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Mental health shame, self-compassion and sleep in UK nursing students: Complete mediation of self-compassion in sleep and mental health

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Abstract

Aims: To explore relationships between mental health problems, mental health shame, self-compassion and average length of sleep in UK nursing students. The increasing mental health problems in nursing students may be related to a strong sense of shame they experience for having a mental health problem. Self-compassion has been identified as a protective factor for mental health and shame in other student populations. Further, studies highlight the importance of sleep relating to mental health.

Design: A cross-sectional design.

Methods: A convenient sampling of 182 nursing students at a university in the East Midlands completed a paper-based questionnaire regarding these four constructs, from February to April 2019. Correlation, regression and mediation analyses were conducted.

Results: Mental health problems were positively related to shame and negatively related to self-compassion and sleep. Mental health shame positively predicted and self-compassion negatively predicted mental health problems: sleep was not a significant predictor of mental health problems. Lastly, self-compassion completely mediated the impacts of sleep on mental health problems (negative relationship between mental health problems and sleep was fully explained by self-compassion).

Conclusion: The importance of self-compassion was highlighted as it can reduce mental health problems and shame. Self-compassion can protect nursing students from mental distress when they are sleep deprived.

Impact: Nurses and nursing students are required to work irregular hours (e.g. COVID-19) and mental distress can cause serious consequences in clinical practice. Our findings suggest that nurturing self-compassion can protect their mental health and the negative impacts of sleep deprivation on mental health.

KEYWORDS
mediation analysis, mental health, mental health shame, nursing students, self-care, self-compassion, sleep

1 | INTRODUCTION

Nursing is a rewarding but challenging profession. In the UK, nurses are highly respected and at the same time, known to have poor mental health (Kinman et al., 2020). This impairment in mental well-being can be attributed to a lack of resilience, something that has been recognized and addressed in the new standards of proficiency for nurses (Nursing & Midwifery Council, 2018). One solution for this problem is to educate nursing students about the importance of their own mental well-being, so that they will be better prepared to cope with occupational stress to protect their mental health, once they are in professional practice (Pulido-Martos et al., 2012; Reeve et al., 2013). This is essential because not only professional nurses but also nursing students suffer high rates of mental health problems (Hsiung et al., 2019; Lamont et al., 2017). As reported in other healthcare students in the UK (Kotera, Green & Sheffield, 2019a; 2019b), poor mental health of nursing students may be associated with shame about having a mental health problem. Mental health problems may be positively associated with mental health shame in nursing students. Similarly, self-compassion—understanding and kindness towards oneself—has been identified as a negative correlate and predictor of shame and mental distress in other healthcare students (Authors, 2019a; 2019b). Nursing students who are kind towards themselves may have lower levels of shame and mental health problems. Lastly, recent studies highlight the importance of enough hours of sleep in relation to mental health. Nurses are required to work irregular hours, particularly so during a crisis such as COVID-19; therefore, evaluating the relationship between sleep and mental health would be useful. Moreover, how a lack of sleep may be associated with mental health has not been explored. Accordingly, this study evaluated the relationship between mental health problems, mental health shame, self-compassion and sleep, in a cross-sectional design with correlation, regression and mediation analyses.

2 | BACKGROUND

Nursing studies is the study of caring for individuals of all ages, families, groups and communities by promoting health, preventing illness and advocating (Ayala, 2020; International Council of Nurses, 2010). It is one of the most popular subject disciplines in the United Kingdom (UK) and has been so for the past 6 years (Higher Education Statistics Agency, 2019); every year, more than 40,000 prospective students apply (Universities & Colleges Admissions Service, 2019). One notable reason for this popularity is a high employment rate (Van Sabben, 2020): more than 90% of graduates being in employment (i.e. becoming a professional nurse) 6 months after graduation (Higher Education Statistics Agency, 2017; Royal College of Nurses, 2019). Nursing is an attractive profession because of high job satisfaction with over 80% feeling satisfied with their career (AMN Healthcare, 2017), high job security (Buchan et al., 2019) and respect from many patients appreciating the demands of nurses' work (Dolton et al., 2018). As seen in the current coronavirus 2019 (COVID-19) pandemic, having a sturdy nurse workforce is crucial for the country (Adams & Walls, 2020).

Despite the popularity of nursing programmes in the UK, many nursing students experience mental health problems. Having good mental health is essential for students as it is linked with various student outcomes such as higher academic engagement (Authors, 2019), reduced dropout rate (Hjorth et al., 2016) and higher achievement (Bostani et al., 2014). However, almost a quarter (22%) of nursing students are at risk of developing depression, anxiety, stress or a combination of these (Hsiung et al., 2019). Suicide is reported in 6.5% of nursing students (Aradilla-Herrero et al., 2014), more than the rate of the general university student population (4.2%) (Sivertsen et al., 2019). In addition to stressors that students in many disciplines experience (stress before examinations and submission deadlines, juggling adult and student identities; Laidlaw et al., 2016; Lipson et al., 2016; Shankland et al., 2019), nursing students experience more pressure to satisfy their academic and professional standards (Findlow, 2012; Gimenez, 2012), which require good performance in academic work and clinical practice where they encounter difficult situations such as death (Jamshidi et al., 2016). Furthermore, demands in the nursing profession have been expanding; more compassionate care for patients and more technical interventions are required for professional nurses today (Nursing & Midwifery Council, 2018). These demands can add pressure on nursing students. Poor mental health is associated with numerous negative consequences: increased risk of suicide and self-harm (Lipson et al., 2016), limited academic performance, dropping out (Arria et al., 2013; Brydges et al., 2012; Eisenberg et al., 2013) and decreased social connectedness (Eisenberg et al., 2013). Among professional nurses, poor mental health was related to increased risk of medical errors (Melnyk et al., 2018), undermining patient safety and public protection—pivotal elements for fitness to practice in nursing education (Hayes, 2017). This underlines the need for investigating nursing students' mental health.

2.1 | Mental health shame

The high rates of mental health problems among nursing may be exacerbated by their "mental health shame" (Kotera, Green & Sheffield, 2019c, p. 136), that is feeling ashamed for having a mental health problem (Kotera, Green & Sheffield, 2019c). Shame is a negative emotion of self-attributions, based on the perceived evaluation of self by others (Miceli & Castelfranchi, 2018). Mental health shame has been associated with poor mental health in diverse populations including UK social work, psychotherapy, occupational therapy and business students (Kotera, Conway & Van Gordon, 2019; Kotera, Green & Sheffield, 2019a; Kotera, Green & Sheffield, 2019b). Particularly among social work students, mental health shame was strongly associated with increased self-criticism and decreased self-compassion (Kotera, Green & Sheffield, 2019a) and a significant predictor of mental health (Kotera, Green & Sheffield, 2019d). Unsurprisingly, students with high mental health shame tend not to seek out help, leading to poor clinical

outcomes (Ting, 2013). Despite the strong relationship between mental health problems and mental health shame in various student populations, this relationship in UK nursing students has not been explored to date. Therefore, we hypothesized:

H 1a Mental health problems are related to mental health shame.
H 2a Mental health problems are predicted by mental health shame.

2.2 | Self-compassion

Self-compassion—self-understanding and self-kindness aimed at easing suffering during times of hardness (Neff, 2003)—is related to mental health. Self-compassion improves mental health problems by promoting resilience and decreasing self-criticism and shame (Braehler et al., 2013; Trompetter et al., 2017). Relating to the three emotion regulatory systems of compassion focused therapy, self-compassion engages with our soothing system that deals with affects such as safety and contentment to protect our mental health, instead of the other two systems (thread systems and drive systems; both are associated with mental distress) (Gilbert, 2010). This can explain why self-compassion intervention often employs slow breathing or mindfulness practice, aiming to access our soothing system (Neff & Germer, 2018). Among nursing students in China, self-compassion was negatively associated with and predicted by anxiety and depression (Luo et al., 2019). In Turkish nursing students, self-compassion was positively associated with their emotional intelligence (Şenyuva et al., 2014) and negatively correlated with mental distress (Ciarrochi et al., 2002; Resurrección et al., 2014). Among UK student populations, self-compassion was negatively associated with mental health problems among social work, counselling, occupational therapy and business students (Authors, 2019; Author et al., 2019a; Author et al., 2019b). However, these relationships have not been explored in UK nursing students to date. Accordingly, we hypothesized:

H 1b Mental health problems are related to self-compassion.
H 2b Mental health problems are predicted by self-compassion.

2.3 | Sleep

Poor sleep is common in university students and often results from academic demands and social, personal and employment factors (Cheng et al., 2012). Research into sleep and its health effects has been increasingly developed, reporting that appropriate sleep quantity is positively associated with good mental health (Scott et al., 2017). Having sufficient sleep is also associated with decreased risks for cognitive and emotional health problems (Hirshkowitz et al., 2015a, 2015b). Contrarily, poor sleep increases the risk of stress (Knutson et al., 2017) and mood disorders (e.g. depression and dysthymia) as well as anxiety disorders (e.g. panic disorder and generalized anxiety disorder) (Shi et al., 2020; Stein et al., 2008). Poor sleep is also a predictor of mental health problems (Baglioni

et al., 2011). Among professional nurses, who work at night shifts and irregular hours, poor sleep increases the risk of nursing errors in clinical examination and medication administration, possibly leading to serious clinical outcomes (Rahimian & Ghodrati, 2013). Moreover, poor sleep was associated with higher job stress and poorer health status (Lin et al., 2014). Unsurprisingly, regulatory bodies such as the Institute of Medicine noted sleep as an important factor for health of medical staff, relating to the quality of patient care and lower risk of burnout (Ulmer et al., 2008). Sleep was positively associated with self-compassion and mental health in young health professionals (Kemper et al., 2015). In nursing students, an American study reported that all participating nursing students were sleep-deprived ($n = 179$) and more than half ($n = 91$) were using sleeping-related medicines (Thomas et al., 2017). Sleep was associated with mental health in Indian nursing students (Menon et al., 2015) and American nursing students (Zhang et al., 2018). Despite the strong relationship between sleep and mental health, no studies have explored the relationship between these factors in UK nursing students:

H 1c Mental health problems are related to sleep.
H 2c Mental health problems are predicted by sleep.

2.4 | Sleep and self-compassion

Lastly, sleep has been associated with self-compassion in German students (Butz & Stahlberg, 2018) and in American young health professionals and trainees (Kemper et al., 2015): individuals who have better sleep reporting higher levels of self-compassion (Butz & Stahlberg, 2020). Self-compassion was a protective factor for mental health problems and sleep disturbances among adults over 65 years old in Korea, suggesting that self-compassionate participants tended to have good mental health and sleep (Kim & Ko, 2018). While these findings imply strong relationships among these three variables, namely mental health, sleep and self-compassion, how these variables are related to each other has not been explored (e.g. Kemper et al., 2015 explored those variables, however, only correlations with sleep). Considering the strong impact of self-compassion on mental health (Author, 2019; Author et al., 2019a; Author et al., 2019b), we hypothesized that self-compassion would mediate the relationship between sleep and mental health problems: the negative impacts of sleep deprivation on mental health can be explained by low levels of self-compassion:

H 3 Self-compassion mediates the impacts of sleep on mental health problems.

3 | THE STUDY

3.1 | Objectives

This study aimed to explore relationships between mental health problems, mental health shame, self-compassion and sleep in UK

nursing students. Mental health was evaluated in terms of depression, anxiety and stress, considering that these are the commonest mental health issues for both the general population (Mental Health Foundation, 2016; Mirzaei et al., 2019) and nursing students (Hsiung et al., 2019). Three hypotheses were established:

H1. Mental health problems are related to mental health shame (a), self-compassion (b) and sleep (c).

H2. Mental health problems are predicted by mental health shame (a), self-compassion (b) and sleep (c).

H3. Self-compassion mediates the impacts of sleep on mental health problems.

3.2 | Design

A cross-sectional design was employed to produce timely output and to investigate all variables altogether. Data were examined through correlation, regression and mediation analyses to test our three hypotheses.

3.3 | Participants

Participants needed to be at least 18 years old and studying in a nursing programme at a UK university at the time of the study: students who were on a study break were excluded. Participants were recruited using convenient sampling through hard copy questionnaires distributed by programme tutors instead of the researchers to avoid response biases. Of 198 full-time students who were introduced to the study, 182 (92%; 144 females, 30 males and 8 did not respond; Age 30.04 ± 8.31 years old, range 18–52 years old; 164 British, 10 Africans, 6 other Europeans and 2 did not respond; 146 undergraduates and 36 postgraduates) completed three mental health measures, satisfying the required sample size calculated by power analysis (84: two tails, p H1 (r) = 0.30 (medium; Cohen, 1988), α = 0.05, Power = 0.80, p H0 = 0; Faul et al., 2009). Compared with the general population of UK nursing students (10%; Office for Students, 2020), our sample recruited slightly more males (16%). No compensation was awarded for completing the survey. Following the ethical guidelines, the withdrawn/incomplete 16 participants were not asked for the reason: no reason nor complaint was received.

3.4 | Data collection

Four self-report measures regarding each construct were used:

Mental health problems were measured using the Depression Anxiety and Stress Scale (DASS21), a shortened version of DASS42 (Lovibond & Lovibond, 1995). DASS21 consists of 21 items on a four-point Likert scale divided into three seven-item subscales, depression (e.g. "I couldn't seem to experience any positive feeling at all"), anxiety (e.g. "I felt scared without any good reason") and stress (e.g.

"I felt that I was rather touchy"). High scores indicate poor mental health. These subscales had good reliability; α = 0.87–0.94 (Antony et al., 1998).

Mental health shame was measured using the Attitudes Towards Mental Health Problems (ATMHP), comprising 35 four-point Likert items. ATMHP consists of four sections: (i) their community's and family's attitudes towards mental health problems (community and family attitudes, e.g. "My community/family sees mental health problems as something to keep secret"), (ii) their perception of how their community and family would perceive them if they had a mental health problem (community and family external shame, e.g. "I think my community/family would look down on me"), (iii) how they perceive themselves if they had a mental health problem (internal shame, e.g. "I would see myself as inferior") and (iv) how their family would be seen if they had a mental health problem (family-reflected shame, e.g. "My family would be seen as inferior") and how worried they become about themselves when a close relative had a mental health problem (self-reflected shame, e.g. "I would worry that others will look down on me"). High score indicates high shame for mental health problems. All of the subscales had good Cronbach's alphas of between 0.85–0.97 (Gilbert et al., 2007).

Self-Compassion Scale-Short Form (SCS-SF) was used to measure *self-compassion*. This self-report measure is a shortened version of the Self-Compassion Scale, comprising 12 five-point Likert items (e.g. "I try to be understanding and patient towards those aspects of my personality I don't like"; Neff, 2003). High score indicates a high level of self-compassion. Cronbach's alpha was high (0.86; Raes et al., 2011).

Sleep was asked with a one question item "How long do you sleep every day on average?"

3.5 | Ethical considerations

Ethics approval was obtained from the University Research Ethics Committee. Because the questionnaire concerned students' mental health, at least one nursing lecturer who was a registered nurse and was not a co-researcher of the study, was present at the site. Physical distance among students was maintained for privacy, helping them respond comfortably. Information about available mental health services inside and outside university was offered before and after the study. Visual aids (e.g. large font print, coloured papers) were prepared for students with visual impairments; however, no students used them.

3.6 | Data analysis

First, the collected data were screened for outliers and the assumptions of parametric tests. Second, correlations between their mental health, mental health shame, self-compassion and sleep were explored (H1). Third, multiple regression analysis was performed to examine the relative contribution of mental health shame,

self-compassion and sleep to mental health problems (H2). Finally, mediation analysis was conducted to appraise whether self-compassion would mediate the relationship between sleep and mental health problems (H3). Analyses were conducted using IBM SPSS version 25.0 and Process Macro (Hayes, 2013).

3.7 | Reliability

All scales used were validated with high reliability. Before the present study, the same study design was employed to explore mental health of other healthcare students (Authors 2019; Author et al. 2019b).

4 | RESULTS/FINDINGS

No outliers were identified. All variables demonstrated good internal reliability ($\alpha = 0.87$–0.96; Table 1).

4.1 | Relationships between mental health, mental health shame, self-compassion and sleep

As all variables apart from self-compassion were not normally distributed (Shapiro–Wilk's test, $p < .05$), data were square-root-transformed to satisfy the assumption of normality (Field, 2017).

Pearson's correlation was calculated (Table 2).

Mental health problems were positively associated with all the mental health shame subscales (internal shame being the strongest positive correlate) and negatively associated with age, self-compassion and sleep (self-compassion being the strongest negative correlate). Additionally, self-compassion was positively related to sleep and negatively related to external shame and internal shame. Lastly, sleep was associated with female gender. H1 was supported.

4.1.1 | Predictors of mental health problems

Multiple regression analyses were conducted to explore the relative contributions of mental health shame, self-compassion and sleep to mental health problems (Table 3). Mental health shame was calculated by summing all the subscale scores (Author et al., 2019c). First, gender and age were entered to statistically adjust for their effects (step one), and then, mental health shame, self-compassion and sleep were entered (step two). Adjusted coefficients of determination (Adj. R^2) were reported. Multicollinearity was not a concern (VIF < 10). Mental health shame, self-compassion and sleep accounted for 50% of the variance for mental health problems indicating a large effect size (Cohen, 1988; $F(5, 166) = 39.31$, $p < .001$). Mental health shame was a positive, and self-compassion was a negative predictor of mental health problems. Self-compassion predicted mental health problems (B = −6.65) to a larger degree than mental health shame (B = 0.32). Sleep did not predict mental health problems. H2 was partially supported (H2a-b were supported while H2c was not).

4.1.2 | Mediation of self-compassion between sleep and mental health problems

Lastly, a mediation analysis was conducted to appraise whether the relationship between sleep (predictor variable) and mental health problems (outcome variable) was mediated by self-compassion (mediator variable), using model 4 in the Process macro (parallel mediation model; Hayes, 2013) (Figure 1).

While the direct effects of sleep on mental health problems were not significant ($b = −0.79$, $t(179) = −1.54$, $p = .13$), the total effects and indirect effects of sleep on mental health problems were significant (total $b = −1.79$, $t(180) = −2.63$, $p = .009$; indirect $b = −1.00$, BCa CI [−1.94, −0.20]). An increase in sleep was associated with an increase in self-compassion, which then was associated with a decrease in mental health problems. Self-compassion completely mediated the effect of sleep on mental health problems. H3 was supported.

TABLE 1 Descriptive statistics: Mental health problems, mental health shame, self-compassion and sleep in UK nursing students ($n = 182$)

Scale (Construct)	Subscale (range)	M	SD	α
Depression Anxiety and Stress Scale 21 (Mental Health Problems; High score indicates poor mental health)	Mental Health Problems (0–126)	41.89	29.96	0.96
Attitudes Towards Mental Health Problems (Mental Health Shame; High score indicates high shame)	Negative Attitudes (0–24)	6.99	5.41	0.89
	External Shame (0–30)	8.27	7.76	0.95
	Internal Shame (0–15)	6.09	3.68	0.94
	Reflected Shame (0–36)	9.77	8.05	0.91
Self-Compassion Scale-Short Form (Self-Compassion; High score indicates strong self-compassion)	Self-Compassion (1–5)	2.68	0.70	0.87
How long do you sleep every day on average?' (Sleep; 2–10 hr in our sample)		6.78	1.30	-

TABLE 2 Correlations between mental health, mental health shame, self-compassion and sleep in UK nursing students (n = 182)

	1	2	3	4	5	6	7	8	9
1. Gender (1 = M, 2 = F)	-								
2. Age	−0.19*	-							
3. Mental Health Problems	0.05	−0.18*	-						
4. Negative Attitudes	−0.14	0.05	0.30**	-					
5. External Shame	−0.10	0.02	0.27**	0.71**	-				
6. Internal Shame	0.05	−0.08	0.41**	0.20**	0.41**	-			
7. Reflected Shame	−0.10	0.001	0.31**	0.35**	0.48**	0.41**	-		
8. Self-Compassion	−0.14	0.14	−0.68**	−0.15	−0.17*	−0.38**	−0.09	-	
9. Sleep	0.17*	−0.03	−0.19**	−0.11	−0.13	−0.11	−0.06	0.16*	-

*$p < .05$,
**$p < .01$.

TABLE 3 Multiple regression: Mental health shame, self-compassion and sleep to mental health problems among nursing students (n = 182)

	Mental health problems			
	B	SE$_B$	β	95% CI for B (lower, upper)
Step 1				
Gender (1 = M, 2 = F)	0.15	0.49	0.02	−0.82, 1.11
Age	−0.60*	0.25	−0.18	−1.10, −0.11
Step 2				
Gender (1 = M, 2 = F)	−0.06	0.35	−0.01	−0.75, 0.63
Age	−0.33	0.18	−0.10	−0.68, 0.02
Mental Health Shame	0.32***	0.07	0.25	0.18, 0.47
Self-Compassion	−6.65***	0.63	−0.60	−7.88, −5.41
Sleep	−0.44	0.50	−0.05	−1.44, 0.55

Note: Δ Adjusted R^2 = .50.
B, unstandardized regression coefficient; SE$_B$, standard error of the coefficient; β, standardized coefficient.
*$p<.05$;
***$p<.001$.

5 | DISCUSSION

This study explored relationships between mental health problems, mental health shame, self-compassion and sleep in UK nursing students. Mental health problems were positively associated with mental health shame and negatively associated with self-compassion and sleep (H1 was supported). Mental health shame and self-compassion were significant predictors of mental health problems and sleep was not (H2 was partially supported; while H2a-b were supported, H2c was not). Lastly, self-compassion completely mediated the impact of

sleep on mental health problems (H3 was supported). Relevancy to practice and future research were discussed for each item, as suggested in a review explored mental health in nurses (Edwards & Burnard, 2003).

5.1 | Complete mediation of self-compassion in sleep and mental health problems

One of the original values this study offers is that the negative association between sleep and mental health problems (i.e. students who sleep long tend to have good mental health) was explained by self-compassion. It was not sleep by itself that had an impact on mental health: it was self-compassion that impacted mental health. Short sleep negatively impacted self-compassion, which then damaged mental health. Recently, the relationship between sleep and mental health (Menon et al., 2015; Zhang et al., 2018) and sleep and self-compassion (Butz & Stahlberg, 2018; Kemper et al., 2015) has been reported. However, how these three variables are related to each other had not been explored (e.g. Kemper et al., 2015 explored sleep's correlations with mental health and self-compassion separately). Indeed, sleep was correlated with both mental health and self-compassion in our sample too, and we further identified that self-compassion was a complete mediator between the two. This suggests the importance of incorporating self-compassion in nursing curricula: when in employment many graduates will be required to work night shifts and irregular hours, leading to sleep deprivation and sleep problems (Stanojevic et al., 2016) and therefore, as our analyses show, increasing their risk of mental health problems. An example of sleep deprivation in nurses is the coronavirus disease 2019 (COVID-19) pandemic; sleep deprivation occurred despite nurses being aware of its effect on mental health (Sun et al., 2020; Zhang et al., 2020). In addition, self-compassion would facilitate nursing students to report mental health problems (Lipson et al., 2016). Therefore, nursing students developing skills to practise self-compassion will allow them to maintain good
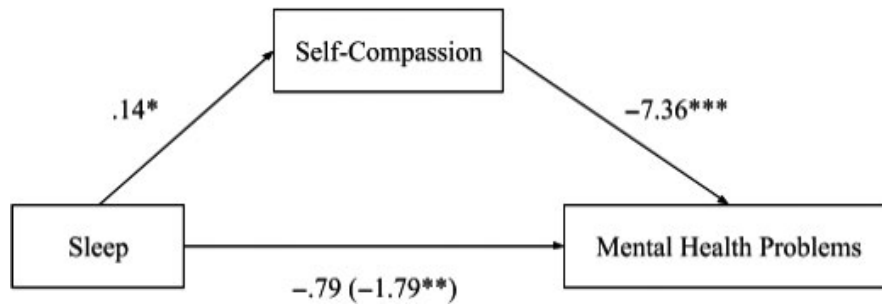
FIGURE 1 Self-compassion completely mediates sleep and mental health problems. Direct effect (total effect) of sleep on mental health problems. Parallel mediation: sleep as a predictor of mental health problems, mediated by self-compassion. The confidence interval for the indirect effect is a BCa-bootstrapped CI based on 5,000 samples. Values attached to arrows are coefficients indicating impacts. *$p < .05$, **$p < .01$, ***$p < .001$

mental health both during their studies and when in employment. For example, an eight-week self-compassion training (2.5 hr each) increased self-compassion and reduced mental distress among UK nurses (Delaney, 2018). Likewise, an eight-week self-compassion training (1.5 hr each) increased self-compassion in Iranian nursing students (Khorami et al., 2016). This type of training being embedded in nursing curricula will help nursing students prepare for the demanding nursing practice. New competency standards for registered nurses have recently been implemented, focusing on emotional resilience and emotional intelligence (Nursing & Midwifery Council, 2018). Though compassionate care for patients is noted as important, self-compassion is not highlighted in these standards. Considering that self-compassion is a better predictor of mental health than emotional resilience among UK social work students (Author et al., 2019d), UK nursing students may benefit from practising self-compassion. Moreover, future research should evaluate the effects of self-compassion training on sleep and mental health for nursing students.

5.2 | Importance of self-compassion and challenges in implementation

In line with previous findings from other healthcare students (Kotera, Green & Sheffield, 2019a; Kotera, Green & Sheffield, 2019b), mental health problems were positively related to and predicted by mental health shame and negatively related to and predicted by self-compassion. These findings suggest that reducing mental health shame and cultivating self-compassion would be helpful for nursing students to maintain good mental health. Mental health education is needed for nursing students to reduce mental health shame. Recent findings demonstrated that the risk of depression was not related to whether the person is weak or inadequate; instead, it was related to social components including fatigue and stress (Kobayashi et al., 2020). Having the right knowledge about mental health can help to reduce mental health shame that nursing students may have. Moreover, as increased self-compassion is associated with a lower level of shame (Sedighimornani et al., 2019), developing self-compassion would be a helpful approach for nursing students to protect

their mental health. By cultivating self-compassion, nursing students can reduce their mental health shame and mental health problems.

Despite self-compassion already being taught in other caring professions (Nelson et al., 2018), educators need to be aware of the challenges of nurturing self-care in nursing curricula: in nursing, taking care of oneself is stigmatized (Glass & Rose, 2008) and sometimes referred to as "responsible selfishness" (Adam & Taylor, 2014). In line with the authors' experience of teaching self-compassion to healthcare students, many students feel guilty about taking care of themselves. Therefore, theoretical understanding, before practising exercises, may be important. For example, Watson's (2008) Theory of Human Caring describes that nurses' care for self and others is interdependent, suggesting a need for self-care for nurses (Mills et al., 2015). To offer compassion for others, we need to offer compassion to ourselves first, as caring for others requires caring for oneself (Dalai Lama, 2003; Lloyd et al., 2019). The importance of self-care in nursing is highlighted in the competency standards for registered nurses established by the International Council of Nurses (Alexander & Runciman, 2003). However, in many countries, including the UK, self-care is not emphasized (e.g. the competency standards for registered nurses by the Nursing & Midwifery Council, 2018 does not emphasize self-care). Recently, partly because of the COVID-19 pandemic, the importance of nursing has been recognized more (Ford, 2020) and the stigma of taking care of oneself may be diminishing. Educators in the UK nursing programmes can take advantage of this to incorporate a self-care component into their curriculum.

Lastly, the full mediation of self-compassion in the relationship between sleep and mental health problems may offer helpful insight for nursing students who are sleep deprived. While previously believed that insufficient sleep leads to poor mental health, our analyses did not find a direct linkage between sleep and mental health problems. This may mitigate the noebo effects of sleep deprivation, by which students believe that their mental health should suffer when they fail to secure enough sleep (Weimer et al., 2020). Our findings suggest that if a student has a strong self-compassion, the impacts of sleep deprivation on mental health can be minimum; therefore, the student does not have to believe that they would not feel good on that day.

5.3 | Limitations

While this study offers helpful insights into the mental health of UK nursing students, several limitations should be noted. First, our sample was recruited through convenient sampling from one UK university, which limits the generalizability of our findings (e.g. our sample recruited more males than the general sample of UK nursing students). Second, self-report measures were used, which restricts the accuracy of participant responses for social desirability bias (Authors, 2020). Further, we only evaluated the length of sleep; other aspects of sleep (e.g. sleep quality and efficiency and time in bed) were not considered. Also, self-compassion was measured using the Self-Compassion Scale-Short Form (Raes et al., 2011), which has been debated for its accuracy (Authors, 2020). Likewise, mental health problems were assessed using the total scale of DASS21; however, difference among depression, anxiety and stress has been debated, thus should be considered (Magalhaes et al., 2010). Lastly, because we employed a cross-sectional design, the causal direction of the relationships among these variables could not be ascertained. Longitudinal studies would be useful to identify the causality.

6 | CONCLUSION

Nursing is one of the most popular subjects in the UK partly because of good graduate prospects. Despite the popularity, many nursing students live with mental health problems. We found that mental health problems were positively associated with mental health shame and negatively associated with self-compassion and sleep length (H1a-c). Mental health shame was a positive predictor, and self-compassion was a negative predictor of mental health problems (H2a-b). Lastly, self-compassion completely mediated the relationship between sleep and mental health problems (H3). Our findings suggest the importance of self-compassion for nursing students and recommend self-compassion training to be embedded in the current nursing curriculum, while addressing guilt for self-care by introducing self-care theories. Further, the UK nursing competency standards can support practising nurses more by further emphasizing self-care, as is done in the international framework.

CONFLICTS OF INTEREST

No potential conflict of interest was reported by the authors.

AUTHOR CONTRIBUTIONS

YK: Substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data. VC and JC: Drafting the manuscript or revising it critically for important intellectual content. YK, VC, JC and DF: Given final approval of the version to be published and accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content.

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