability, impairment, health condition or learning difference/disability?'), as compared to the NMC survey which invited only 'yes/no/prefer not to say/no answer' responses, allowed more respondents to self-report a disability.

Significant levels of emotional distress were recorded by the majority of participants. Eighty three percent (n = 1464) of participants scored moderate and above for personal burnout and 67% (n = 1167) recorded moderate and above for work-related burnout. However, client-related burnout was low at 15.5% (n = 268). Over one third of participants scored in the moderate/severe/extreme range for stress (36.7%), anxiety (38%) and depression (33%).

These high levels of emotional distress are not a surprise. Other UK studies have indicated that stressful working environments created by understaffed services and low morale are commonplace in the NHS workforce in general (Health Foundation et al., 2018) and in the midwifery workforce in particular (Draper et al., 2017; RCM, 2018). This study extends our understanding of this emotional distress by providing additional detail about how it is experienced, and who is most at risk.

The relatively low client-related burnout scores are interesting to note. In response to the CBI questions about whether participants found it hard to work with women (clients), the data suggest that for most participants this was not the case; burnout was much more likely to be associated with factors related to personal tiredness and work frustrations. The importance of the midwife-woman relationship to midwives has been identified in numerous other studies and it would be interesting to explore whether it has a preventive function in terms of burnout reduction (Crowther et al.; McAra-Couper et al., 2014).

International comparisons: International comparisons make sobering reading. Personal and work-related burnout scores were well above the results from other WHELM collaborating countries. These are all high income countries where midwives work in relatively similar contexts following similar educational preparation. UK scores for stress, anxiety and depression were double those of midwives in the WHELM collaborating countries of Australia, New Zealand and Sweden (Creedy et al., 2017; Dixon et al., 2017; Hildingsson et al., 2013). Interestingly client-related burnout was low across all the countries (Creedy et al., 2017; Dixon et al., 2017; Hildingsson et al., 2013). There is considerable scope to explore the reasons for these international differences, and their implications for recruitment and retention, in future research.

Associated demographic and work-related factors

The study has identified a number of factors associated with higher levels of burnout stress, anxiety and depresssion. The role and work setting of midwives was found to be of critical importance for emotional wellbeing, with NHS employed clinical midwives at much greater risk of burnout, stress, anxiety and depression than non-clinical midwives. This is not unexpected, as the majority of the UK midwifery workforce are clinically focused and work within the UK NHS (reflected in the sample characteristics - 92% of respondents worked clinically and 88% were NHS employed), and it is clinical midwives who are most likely to be affected by adverse working conditions. For example, the NHS staffing capacity issues and quality of care concerns noted by participants in both the quantitative and qualitative data, outlined in the summary report (Hunter at al,. 2017), have been acknowledged in recent UK media and policy reports (Draper et al., 2017; RCM, 2018). There is a chronic shortage of midwives in the UK (estimated to be a shortage of 3,500 posts in England alone, RCM, 2017), with ongoing concerns about staff retention (RCM, 2018). Inadequate staffing is not only

extremely stressful for those trying to give high quality care to women and their newborns, it also impacts on safety. The UK MBRRACE Perinatal Confidential Enquiry (Draper et al., 2017) identified 'service capacity issues' as affecting over a fifth of perinatal deaths reviewed. In over half of these situations, workforce shortages were identified as contributing to the poor outcome.

The findings also have to be considered against the backdrop of the wider UK NHS workforce. It is not only midwives who are experiencing low morale and distress, and it is probable that clinical midwives are affected by the broader context in which they are working. The recent UK joint policy think-tank report cautions that English NHS Trusts have a deficit of over 100,000 professional staff, projected to rise to 250,000 by 2030 if the trend continues (Health Foundation et al., 2018). The authors argue that the UK is at a tipping-point where workforce challenges 'now present a greater threat to health services than the funding challenges' (Health Foundation et al., 2018, p.2). The report also cautions that 'current workforce shortages are taking a significant toll on the health and wellbeing of staff' (Health Foundation et al., 2018, p.2). These cautionary points about workforce adversity and its impact on individual professionals are reflected by the findings of our study.

When considering other work characteristics, some roles appeared more likely to lead to higher stress, burnout, anxiety and depression scores. For example, high burnout and anxiety scores were recorded by midwives working in district general hospitals and by midwives working night shifts, who also scored high for stress. Both hospital and community based midwives recorded similarly high levels across all burnout scales, with those working rotationally throughout the hospital or in integrated hospital/community settings most at risk. It is likely that that in both rotational and integrated posts, midwives lack personal control over many aspects of their day-to-day work; lack of autonomy has been identified as contributing to stress in studies of other healthcare workers (Adriaenssens et al., 2015, Hildingsson et al., 2016). Rotational and integrated posts are organised to meet organisational demands, rather than the needs of the woman and her family or the personal needs of the midwife.

In relation to demographic characteristics, it is younger, recently qualified midwives who are at particular risk of emotional compromise. Midwives aged 40 and under, and those with less then 10 years experience had significantly higher scores for work /personal burnout and for all DASS scores. Other studies show similar trends (see for example Creedy et al., 2017; Hildingsson et al., 2013; Hildingsson and Fenwick, 2015; Mollart et al., 2013). As Harvie et al. (2019) and Jordan et al. (2013) propose, it is likely that newly qualified midwives will be most susceptible to experiencing a mismatch between their ideals of midwifery work: woman-centred care within a midwifery-led model, with the reality of maternity care: medically dominated and focused on institutional needs (Fenwick et al., 2012; Hunter, 2004). The new midwife-led continuity of carer schemes currently being developed across the UK may have the potential to alleviate this dissonance (NHS England, 2017a; Scottish Government, 2017). Conversely, if these policies are not actualised or sustainable, then the stress and frustration of new graduates may increase.

The importance of addressing the concerns of newly qualified midwives cannot be emphasised enough. These midwives are the future of the profession (RCM, 2016c, 2018) and thus it is crucial that they experience work as fulfilling and supportive if they are to stay in practice. Proactive support needs to be provided so that they do not burnout and leave.

It was also notable that the 12% of participants who self-reported some form of physical or mental disability were found to be at greater risk of burnout, stress, anxiety and depression. This is a substantial group, who are likely to most need support in the workplace.

It is also important to consider the participants who scored lower on all CBI and DASS Scales. These were more likely to have had longer experience as a midwife (over 30 years), and to hold a certificate of midwifery as their initial midwifery qualification (this was an initial midwifery education pathway only offered until the early 1980s). There are many possible reasons for this finding. It may be that these midwives have become accustomed (or even de-sensitised) to adverse working conditions over their careers, or that their initial education did not encourage a woman-centred, midwifery model of care, thus they do not experience the same sense of dissonance. Alternatively, it could be that the midwives who stay demonstrate stronger professional resilience which has enabled them to cope with these adversities (Hunter and Warren, 2014).

Lower depression scores were also associated with particular personal circumstances, for example if participants were married or had a partner. Lower client related burnout and anxiety scores were recorded by midwives with children. Thus, having children and being in a stable partnership appear to operate as protective factors. This is an interesting finding that is reflected in some other studies. For example, in an early study of stress and burnout in UK midwifery, Sandall (1997, 1998) found that midwives with children recorded lower levels of burnout, as did Jordan et al. (2013) in their study of Australian midwives. In some ways this is a counter-intuitive finding, however the need to focus on the everyday, pressing needs of children may encourage a healthy work-life balance in these midwives. In their study of UK midwives' resilience, Hunter and Warren (2014) found that keeping a sense of perspective on work issues and balancing work demands and home life were considered key resilient strategies.

Recommendations:

At an individual level, the results indicate that proactive support needs to be offered to younger, recently qualified midwives and midwives with a disability to help sustain their emotional wellbeing. This additional support could be provided via the new models of supervision in the four UK countries (NMC, 2018), for example the English A-EQUIP model (NHS England, 2017b).

At a meso level, Increasing midwifery autonomy, for example by removing the expectation to 'rotate' across workplace settings to meet institutional demands, may be protective against stress.

At a macro level, the profession needs to lobby for systems level changes in how UK maternity care is resourced and provided. Making this happen will require support and commitment from a range of relevant stakeholders, at regional and national level.

Strengths and Limitations

The study has some strengths and limitations. A key strength of the study is its use of well-validated tools which will facilitate further national and international comparisons. However, the sample was self-selecting, so there may be under- or over-representation of midwives

experiencing extreme dissatisfaction, severe burnout and/or depression. Data collection was disrupted when NHS internet services experienced a cyber-attack. This may have affected completion rates, as participants could not return to a saved survey once services resumed. The cross-sectional survey design also has limitations, in that it does not allow causality to be demonstrated, however, it does indicate prevalence and suggest relationships between factors for investigation in future research.

CONCLUSION

The findings of this investigation into the emotional wellbeing of UK midwives should be of serious concern to the profession and its leaders. Many UK midwives are experiencing worryingly high levels of stress, burnout, anxiety and depression, which is highly likely to be a contributory factor in the chronic midwifery shortage in the UK. This suggests a vicious circle exists, whereby midwives who feel their emotional health is at risk of serious compromise are more likely to leave the profession, thus further exacerbating the workforce shortage for those who stay in practice. How the findings reported here relate to intention to leave the profession will be explored in more detail in future papers.

It is of particular concern that NHS employed clinical midwives are at much greater risk of emotional distress than others surveyed, as this has serious implications for the delivery of high quality, safe maternity care. The association between high burnout scores and roles that lack autonomy also needs consideration. It is also of serious concern that younger, more recently qualified midwives recorded some of the highest burnout, stress, anxiety and depression scores, as did midwives who self-reported a disability.

There is considerable scope for more in-depth studies into these issues, and how they might be addressed in the short, medium and long-term.

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Table 1 Participant demographic characteristics

Characteristic	***Statistic***
Sex (n, %)	
Female	1981 (99.4%)
Male	8 (.4%)
Other	1 (.1%)
Prefer not to say	2 (.1%)
Age	
Median	47 yrs
IQR (25^{th}, 75^{th} percentile)	36, 54 yrs
Range (years)	21 – 67 yrs
Marital status (n, %)	
Single	311 (15.6%)
Married/civil partnership/cohabiting	1480 (74.3%)
Separated/divorced	180 (9%)
Widowed	21 (1.1%)
Ethnicity (n, %)	
Asian/Asian British	16 (.8%)
Black/Black British	40 (2%)
Mixed	21 (1.1%)
White British	1727 (86.6%)
White (other)	162 (8.1%)
Other	18 (.9%)
Prefer not to say	10 (.5%)
Disability (n, %)	
Yes	249 (12.5%)
No	1737 (87.5%)
Children (n, %)	
Yes	1477 (74.1%)
No	516 (25.9%)
Carer (n, %)	
Yes	310 (16.1%)
No	1615 (83.9%)
Region (n, %)	
England – London, England South, South East, South West England , West Midlands, East Midland, East of England	1248 (63.1%)
England - North East, North West, Yorkshire and the Humber	391 (19.8%)
Scotland	180 (9.1%)
Wales	107 (5.4%)
Northern Ireland	52 (2.6%)

Table 2: Participant work-related characteristics

Characteristic	Statistic
Level of qualification (n, %)	
Certificate in Midwifery	484 (24.4%)
Diploma in Midwifery	370 (18.7%)
Bachelor of Midwifery/ BSc Midwifery/ BA Midwifery	1128 (56.9%)
Years of experience	
Median	15.1 years
IQR (25th, 75th percentile)	4, 26 years
Range	Less than 1 to 55 years
Employer (n, %)	
NHS	1765 (88.6%)
Bank or agency midwifery	46 (2.3%)
Independent practice and NHS sector and/or private sectors	4 (.2%)
University sector only	55 (2.8%)
University sector and NHS and/or private sectors	41 (2.1%)
Private sector only	16 (.8%)
Both NHS and private sector	23 (1.2%)
Employed by GP practice	1 (.1%)
Independent practice	7 (.4%)
Other	34 (1.7%)
Work location (n, %)	
District general hospital	1048 (53.2%
Tertiary referral unit	263 (13.4%)
Stand-alone birth centre	104 (5.3%)
Alongside birth centre	85 (4.3%)
Community - primary care setting only	390 (19.8%)
University	79 (4.0%)
Urban/Rural (n, %)	
Capital	365 (18.3%)
City	689 (34.6%)
Large town	677 (34%)
Small town/rural	262 (13.1%)
Night shift (n, %)	
Yes	1063 (53.4%)
No	929 (46.6%)
On Call (n, %)	
Yes	719 (36.1%)
No	1272 (63.9%)
Type of on call (n, %)	
Caseload within a "Continuity of midwifery care" model (be named midwife to a defined number of women providing care during the continuum of pregnancy, birthing and the early parenting period)	43 (6.1%)
Caseload within a modified Continuity of care; model (be named midwife to a defined number of women providing care during the continuum of pregnancy, birthing and early parenting period but NOT including birthing	20 (2.8%)
Hospital cover (general, not caseload related)	160 (22.6%)
Community cover (on call for wider geographical area, not caseload related)	139 (19.7%)

Hospital and community (general, not caseload related)	229 (32.4%)
Other	116 (16.4%)
Principal role (n, %)	
Clincian (hospital)	911 (45.9%)
Specialist senior midwife NEW	67 (3.4%)
Admin/senior manager	29 (1.5%)
Education/research	114 (5.7%)
Clinician community	320 (16.1%)
Clinician integrated hospital community	135 (6.8%)
Clinician (Caseload)	73 (3.7%)
Labour ward coordinator	117 (5.9%)
Specialist practice midwife	124 (6.2%)
Clinical manager	95 (4.8%)
Clinical/ Non-clinical (n, %)	
Clinical midwife	1516 (75.9%)
Non-clinical midwife	166 (8.3%)
Both clinical and non-clinical midwife	315 (15.8%)
Type of clinical work (n, %)	
Continuity	137 (9.1%)
Modified Continuity	260 (17.2%)
Rotation Hospital Only	532 (35.3%)
Rotation Hospital Community	197 (13.1%)
Non-Labour care only	126 (8.4%)
Labour/birth only	256 (17%)
Type of non-clinical work (n, %)	
Midwifery education	69 (42.9%)
Midwifery management	31 (19.3%)
Midwifery research	17 (10.6%)
Policy/ Administration	44 (27.3%)

Table 3: Scores, cut offs and reliability of the Copenhagen Burnout Inventory and the Depression, Anxiety and Stress Scales

Measure	M (SD)	Prevalence cut-off N(%)	Cronbach alpha
CBI			
Personal N = 1769	65.54 (18.63)	No/Low (<50) = 305 (17.2%) Moderate (50-74) = 780 (44.1%) High (75 – 99.9) = 585 (33.1%) Severe (100 +) = 99 (5.6%)	.92
Work N= 1733	56.15 (19.38)	No/Low (<50) = 566 (32.7%) Moderate (50-74) = 838 (48.4%) High (75 – 99.9) = 312 (18.0) Severe (100 +) = 17 (1.0%)	.88
Client N= 1730	25.36 (21.1)	No/Low (<50) = 1462 (84.5%) Moderate (50-74) = 213 (12.3%) High (75 – 99.9) = 41 (2.4%) Severe (100 +) = 14 (0.8%)	.92
DASS			
Depression	10.81 (10.79)	Normal/Mild = 1152 (67.1%) Mod/severe/extreme= 564 (32.9%)	.92
Anxiety	9.22 (9.09)	Normal/mild = 1057 (62%) Mod/severe/extreme = 649 (38%)	.85
Stress	15.03 (10.28)	Normal/mild = 1077 (63.2%) Mod/severe/extreme = 625 (36.8%)	.89

CBI: Copenhagen Burnout Inventory, DASS: Depression, Anxiety and Stress Scale

M=mean, SD=standard deviation

Table 4 Spearman Correlation Coefficients (Rho) between CBI and DASS subscales

	DASS Depression	DASS Anxiety	DASS Stress
	(rho)	(rho)	(rho)
CBI Personal	.64	.60	.63
CBI Work	.67	.61	.67
CBI Client	.42	.32	.38

All correlation coefficients were significant at $p<.01$

Table 5 Statistical analyses to assess the impact of demographic factors on emotional wellbeing

Characteristic	Burnout-Personal	Burnout-Work	Burnout-Client	DASS-Stress	DASS-Anxiety	DASS-Depression
	(Md)	(Md)	(Md)	(Md)	(Md)	(Md)
Age Group (years)						
<= 32	70.83	64.29	20.83	16.00	10.00	10.00
33-40	75.00	64.29	25.00	16.00	8.00	10.00
41-47	66.67	57.14	20.83	14.00	6.00	8.00
48-52	62.50	57.14	25.00	14.00	6.00	8.00
53-56	62.50	53.57	20.83	12.00	4.00	6.00
57+	58.33	46.43	18.75	10.00	4.00	6.00
Statistical comparison across age groups	Chsq=103.5 p<.001	Chsq=116.1 p<.001	Chsq=13.7 P=.018	Chsq=69.8 p<.001	Chsq=149.9 p<.001	Chsq=39 p<.001
Marital						
Single	66.67	57.14	25.00	14.00	8.00	10.00
Married/ cohabiting	66.67	57.14	20.83	14.00	6.00	6.00
Separated/ divorced	70.83	60.71	25.00	14.00	6.00	10.00
Statistical comparison across marital status groups	Chisq=7.01 p=.03	Chisq=4.95 p=.08	Chisq=7.87 p=.02	Chisq=1.81 p=.40	Chisq=2.67 p=.26	Chisq=25.99 p<.001
Ethnicity						
White	66.67	57.14	25.00	14.00	6.00	8.00
Black/Asian/ Minority	70.83	60.71	20.83	12.00	6.00	6.00
Statistical comparison across ethnicity groups	z=.68 p=.50	z=1.16 p=.25	z=.45 p=.65	z=.04 p=.97	z= -.389 p=.70	z= -.13 p=.90
Sexual orientation						
Heterosexual	66.67	57.14	25.00	14.00	6.00	8.00

Not heterosexual	66.67	57.14	16.67	14.00	9.00	7.00
Statistical comparison across sexual orientation groups	z=1.06 p=.29	z=.19 p=.85	z=.73 p=.46	z=.28 p=.78	z=1.14 p=.25	z=.055 p=.96
Disability						
No	66.67	57.14	20.83	12.00	6.00	8.00
Yes	70.83	64.29	25.00	16.00	8.00	12.00
Statistical comparison of midwives with and without disability	z=3.96 p<.001	z=4.77 p<.001	z=1.64 p=.10	z=4.32 p<.001	z=3.74 p<.001	z=4.74 p<.001
Children						
Yes	66.67	57.14	20.83	14.00	6.00	8.00
No	66.67	57.14	25.00	14.00	8.00	8.00
Statistical comparison of midwives with and without children	z=.24 p=.81	z=1.64 p=.10	z=3.47 p=.001	z=2.31 p=.02	z=3.00 p=.003	z=-1.96 p=.05
Carer						
No	66.67	57.14	20.83	14.00	6.00	8.00
Yes	70.83	57.14	25.00	14.00	6.00	8.00
Statistical comparison of carers/ noncarers	z=-2.230 p=.03	z=-1.355 p=.18	z=-1.562 p=.12	z=-.932 p=.35	z=-.964 p=.33	z=-1.293 p=.20
Region						
England - London England - South, South East, South West England - West Midlands, East Midland, East of England	66.67	57.14	25.00	14.00	6.00	8.00
England - North East, North West, Yorkshire and the Humber	70.83	57.14	25.00	14.00	6.00	8.00

Scotland	62.50	53.57	20.83	12.00	4.00	6.00
Wales	66.67	57.14	20.83	12.00	6.00	8.00
Northern Ireland	62.50	53.57	20.83	14.00	6.00	6.00
Statistical comparison across regions	Chsq=14.51 p=.006	Chsq=13.32 p=.01	Chsq=4.54 p=.34	Chsq=11.55 p=.02	Chsq=12.28 p=.02	Chsq=11.36 p=.02

Notes.

a Some variables were modified by collapsing or excluding categories to ensure that there were sufficient cases for statistical comparison. Only variables with sufficient numbers were reported in the table.

b Given the large number of analyses undertaken a more conservative alpha level ($p<.01$) was used to identify statistically significant comparisons

c Mann-Whitney U tests were used for two group comparisons, Kruskal Wallis tests were used for groups with 2+ groups.

d Md=median, ChSq=Chi square

Table 6 Statistical analyses to assess the impact of work-related factors on emotional wellbeing

Characteristic	Burnout-Personal	Burnout-Work	Burnout- Client	DASS-Stress	DASS-Anxiety	DASS-Depression
	(Md)	(Md)	(Md)	(Md)	(Md)	(Md)
Level of qualification						
Certificate in Midwifery	58.33	50.00	20.83	12.00	4.00	6.00
Diploma in Midwifery	70.83	57.14	20.83	14.00	6.00	8.00
Bachelor of Midwifery/ BSc Midwifery/ BA Midwifery	70.83	60.71	25.00	14.00	8.00	8.00
Statistical comparison across level of qualification	Chsq=77.57 p<.001	Chsq=71.47 p<.001	Chsq=3.07 p=.22	Chsq=28.26 p<.001	Chsq=91.65 p<.001	Chsq=22.45 p<.001
Years of experience						
0 to 1.99yrs	70.83	60.71	20.83	16.00	10.00	10.00
2 to 4.99	75.00	60.71	25.00	16.00	10.00	8.00
5 to 9.99	70.83	60.71	25.00	16.00	8.00	10.00
10 to 19.99	70.83	57.14	25.00	14.00	6.00	8.00
20 to 29.99	62.50	53.57	25.00	12.00	4.00	8.00
30+	58.33	46.43	16.67	10.00	2.00	4.00
Statistical comparison across years of experience	Chsq=104.49 p<.001	Chsq=99.38 p<.001	Chsq=12.91 p=.02	Chsq=59.09 p<.001	Chsq=168.97 p<.001	Chsq=47.57 p<.001
Employer						
NHS	70.83	57.14	25.00	14.00	6.00	8.00
Bank or agency midwifery	58.33	53.57	20.83	10.00	6.00	4.00
Indep practice/ private/ charitable/ professional	45.83	39.29	12.50	10.00	2.00	4.00
University sector only	54.17	46.43	8.33	14.00	4.00	6.00

University sector and NHS and/or private sectors	62.50	50.00	12.50	12.00	4.00	6.00
Both NHS and private sector	64.58	50.00	29.17	12.00	6.00	6.00
Statistical comparison across employer group	Chsq=55.57 p<.001	Chsq=43.66 p<.001	Chsq=21.12p=.001	Chsq=14.79 p=.01	Chsq=22.89 p<.001	Chsq=13.47 p=.02
Work location						
District general hospital	70.83	60.71	25.00	14.00	8.00	8.00
Tertiary referral unit	66.67	57.14	25.00	12.00	6.00	6.00
Stand alone birth centre	66.67	57.14	16.67	14.00	8.00	9.00
Alongside birth centre	62.50	53.57	20.83	10.00	4.00	6.00
Community - primary care setting only	66.67	53.57	20.83	14.00	6.00	8.00
University	54.17	46.43	8.33	14.00	4.00	6.00
Statistical comparison across work location	Chsq=30.76 p<.001	Chsq=32.73 p<.001	Chsq=18.67 p=.002	Chsq=11.42 p=.04	Chsq=35.26 p<.001	Chsq=8.8 p=.12
Urban/Rural						
Capital	66.67	53.57	25.00	12.00	6.00	6.00
City	66.67	57.14	20.83	14.00	6.00	8.00
Large town	70.83	60.71	25.00	16.00	8.00	8.00
Small town/rural	66.67	53.57	20.83	12.00	6.00	8.00
Statistical comparison of urban vs rural midwives	Chsq=7.58 p=.06	Chsq=14.42 p=.002	Chsq=9.90 p=.02	Chsq=9.51 p=.02	Chsq=14.02 p=.003	Chsq=8.42 p=.04
Night shift						
Yes	70.83	60.71	25.00	14.00	8.00	8.00
No	62.50	53.57	20.83	14.00	4.00	8.00
Statistical comparison across midwives who do and don't work night shift	z=6.41 p<.001	z=6.94 p<.001	z=2.56 p=.01	z=2.50 p=.01	z=7.12 p<.001	z=2.11 p=.04

On Call						
No	66.67	57.14	25.00	14.00	6.00	8.00
Yes	66.67	53.57	20.83	14.00	6.00	8.00
Statistical comparison of midwives who do and don't work on-call	z=1.105 p=.27	z=2.422 p=.01	z=1.448 p=.15	z=.567 p=.57	z=3.261 p=.001	z=.883 p=.38
Type of on-call						
Caseload within a "Continuity of midwifery care" model	62.50	48.21	16.67	13.00	3.00	7.00
Caseload within a modified Continuity of care model	66.67	50.00	18.75	14.00	7.00	4.00
Hospital cover (general, not caseload related)	66.67	57.14	20.83	13.00	6.00	6.00
Community cover (on call for wider geographical area, not caseload related)	66.67	57.14	25.00	14.00	6.00	10.00
Hospital and community (general, not caseload related)	70.83	57.14	20.83	14.00	6.00	8.00
Other	62.50	53.57	16.67	12.00	4.00	6.00
Statistical comparison across groups based on type of on-call	Chsq=4.778 p=.31	Chsq=8.882 p=.06	Chsq=3.317 p=.51	Chsq=1.663 p=.80	Chsq=5.528 p=.24	Chsq=6.122 p=.19
Principal role						
Clinician (hospital)	70.83	60.71	25.00	14.00	8.00	8.00
Specialist senior midwife	58.33	50.00	16.67	14.00	6.00	6.00
Admin/senior manager	54.17	50.00	20.83	10.00	2.00	6.00
Education/research	54.17	46.43	12.50	14.00	4.00	7.00

Clinician community	66.67	57.14	20.83	14.00	6.00	8.00
Clinician integrated hospital community	70.83	57.14	20.83	14.00	10.00	8.00
Clinician Caseload	66.67	53.57	20.83	14.00	5.00	7.00
Labour ward coordinator	66.67	57.14	25.00	12.00	4.00	6.00
Specialist practice midwife	62.50	57.14	25.00	12.00	4.00	7.00
Clinical manager	66.67	53.57	16.67	14.00	6.00	8.00
Statistical comparison across principal role groups	Chsq=52.33 p<.001	Chsq=51.24 p<.001	Chsq=32.74 p<.001	Chsq=6.71 p=.67	Chsq=64.71 p<.001	Chsq=9.60 p=.38
Clinical/ Non-clinical						
Clinical midwife	70.83	57.14	25.00	14.00	6.00	8.00
Non-clinical midwife	54.17	46.43	10.42	14.00	4.00	8.00
Both clinical and non-clinical midwife	62.50	53.57	20.83	14.00	6.00	6.00
Statistical comparison of clinical vs non-clinical midwives	Chsq=43.34 p<.001	Chsq=30.92 p<.001	Chsq=23.64 p<.001	Chsq=3.32 p=.19	Chsq=29.96 p<.001	Chsq=4.76 p=.09
Type of clinical work						
Continuity	70.83	57.14	20.83	12.00	6.00	8.00
Modified Continuity	66.67	57.14	25.00	15.00	6.00	10.00
Rotation Hospital Only	70.83	60.71	25.00	14.00	8.00	8.00
Rotation Hospital Community	70.83	60.71	20.83	16.00	10.00	10.00
Non-Labour care only	66.67	53.57	25.00	12.00	6.00	6.00
Labour/birth only	66.67	55.36	20.83	12.00	6.00	6.00
Statistical comparison across type of clinical work	Chsq=12.71 p=.03	Chsq=15.80 p=.007	Chsq=5.91 p=.31	Chsq=14.38 p=.01	Chsq=32.44 p<.001	Chsq=5.97 p=.31

Type of non-clinical work						
Midwifery education	50.00	42.86	8.33	12.00	4.00	6.00
Midwifery management	70.83	53.57	16.67	16.00	4.00	11.00
Midwifery research	58.33	53.57	20.83	16.00	4.00	12.00
Policy/ Administration	52.08	46.43	10.42	12.00	2.00	6.00
Statistical comparison across type of non-clinical work	Chsq=10.18 P=.02	Chsq=7.85 p=.05	Chsq=2.97 p=.40	Chsq=2.91 p=.40	Chsq=1.25 p=.74	Chsq=6.23 p=.10

Notes.

a Some variables were modified by collapsing or excluding categories to ensure that there were sufficient cases for statistical comparison. Only variables with sufficient numbers were reported in the table.

b Given the large number of analyses undertaken a more conservative alpha level ($p<.01$) was used to identify statistically significant comparisons

c Mann-Whitney U tests were used for two group comparisons, Kruskal Wallis tests were used for groups with 2+ groups.

d Md=median, ChSq=Chi square

Table 7: Comparison of CBI and DASS Scores from WHELM collaborating countries

	Australia	**New Zealand**	**Sweden**	**UK**
	Mean (SD)	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**
Copenhagen Burnout Inventory (CBI)				
Personal Burnout	55.90 (18.05)	52.67 (17.5)	42.95 (18.11)	**65.54 (18.63)**
Work Burnout	48.44 (17.40)	44.63 (17.34)	33.86 (14.12)	**56.15 (19.38)**
Client-related Burnout	25.59 (18.33)	29.64 (17.64)	30.42 (16.13)	**25.36 (21.2)**
Depression, Anxiety and Stress Scale (DASS)				
Depression	6.66 (8.46)	5.99 (7.53)	5.64 (6.39)	**10.81 (10.79)**
Anxiety	5.35 (6.92)	4.51 (5.50)	2.83 (4.32)	**9.22 (9.09)**
Stress	11.13 (8.91)	9.63 (7.84)	8.33 (6.83)	**15.03 (10.28)**
DASS groups				
Depression				
Normal/mild	807 (83%)	797 (85%)	411 (88%)	**1077 (63.3%)**
Mod/severe/extreme	169 (17%)	142 (15%)	58 (12%)	**625 (36.7%)**
Anxiety				
Normal/mild	777 (80%)	793 (85%)	430 (92%)	**1057 (62%)**
Mod/severe/extreme	200 (21%)	146 (15%)	39 (8%)	**649 (38%)**
Stress				
Normal/mild	762 (78%)	809 (86%)	419 (89%)	**1152 (67.1%)**
Mod/severe/extreme	241 (22%)	129 (14%)	50 (11%)	**564 (32.9%)**