

**PREDICTING SELF-COMPASSION IN UK NURSING STUDENTS:
RELATIONSHIPS WITH RESILIENCE, ENGAGEMENT, MOTIVATION, AND
MENTAL WELLBEING**

Yasuhiro Kotera^{1*}, Vicky Cockerill¹, James Chircop¹, Greta Kaluzeviciute¹, Sue Dyson¹

¹University of Derby, Kedleston Road, Derby DE22 1GB, United Kingdom

Citation

Kotera, Y., Cockerill, V., Chircop, J., Kaluzeviciute, G. & Dyson, S. (2021). Predicting self-compassion in UK nursing students: Relationships with resilience, engagement, motivation, and mental wellbeing. *Nurse Education in Practice*.

Acknowledgement

We thank Polly Barnes for her support in this project.

Highlights

- Resilience and mental wellbeing were significant predictors of self-compassion.
- Resilience was most strongly associated with self-compassion in all of our analyses.
- Self-compassion can be embedded in existing resilience training in nursing education.
- Existing mental wellbeing practices can also enhance self-compassion.

Abstract

Self-compassion, being kind towards oneself, has been identified as a key protective factor of mental health. This is consistent with students' experiences in the study of nursing, which attracts a large number of students in the United Kingdom. Despite the importance of self-compassion, knowledge in how to enhance self-compassion is under-researched. Self-compassion interventions are commonly related to meditative exercises. In order to suggest alternative approaches, relationships between self-compassion and more established constructs need to be appraised. Accordingly, this study evaluated predictors of self-compassion, examining its relationships with more established constructs examined in other healthcare student populations: resilience, engagement, motivation and mental wellbeing. An opportunity sample of 182 UK nursing students at a university in East Midlands completed self-report measures about these constructs. Correlation and regression analyses were conducted. Self-compassion was positively related to resilience, engagement, intrinsic motivation and mental wellbeing, while negatively related to amotivation. Resilience and mental wellbeing were identified as significant predictors of self-compassion. As resilience and mental wellbeing are relatively familiar to many nursing lecturers and students, educators can incorporate a self-compassion component into the existing resilience training and/or mental wellbeing practices.

Keywords: self-compassion, resilience, nursing students, mental wellbeing, cross-sectional study, regression analysis

Introduction

Mental Health and Mental Wellbeing of Nursing Students

Nursing is related to offering care for people at points of illness and vulnerability. In order to provide quality care consistently, mental wellbeing of nurses is important as it helps them to feel good and function well (Tennant et al., 2007), therefore the importance of mental wellbeing in nurses has been emphasised (Xie et al., 2020). Mental wellbeing is commonly regarded as a positive facet of mental health, relating to the subjective experience of happiness and life satisfaction (hedonic perspective) and psychological functioning and self-realisation (eudaimonic perspective) (Ryan and Deci, 2001). High stress can damage mental wellbeing, leading to poor mental health (Tennant et al., 2007), which has been recognised in nursing populations (Ogińska-Bulik and Michalska, 2020; Xin, Jiang and Xin, 2019). For example, burnout is widely documented in nursing literature (Hofmeyer, Taylor and Kennedy, 2020; Jarrad and Hammad, 2020; Waddill-Goad, 2019). Poor mental health of nurses is a cause of concern for the healthcare sector (Kinman, Teah and Harriss, 2020).

Mental health education in the university has been identified as one solution for improving poor mental health in the workplace (Geirdal, Nerdrum and Bonsaksen, 2019). Accordingly, mental health and mental wellbeing of nursing students have been substantially researched (Cilar et al., 2019; Kotera et al., 2020; Oates et al., 2020). Studying nursing is often regarded as more stressful than other healthcare studies, leading to compromised mental wellbeing in students (Tung et al., 2018; Turner and McCarthy, 2017; Walker and Mann, 2016). In addition to common stressors in higher education—pressure of academic work and personal life factors—, nursing students are exposed to realities of clinical practice (Edwards et al., 2015), such as offering care for the critically-ill in a short-staffed context (Zhao et al., 2015), and intense fear for making errors (Yıldırım et al., 2017). Balancing academic work

and clinical work is stressful to many nursing students. For example, in the United Kingdom (UK), the current standards for nursing programmes denote that student nurses will complete 2300 hours of theory and practice respectively during training (Nursing and Midwifery Council [NMC], 2018). Such high demands for practice can damage nursing students' mental wellbeing (Edwards et al., 2010).

Taken together, the low levels of mental wellbeing in nursing students are increasingly recognised by the key governing bodies. Development of mental health awareness for student nurses is regarded as a central part of their proficiency standards (NMC, 2018). Despite these policy-level changes (e.g., NMC's standards for mental wellbeing), little information is offered on how this should occur within the academic curriculum.

Self-Compassion as Key for Mental Health

Self-compassion, commonly regarded as the ability to notice suffering in oneself and others with a commitment to eliminate the suffering (Neff, 2003a), is strongly related to positive mental health experiences in many healthcare student populations (Kotera, Green and Sheffield, 2019b; Kotera and Ting, 2019b). Three components of self-compassion are (i) being kind and understanding towards oneself (self-kindness), (ii) acknowledging that suffering is part of human life (common humanity), and (iii) being present in the here and now (mindfulness). Self-compassion is recognised as a significant element in cultivating compassion for others, particularly in terms of seeing failure and suffering as an inherent part of human experience.

Self-compassion has been strongly related to improving mental health in UK university students, where students who were more kind towards themselves demonstrated

better mental health (Kotera et al., 2018b, 2019a). The positive relationship between self-compassion and mental health has been seen in professional nurses (Dev et al., 2018) and nursing students (Luo et al., 2019).

Challenges in Cultivating Self-Compassion

Though numerous psychological benefits of self-compassion have been reported, interventions to cultivate self-compassion remain unexplored. Common interventions (e.g., the Mindfulness Self-Compassion programme; Neff and Germer, 2013) are predominantly associated with meditative exercises, failing to support people who are not suited for this approach. For example, some people do not engage with meditation because of its non-directiveness (i.e., they feel drowsy or sleepy) (Bojic and Becerra, 2017). People who have recurrent trauma may be scared to practice meditation as it can expose them to traumatic memory (Zeldin, 2015). In order to suggest alternative approaches for self-compassion, this study aimed to identify predictors of self-compassion from more established psychological constructs, namely emotional resilience (hereafter ‘resilience’), academic engagement (hereafter ‘engagement’), motivation and mental wellbeing. These variables were chosen as they were particularly associated with mental wellbeing and self-compassion in previous research (Kotera, Green and Sheffield, 2019a, 2019c).

Resilience

Resilience is associated with self-compassion (Kotera and Ting, 2019). Although there is still no agreed definition, resilience is commonly regarded as a construct where internal resources and behaviours are embraced in order to cope with difficulties and challenges, thus leading to a strengthened personality and psychological coping mechanisms (Grant and Kinman, 2014). Resilience drives one’s attention to strengths and opportunities,

rather than weaknesses and vulnerability, through reframing one's perspectives (Russ, Lonne and Darlington, 2009; Harrison, 2013). Resilient individuals may be affected by difficulties (e.g., trauma, loss); however they are not lastingly overwhelmed by these experiences (Tugade and Fredrickson, 2004). Resilient people cope with these challenges by acquiring new skills (Carver, 1998). Resilience is associated with better mental health, potentiating compassion, self-efficacy, and mindfulness (Robertson et al., 2015).

Resilience has also been underlined as a potential factor to help nurses cope with professional difficulties without impacting one's mental wellbeing (NMC, 2018b). However, to date, no studies empirically investigated the effect of resilience on self-compassion in nursing students.

Engagement

Engagement can be defined as the time and physical energy that students spend on relevant activities. Engagement can be defined as the culmination of effort experienced by students to study, practice, obtain feedback, analyse, and solve problems (Kuh, 2003).

Engagement is a common construct in academic research as it is related to positive educational outcomes such as higher student achievement, higher grades and successful obtainment of an academic degree (Kuh, 2003). Engagement is also related to positive psychological outcomes including better mental health (Suárez-Colorado et al., 2019; Datu, 2018; Kotera and Ting, 2019), resilience (Turner, Scott-Young and Holdsworth, 2017), and higher intrinsic motivation (Armbruster et al., 2009). Despite these diverse positive relationships between engagement and other psychological constructs, the impact of engagement on self-compassion has not been appraised in nursing students.

Motivation

One of the most established motivation theories, the Self-Determination Theory (SDT) maintains that each individual has an inherent tendency to express their psychological energy into self-actualisation and social adjustment. Intrinsic motivation can be expressed in activities that are inherently interesting and fulfilling (i.e., undertaking the activity itself is a reward) (Deci and Ryan, 1985). Intrinsic motivation is associated with better performance (Baard, Deci and Ryan, 2006), mental wellbeing (Bailey and Phillips, 2016), improved life satisfaction (Locke and Latham 2004), increased prosocial behaviour (Gagne, 2003) and ethical judgment (Kotera et al., 2018b). In higher education, students' intrinsic motivation is associated with meaningfulness (Utvær, 2014) and improved academic performance (Khalaila, 2015).

Extrinsic motivation, on the other hand, can be observed in activities that are means to an end, such as money and status (Deci and Ryan, 1985). Extrinsic motivation is associated with burnout (Houkes et al., 2003), shame (Kotera et al., 2018a), depression (Blais et al., 1993), limited performance (Vallerand, 1997), and unethical judgment (Kotera et al., 2018b). The third category of motivation, amotivation, is when individuals do not feel interest or value in a certain activity such as going to university (Shen et al., 2010).

Self-compassion's impact on motivation has been identified; self-compassion expands beliefs about a personal weakness, which motivates students to make amends and allocate more study time for a difficult test following an initial failure (Breines and Chen, 2012). However, the impact of motivation on self-compassion has not been evaluated.

Mental Wellbeing

Mental wellbeing can be defined as a state of equilibrium between an individual's resource pool and the challenges faced through events or challenges (Dodge et al., 2012). Mental wellbeing relates to the experiences of happiness, life satisfaction, fulfilment,

functioning and purpose in life (Henderson and Knight, 2012). Furthermore, mental wellbeing is understood as the foundation for optimal psychological development, learning effectiveness, social connectedness, and physical health (Barry et al., 2013; Clarke, Kuosmanen and Barry, 2015). It is a multi-dimensional measure of mental health, indicating not just the presence of a positive psychological state but also suggesting the degree with which individuals are able to realise their potential, cope with life's challenges, and thrive mentally (Slade, 2010). A recent cross-cultural study about nursing students' mental wellbeing between Slovenia ($n=90$) and Northern Ireland ($n=109$) reported that most of the students (61% and 71%, respectively) had average level of mental wellbeing (Cilar et al., 2019). However, the study also noted that the rates of nursing students whose mental wellbeing was 'below average' or 'very low' were not modest (10% for Slovenian and 26% for Northern Irish), suggesting a need for evaluation.

In the UK and Canada, where mental health research and policy have attracted increasing attention, focus has shifted towards promoting mental wellbeing rather than eliminating mental health problems (Department of Health, 2009; Mental Health Commission of Canada, 2009). The relationship between mental health and mental wellbeing has been investigated in Malaysian university students, where the need for student support has been highlighted as a measure to reduce negative mental health symptoms (Mey and Yin, 2015). Mental wellbeing was used as a key construct in order to predict large variances in students' mental health experiences (Kotera and Ting, 2019). In the UK, midwifery students' mental wellbeing was investigated, and the importance of regular contacts with peers and academics were highlighted (Oates et al., 2020), whereas interpersonal conflicts and lack of professional support were identified as detrimental factors to their mental wellbeing (Oates et al., 2019). Moreover, mental wellbeing of healthcare trainees, including nursing students, has been challenging in light of the COVID-19 pandemic. An open culture of trust and resilience has

been highlighted as a key factor in maintaining good mental wellbeing in these challenging times (Shaw, 2020). Despite the fact that these findings suggest a need to examine mental wellbeing in greater detail, the impact of mental wellbeing on self-compassion, another key contributor to good mental health, has not been examined in UK nursing students, one of the most stressed student populations in higher education.

Accordingly, this study aimed to appraise relationships of self-compassion through experiences of resilience, engagement, motivation and wellbeing in UK nursing students.

Methods

Study Design

We employed a cross-sectional design in order to generate timely output, and to examine all variables altogether. Correlation and regression analyses were performed.

Participants

Participants were 18 years old or older and enrolled in a nursing programme at an East Midlands (UK) university. Nursing students who were not present on the day of the study were excluded. Paper-based questionnaires, comprising 58 items to be completed approximately in 10 minutes, were distributed in July 2019 by the programme tutors instead of the researchers to avoid bias. Opportunity sample of 198 full-time students who were informed of the study, of which 182 (92% response rate) completed five psychological scales: self-compassion, mental wellbeing, engagement, motivation and resilience. Our sample size exceeded the required sample size calculated by power analysis (84: two tails, p H1 = 0.30, α = 0.05, Power = 0.80, p H0 = 0; Faul et al., 2009). Among 182 participants, 144 were female students (79%), 30 were male students (16%), and 8 did not respond (4%); their ages ranged

from 18 to 52 years old ($M \pm SD = 30.04 \pm 8.31$ years old); 146 were undergraduate students (80%) and 36 were postgraduate students (20%); 164 were British students, 10 were African students (e.g., Zimbabwean), 6 were other European students (e.g., Spanish), and 2 did not respond. Coloured paper was prepared for visually impaired students, however none of the participants used it. Our sample included slightly more male students (16%) than the general UK nursing students (10%; Office for Students, 2020). No compensation was awarded for participation. Following the ethical guidelines, the withdrawn 16 students were not asked for the reason; no reason nor complaint was received.

Ethical Considerations

Ethical approval was granted by the University Research Ethics Committee (Ref: 011017YK). The same participants were also included in a parallel study by the authors. Anonymity was maintained throughout the study. The participants were asked to create a unique participation code, which would be used if they had decided to withdraw. Participants were able to withdraw from the study up to two weeks after completing the survey, by emailing the lead author and noting the participation code and their intention to withdraw. Should the participants experience distress during the study, the contact information of mental health services inside and outside the university was provided.

Instruments

Self-compassion was assessed using the Self-Compassion Scale-Short Form (SCS-SF), a shortened version of the 26-item Self-Compassion Scale (Neff, 2003), 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'; 1='Almost never' to 5='Almost always'; scores for items 1, 4, 8, 9, 11 and 12 are reversed). The mean score of the 12 items was regarded as the self-

compassion score (Raes et al., 2011). Cronbach's alpha was high ($\alpha=.86$; Raes et al., 2011 and $\alpha=.87$ in our sample).

Brief Resilience Scale (BRS; six items) was used to measure the level of *resilience* (Smith et al., 2008). The six items including 'I have a hard time making it through stressful events' are responded on the five-point Likert scale (1='Strongly disagree' to 5='Strongly agree'; scores for the items 2, 4, and 6 are reversed). The mean score of all six items was identified as the resilience score (Smith et al., 2008). BRS had high internal consistency ($\alpha=.80-.91$; Smith et al., 2008 and $\alpha=.86$ in our sample).

Engagement was assessed using the Utrecht Work Engagement Scale for Students (UWES-S), a 17-item scale appraising how active and confident students feel towards their academic activities (Schaufeli and Bakker, 2004). The 17 items consider three subscales: vigour (vitality that leads to substantial effort in academic work; six items, e.g., 'I feel fit and vigorous when I'm studying or I'm in class'), dedication (commitment to academic work; five items, e.g., 'My study inspires me'), and absorption (positive immersion in academic work; six items, e.g., 'When I am studying, I forget everything else around me'), which are rated on a seven-point Likert scale (0='Never' to 6='Always (everyday)') (Schaufeli et al., 2002). UWES-S had high internal consistency ($\alpha=.63-.81$; Schaufeli and Bakker, 2004). In this study, the average of the total score for the engagement measure was used (Schaufeli and Bakker, 2004; $\alpha=.90$ in our sample).

Academic Motivation Scale (AMS; Vallerand et al., 1992) was used to assess *motivation*. AMS consists of 28 items that refer to three types of motivation: intrinsic motivation (12 items, e.g., 'For the pleasure I experience when I discover new things never seen before'), (b) extrinsic motivation (12 items, e.g., 'Because eventually it will enable me to enter the job market in a field that I like'), and (c) amotivation (four items, e.g., 'I can't see why I go to university and frankly, I couldn't care less.'). Students are asked why they go to

university¹, and respond on a seven-point Likert scale (1='Does not correspond at all' to 7='Corresponds exactly'). AMS demonstrated adequate to high internal consistency ($\alpha=.62-.91$; Vallerand et al., 1992 and $\alpha=.81-.92$ in our sample). Each type of motivation was calculated by averaging the scores in all relevant items (Vallerand et al., 1992).

Lastly, *mental wellbeing* was measured using the Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS; Ng Fat et al., 2017), the shortened version of the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS; 14 items; Stewart-Brown and Janmohamed, 2008). SWEMWBS consists of seven positively worded items (e.g., 'I've been feeling relaxed') responded on a five-point Likert scale (1='None of the time' to 5='All of the time') reflecting the previous two weeks. The score was calculated by summing all items (Ng Fat et al., 2017). The internal consistency of SWEMWBS was high ($\alpha=.84$; Ng Fat et al., 2017 and $\alpha=.89$ in our sample).

Procedure

After securing ethical approval, an opportunity sample of nursing students was recruited, as noted in the *Participants* section. Tutors of nursing modules, who were not the researchers, announced about the study approximately two weeks in advance, and distributed the paper-based questionnaire in the beginning of their lectures. Once filled, the questionnaires were collected by the tutor, and handed to a research assistant (not the researcher of this study), who converted the data into a digital format.

Data Analyses

¹ The original AMS used the word 'college (CEGEP)' however to adjust to the UK settings, it was changed to 'university'.

Analyses were conducted using IBM SPSS version 25.0. First, using Little's Missing Completely at Random (MCAR; Little, 1988), incomplete responses of $p > .05$ were recovered ($n=7$). As noted in the Instrument section, all scales used in this study were validated with high reliability. Prior to this study, the same study design was used to explore mental wellbeing of other healthcare students (Kotera, Green and Sheffiled, 2019a, 2019c). Second, the collected data were screened for outliers and the assumptions of parametric tests. Third, correlations between their self-compassion, resilience, engagement, motivation and mental wellbeing were calculated. Lastly, regression analyses predicting self-compassion by resilience, engagement, motivation and mental wellbeing were conducted. As all motivation variables and resilience were not normally distributed (Shapiro-Wilk's test, $p < .05$), data were square-root-transformed to satisfy the assumption of normality (Field, 2017).

Results

No outliers were identified. All variables demonstrated good internal reliability in our sample ($\alpha=.81-92$; Table 1).

Table 1. Descriptive statistics: Self-compassion, resilience, engagement, motivation and mental wellbeing in UK nursing students (n=182)

Scale (Construct)	Subscale (Range)	Mean	SD	α
Self-Compassion Scale-Short Form (Self-Compassion)	Self-Compassion (1-5)	2.68	.70	.87
Brief Resilience Scale (Resilience)	Resilience (1-6)	3.17	.97	.86
Utrecht Work Engagement Scale for Students (Engagement)	Engagement (0-6)	3.68	.96	.90
Academic Motivation Scale (Motivation)	Intrinsic Motivation (1-7)	4.39	1.21	.92
	Extrinsic Motivation (1-7)	5.14	1.04	.85
	Amotivation (1-7)	1.66	1.01	.81
Short Warwick-Edinburgh Mental Wellbeing Scale (Mental Wellbeing)	Mental Wellbeing (7-35)	22.81	5.40	.89

Relationships among Self-compassion, Resilience, Engagement, Motivation and Mental Wellbeing

Pearson's correlation was calculated (Table 2). Self-compassion was positively related to age, resilience, engagement, intrinsic motivation and mental wellbeing, while negatively related to amotivation. Students who had high levels of self-compassion tended to be older, more resilient, engaged, intrinsically motivated, and have better mental wellbeing and lower levels of amotivation. Resilience was positively associated with age, engagement, and mental wellbeing while negatively associated with gender and amotivation. Students who were resilient tended to be older, male, more engaged, and have better mental wellbeing and lower levels of amotivation. Engagement was positively related to age, intrinsic motivation and mental wellbeing, while negatively associated with amotivation. Students who were engaged tended to be older, intrinsically motivated, have better mental wellbeing and lower levels of amotivation. Intrinsic motivation was positively associated with extrinsic motivation and mental wellbeing. Intrinsically motivated students tended to be also extrinsically motivated and have better mental wellbeing. Extrinsic motivation was negatively related to age. Extrinsically motivated students tended to be younger. Lastly, mental wellbeing was positively related to age and negatively related to amotivation. Students who had good mental wellbeing tended to be older and have lower levels of amotivation.

Table 2. Correlations among self-compassion, resilience, engagement, motivation and mental wellbeing in UK nursing students (n=182).

	1	2	3	4	5	6	7	8	9
1 Gender (1=M, 2=F)	-								
2 Age	-.18*	-							
3 Self-Compassion	-.14	.15*	-						
4 Resilience	-.17*	.18*	.69**	-					
5 Engagement	-.01	.28**	.36**	.26**	-				
6 Intrinsic Motivation	.04	.06	.23**	.10	.48**	-			
7 Extrinsic Motivation	.10	-.17*	-.08	-.13	.07	.56**	-		
8 Amotivation	-.13	-.04	-.23**	-.19**	-.37**	-.15	-.07	-	
9 Mental Wellbeing	.05	.23**	.61**	.55**	.49**	.28**	.05	-.23**	-

* $p < .05$, ** $p < .01$. Point-biserial correlation coefficients were reported for gender.

Predictors of Self-Compassion

To explore the relative contribution of resilience, engagement, motivation and mental wellbeing to self-compassion, multiple regression analyses were performed (Supplemental Materials). First, gender and age were entered to adjust for their effects (step one), and then resilience, engagement, motivation and mental wellbeing were entered (step two). Extrinsic motivation was removed from this analysis as it was not significantly correlated to self-compassion. Multicollinearity was not a concern ($VIF < 10$). Adjusted coefficient of determination ($Adj. R^2$) were reported.

Resilience, engagement, motivation and mental wellbeing accounted for 52% of the variance in self-compassion indicating a large effect size (Cohen, 1988). Resilience and mental wellbeing were significant predictors of self-compassion, where resilience ($\beta = .50$; one unit increase on the resilience scale is associated with .50 unit increase on the self-compassion scale) predicted self-compassion more strongly than mental wellbeing ($\beta = .29$; one unit increase on the mental wellbeing scale is associated with .29 unit increase on the self-compassion scale).

Discussion

This study aimed to elucidate relationships between self-compassion, resilience, engagement, motivation and mental wellbeing in nursing students. Our analysis revealed that self-compassion was positively related to resilience, engagement, intrinsic motivation and mental wellbeing, while negatively related to amotivation. Furthermore, resilience and mental wellbeing were identified as significant predictors for self-compassion, with resilience being the strongest predictor.

Most notable finding from the present study is that resilience was strongly related to self-compassion consistently. This may help educators place self-compassion (a rather new construct) in the context of their education curriculum, linking it with resilience (a more established construct). In nursing education, resilience has been introduced with its tailored definition: *nursing student resilience*, a developmental process, which occurs when a student successfully copes with stress and difficulties using the relevant coping mechanisms (Stephens, 2013). Resilience in nursing students was found important in positive educational outcomes such as academic success and empowerment (Thomas and Revell, 2016). It can be promoted in several ways including classroom training (Pines et al., 2014), social media (Stephens, 2012), as well as reflection and coaching (Hodges, Keeley and Grier, 2005). Reflective or coaching practice was also found useful in reframing students' negative experience into positive one by focusing on what they have learned (Hodges et al., 2005; Stephens, 2013). Our findings suggest that these practical interventions can also be used to cultivate students' self-compassion. As *critical resilience* (keen self-awareness in relation to one's impact to the society; Traynor, 2018) is highlighted in the current nursing practice—encouraging nurses to understand themselves and recognise their resilience more holistically (Traynor, 2018)—, connecting resilience with the self-compassion can be useful to nursing

education. Educators can incorporate a self-compassion component into their existing resilience training.

In addition, a strong relationship between mental wellbeing and self-compassion identified in both correlation and regression analyses suggests that supporting nursing students' mental wellbeing can also help cultivate their self-compassion. Previous studies reported that the social factor is especially important to nursing students' mental wellbeing: good social support can enhance their mental wellbeing, while a lack of social support can harm it (Oates et al., 2019, 2020). Social support, including the quality of relationships with peers, was negatively associated with burnout (Lee et al., 2019), suicidal behaviours (Leal and Santos, 2016) and general health (Fang, Fang and Fang, 2020) in nursing students. Students' evaluation for social support can be increased through social and recreational activities (Leal and Santos, 2016), and cultivating a caring culture in the programme and placement (Fang et al., 2020). These social approaches can also cultivate self-compassion in nursing students, via supporting their mental wellbeing. Future research needs to evaluate the effects of social approaches on self-compassion in nursing students.

Limitations

Several limitations to this study should be noted. First, opportunity sample was recruited at one university for participant recruitment, limiting the generalisability of the findings. Second, SCS-SF was used to measure self-compassion; however, there is an ongoing discussion about its accuracy (Kotera and Sheffield, 2020). Third, self-report measures were used, which may contain response biases (Kotera, Van Laethem and Ohshima, 2020). Fourth, our data were not normality distributed. Fifth, other possibly relevant constructs such as grit or hardiness were not explored. Lastly, the causality of these variables has not been elucidated. Longitudinal data would be needed to understand the temporal

patterning of the observed relationships, which may help identify effective approaches in cultivating self-compassion in nursing students.

Conclusion

The importance of self-compassion has been increasingly reported, however, knowledge on how to cultivate self-compassion is still under-researched. Our findings indicate that resilience and mental wellbeing were consistently and closely related to self-compassion. Nursing educators and practitioners may be able to incorporate self-compassion into the existing resilience training and/or mental wellbeing practices to help cultivate nursing students' self-compassion. In addition to the classroom teaching, coaching practice to develop resilient reframing skills and social approaches to enhance mental wellbeing may improve nursing students' self-compassion as well. Our findings can help to inform alternative approaches for cultivating nursing students' self-compassion.

References

- Armbruster, P., Patel, M., Johnson, E., Weiss, M. (2009). Active Learning and Student-centered Pedagogy Improve Student Attitudes and Performance in Introductory Biology. *CBE-Life Sciences Education*, 8(3), 203-213.
- Baard, P.P., Deci, E.L., Ryan, R.M. (2004). Intrinsic Need Satisfaction: A Motivational Basis of Performance and Well-Being in Two Work Settings. *Journal of Applied Social Psychology*, 34, 2045-2068. <https://doi.org/10.1111/j.1559-1816.2004.tb02690.x>
- Bailey, T.H., Philips, L.J. (2016). The influence of motivation and adaptation on students' subjective well-being, meaning in life and academic performance. *Higher Education Research & Development*, 35(2), 201-216, <https://doi.org/10.1080/07294360.2015.1087474>
- Barry, M.. *et al.* (2013). A systematic review of the effectiveness of mental health promotion interventions for young people in low and middle income countries', *BMC Public Health*, 13(1), 835. doi: 10.1186/1471-2458-13-835.
- Blais, M.R., Brière, N.M., Lachance, L., Riddle, A.S., et al. (1993). L'inventaire des motivations au travail de Blais [The Blais Inventory of Work Motivation]. *Revue Québécoise de Psychologie*, 14(3), 185–215.
- Bojic, S., Becerra, R. (2017). Mindfulness-based treatment for Bipolar Disorder: A systematic review of the literature. *Europe's Journal of Psychology*, 13(3), 573–598. <https://doi.org/10.5964/ejop.v13i3.1138>

- Breines, J.G., Chen, S. (2012). Self-Compassion Increases Self-Improvement Motivation. *Personality and Social Psychology Bulletin*, 38(9), 1133-1143.
<https://doi.org/10.1177/0146167212445599>
- Carver, C.S. (1998). Resilience and Thriving: Issues, Models, and Linkages. *Journal of Social Issues*, 54(2), 245–266. <https://doi.org/10.1111/0022-4537.641998064>
- Ching, S.S.Y., Cheung, K., Hegney, D., Rees, C.S. (2020). Stressors and coping of nursing students in clinical placement: A qualitative study contextualizing their resilience and burnout. *Nurse Education in Practice*, 42, 102690.
<https://doi.org/10.1016/j.nepr.2019.102690>
- Cilar, L. et al. (2019). Mental well-being among nursing students in Slovenia and Northern Ireland: A survey, *Nurse Education in Practice*, 39, 130–135. doi: 10.1016/j.nepr.2019.07.012.
- Clarke, A.M., Kuosmanen, T. Barry, M. (2014). A systematic review of online youth mental health promotion and prevention interventions. *Journal of Youth and Adolescence*, 44(1), 90–113. doi: 10.1007/s10964-014-0165-0.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum Associates.
- Datu, J.A.D. (2018). Flourishing is associated with higher academic achievement and engagement in Filipino undergraduate and high school students. *Journal of Happiness Studies*, 19, 27-39. <https://doi.org/10.1007/s10902-016-9805-2>
- Deci, E.L., Ryan, R.M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Department of Health. (2009). *New horizons. Towards a shared vision for mental health. Consultation*. London: Author.

- Dev, V., Fernando III, A.T., Lim, G., Consedine, N.S. (2018). *Does self-compassion mitigate the relationship between burnout and barriers to compassion? A cross-sectional quantitative study of 799 nurses.*
<https://doi.org/10.1016/j.ijnurstu.2018.02.003>
- Dodge, R., Daly, A.P., Huyton, J., Sanders, L.D. (2012). The challenge of defining wellbeing. *International Journal of Wellbeing*, 2(3), 222-235.
- Edwards, D., Burnard, P., Bennett, K., Hebden, U. (2010). A longitudinal study of stress and self-esteem in student nurses. *Nurse Education Today*.
<https://doi.org/10.1016/j.nedt.2009.06.008>
- Edwards, D. et al. (2015). A systematic review of the effectiveness of strategies and interventions to improve the transition from student to newly qualified nurse, *International Journal of Nursing Studies*. 1254–1268. doi:
 10.1016/j.ijnurstu.2015.03.007.
- Faul, F., Erdfelder, E., Buchner, A., Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Field, A.P. (2017). *Discovering statistics using IBM SPSS statistics*. Sage.
- Gagne, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion*, 27(3), 199-223.
- Geirdal, A., Nerdrum, P., Bonsaksen, T. (2019). The transition from university to work: What happens to mental health? A longitudinal study. *BMC Psychology*, 7(1). doi:
 10.1186/s40359-019-0340-x.
- Grant, L., Kinman, G. (2014). Emotional resilience in the helping professions and how it can be enhanced. *Health and Social Care Education*, 3(1), 23-34.
<https://doi.org/10.11120/hsce.2014.00040>

- Harrison, E. (2013). Bouncing back? Recession, resilience and everyday lives. *Critical Social Policy*, 33(1), 97–113. <https://doi.org/10.1177/0261018312439365>
- Henderson, L.W., Knight, T. (2012). Integrating the hedonic and eudemonic perspectives to more comprehensively understand wellbeing and pathways to wellbeing. *International Journal of Wellbeing*, 2, 196-221.
- Hodges, H.F., Keeley, A.C., Grier, E.C. (2005). Professional resilience, practice longevity, and Parse's theory for baccalaureate education. *Journal of Nursing Education*, 44(12), 548–554. <https://doi.org/10.3928/01484834-20051201-04>
- Hofmeyer, A., Taylor, R., Kennedy, K. (2020). Fostering compassion and reducing burnout: How can health system leaders respond in the Covid-19 pandemic and beyond?' *Nurse Education Today*. doi: 10.1016/j.nedt.2020.104502.
- Houkes, I., Janssen, P.P.M., Jonge, J., Bakker, A.B. (2003). Specific determinants of intrinsic work motivation, emotional exhaustion and turnover intention: A multisample longitudinal study. *Journal of Occupational and Organizational Psychology*, 76(4), 427–450. <https://doi.org/10.1348/096317903322591578>
- Jarrad, R.A., Hammad, S. (2020). Oncology nurses' compassion fatigue, burn out and compassion satisfaction. *Annals of General Psychiatry*, 19(1), p. 22. doi: 10.1186/s12991-020-00272-9.
- Karaca, A., Yildirim, N., Cangur, S., Acikgoz, F., Akkus, D. (2019). Relationship between mental health of nursing students and coping, self-esteem and social support. *Nurse Education Today*. <https://doi.org/10.1016/j.nedt.2019.01.029>
- Khalaila, R. (2015). The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students: Mediating and moderating effects. *Nurse Education Today*, 35(3), 432-438. <https://doi.org/10.1016/j.nedt.2014.11.001>

- Kinman, G., Teah, K., Harriss, A. (2020). *The mental health and wellbeing of nurses and midwives in the United Kingdom*.
https://www.som.org.uk/sites/som.org.uk/files/The_Mental_Health_and_Wellbeing_of_Nurses_and_Midwives_in_the_United_Kingdom.pdf
- Kotera, Y., Adhikari, P., Van Gordon, W. (2018a). Motivation types and mental health of UK hospitality workers. *International Journal of Mental Health and Addiction*, 16, 751–763. <https://doi.org/10.1007/s11469-018-9874-z>.
- Kotera, Y., Conway, E., Van Gordon, W. (2018b). Ethical judgement in UK business students: Relationship with motivation, self-compassion and mental health. *International Journal of Mental Health and Addiction*, 1–15.
<https://doi.org/10.1007/s11469-018-0034-2>
- Kotera, Y., Green, P., Sheffield, D. (2019a) Mental health attitudes, self-criticism, compassion, and role identity among UK social work students. *British Journal of Social Work*, 49(2), 351–370. doi: 10.1093/bjsw/bcy072
- Kotera, Y., Green, P., Sheffield, D. (2019b). Mental health of therapeutic students: Relationships with attitudes, self-criticism, self-compassion, and caregiver identity. *British Journal of Guidance and Counselling*.
<https://doi.org/10.1080/03069885.2019.1704683>
- Kotera, Y., Green, P., Sheffield, D. (2019c). Roles of positive psychology for mental health in UK social work students: Self-compassion as a predictor of better mental health. *British Journal of Social Work*. doi: <https://doi.org/10.1093/bjsw/bcz149>
- Kotera, Y., Ting, S.-H. (2019). Positive psychology of Malaysian university students: Impacts of engagement, motivation, self-compassion, and well-being on mental health. *International Journal of Mental Health and Addiction*.
<https://doi.org/10.1007/s11469-019-00169-z>

- Kotera, Y., Cockerill, V., Chircop, J. Forman, D. (2020). Mental health shame, self-compassion and sleep in UK nursing students: Complete mediation of self-compassion in sleep and mental health. *Nursing Open*.
<https://doi.org/10.1002/nop2.749>
- Kotera, Y., Sheffield, D. (2020). Revisiting the Self-compassion Scale-Short Form: Stronger associations with self-inadequacy and resilience. *SN Comprehensive Clinical Medicine*, 2(6), 761–769. <https://doi.org/10.1007/s42399-020-00309-w>
- Kotera, Y., Van Laethem, M., Ohshima, R. (2020). Cross-cultural comparison of mental health between Japanese and Dutch workers: relationships with mental health shame, self-compassion, work engagement and motivation. *Cross Cultural and Strategic Management*. <https://doi.org/10.1108/CCSM-02-2020-0055>
- Kuh, G.D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. *Change: The Magazine of Higher Learning*, 35(2), 24-32, <https://doi.org/10.1080/00091380309604090>
- Little, R.J.A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83(404), 1198–1202. doi: 10.1080/01621459.1988.10478722.
- Locke, E.A., Latham, G.P. (2004). What should we do about Motivation Theory? Six recommendations for the twenty-first century. *Academy of Management Review*, 29(3), 388-403. <https://doi.org/10.2307/20159050>
- Luo, Y., Meng, R., Li, J., Liu, B., Cao, X., Ge, W. (2019). *Self-compassion may reduce anxiety and depression in nursing students: a pathway through perceived stress* *Public Health*. <https://doi.org/10.1016/j.puhe.2019.05.015>
- Mental Health Commission of Canada. (2009). *Toward recovery and well-being*.
Calgary: Author.

- Mey, S.C., Yin, C.J. (2015). Mental health and wellbeing of the undergraduate students in a research university: A Malaysian experience. *Social Indicators Research*, 122, 539–551. <https://doi.org/10.1007/s11205-014-0704-9>
- Neff, K. (1996). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, 2, 85-101.
<https://doi.org/10.1080/15298860390129863>
- Neff, K. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, 2(3), 223–250. <https://doi.org/10.1080/15298860309027>
- Neff, K., Germer, C.K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology*, 69(1), 28–44.
<https://doi.org/10.1002/jclp.21923>
- Ng Fat, L., Scholes, S., Boniface, S., Mindell, J., Stewart-Brown, S. (2017). Evaluating and establishing national norms for mental wellbeing using the short Warwick–Edinburgh Mental Well-being Scale (SWEMWBS): Findings from the Health Survey for England. *Quality of Life Research*, 26(5), 1129–1144.
<https://doi.org/10.1007/s11136-016-1454-8>
- Nursing and Midwifery Council. (2018). *Future nurse: Standards of proficiency for registered nurses*. <https://www.nmc.org.uk/globalassets/sitedocuments/education-standards/future-nurse-proficiencies.pdf>
- Oates, J. et al. (2019). The mental health and wellbeing of midwifery students: An integrative review. *Midwifery*, 80–89. doi: 10.1016/j.midw.2019.02.007.
- Oates, J. et al. (2020). “The rollercoaster”: A qualitative study of midwifery students’ experiences affecting their mental wellbeing. *Midwifery*, 88. doi: 10.1016/j.midw.2020.102735.

- Oginska-Bulik, N., Michalska, P. (2020). Psychological resilience and secondary traumatic stress in nurses working with terminally ill patients: The mediating role of job burnout. *Psychological Services*. doi: 10.1037/ser0000421.
- Office for Students. (2020). *Male participation in nursing and allied health higher education courses*. Author. <https://www.officeforstudents.org.uk/publications/male-participation-in-nursing-and-allied-health-higher-education-courses/>
- Pines, E.W., Rauschhuber, M.L., Cook, J.D., Norgan, G.H., Canchola, L., Richardson, C., Jones, M.E. (2014). Enhancing resilience, empowerment, and conflict management among baccalaureate students: Outcomes of a pilot study. *Nurse Educator*, 39(2), 85–90. <https://doi.org/10.1097/NNE.0000000000000023>
- Raes, F., Pommier, E., Neff, K.D., Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology and Psychotherapy*, 18(3), 250–255. <https://doi.org/10.1002/cpp.702>
- Ryan, R.M., Deci, E.L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52(1), 141–166. doi: 10.1146/annurev.psych.52.1.141.
- Robertson, I.T., Cooper, C.L., Sarkar, M., Curran, T. (2015). Resilience training in the workplace from 2003 to 2014: A systematic review. *Journal of Occupational and Organizational Psychology*, 88(3), 533–562. <https://doi.org/10.1111/joop.12120>
- Russ, E., Lonne, B., Darlington, Y. (2009). Using resilience to reconceptualise child protection workforce capacity. *Australian Social Work*.
<https://doi.org/10.1080/03124070903060042>
- Schaufeli, W.B., Bakker, A.B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25(3), 293–315. <https://doi.org/10.1002/job.248>

- Schaufeli, W., Salanova, M., González-romá, V., Bakker, A. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3(1), 71–92.
<https://doi.org/10.1023/A:1015630930326>
- Shaw, S.C.K. (2020). Hopelessness, helplessness and resilience: The importance of safeguarding our trainees' mental wellbeing during the COVID-19 pandemic. *Nurse Education in Practice*. doi: 10.1016/j.nepr.2020.102780.
- Shen, B., Li, W., Sun, H., Rukavina, P. (2010). The influence of inadequate teacher-to-student social support on amotivation of physical education students. *Journal of Teaching in Physical Education*, 29(4), 417-432.
<https://journals.humankinetics.com/view/journals/jtpe/29/4/article-p417.xml>
- Slade, M. (2010). Mental illness and well-being: the central importance of positive psychology and recovery approaches. *BMC Health Services Research*, 10, 26,
<https://doi.org/10.1186/1472-6963-10-26>
- Smith, B.W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15(3), 194–200. <https://doi.org/10.1080/10705500802222972>
- Stephens, T.M. (2012). *Increasing Resilience in Adolescent Nursing Students*. Doctoral Dissertation.
https://trace.tennessee.edu/cgi/viewcontent.cgi?article=2500&context=utk_graddiss
- Stephens, T.M. (2013). Nursing student resilience: A concept clarification. *Nursing Forum*, 48(2), 125–133. <https://doi.org/10.1111/nuf.12015>
- Stewart-Brown, S., Janmohamed, K. (2008). *Warwick-Edinburgh Mental Well-being Scale (WEMWBS) user guide version 1*. Warwick: Warwick Medical School.

- Suárez-Colorado, Y., Caballero-Domínguez, C., Palacio-Sañudo, J., Abello-Llanos, R. (2019). Cambios del burnout académico, engagement y la salud mental durante un semestre de estudio. *Duazary*, 16(1), 23-37.
<https://doi.org/10.21676/2389783X.2530>
- Tennant, R. et al. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *Health and Quality of Life Outcomes*, 5(1), p. 63. doi: 10.1186/1477-7525-5-63.
- Thomas, L.J., Revell, S.H. (2016). Resilience in nursing students: An integrative review. *Nurse Education Today*, 36, 457–462. <https://doi.org/10.1016/j.nedt.2015.10.016>
- Traynor, M. (2018). Guest editorial: What’s wrong with resilience. *Journal of Research in Nursing*, 23(1), 5–8. <https://doi.org/10.1177/1744987117751458>
- Tugade, M.M., Fredrickson, B.L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, 86(2), 320–333. <https://doi.org/10.1037/0022-3514.86.2.320>
- Tung, Y.J. et al. (2018). Prevalence of depression among nursing students: A systematic review and meta-analysis. *Nurse Education Today*. doi: 10.1016/j.nedt.2018.01.009.
- Turner, K., McCarthy, V.L. (2017). Stress and anxiety among nursing students: A review of intervention strategies in literature between 2009 and 2015. *Nurse Education in Practice*. doi: 10.1016/j.nepr.2016.11.002.
- Turner, M., Scott-Young, C.M., Holdsworth, S. (2017). Promoting wellbeing at university: the role of resilience for students of the built environment. *Construction Management and Economics*, 35(11-12), 707-718, DOI: <https://doi.org/10.1080/01446193.2017.1353698>

- Utvær, K.S.B. (2014). Explaining health and social care students' experiences of meaningfulness in vocational education: The importance of life goals, learning support, perceived competence, and autonomous motivation. *Scandinavian Journal of Educational Research*, 58(6), 639-658, <https://doi.org/10.1080/00313831.2013.821086>
- Vallerand, R.J., Pelletier, L.G., Blais, M.R., Briere, N.M., Senecal, C., Vallieres, E.F. (1992). The Academic Motivation Scale: A measure of intrinsic, extrinsic, and amotivation in education. *Educational and Psychological Measurement*, 52(4), 1003–1017. <https://doi.org/10.1177/0013164492052004025>
- Waddill-Goad, S.M. (2019). Stress, fatigue, and burnout in nursing. *Journal of Radiology Nursing*, 38(1), 44–46. <https://doi.org/10.1016/j.jradnu.2018.10.005>
- Walker, M, Mann, R.A. (2016). Exploration of mindfulness in relation to compassion, empathy and reflection within nursing education. *Nurse Education Today*. doi: 10.1016/j.nedt.2016.03.005.
- Xie, J. et al. (2020). Relationships among character strengths, self-efficacy, social support, depression, and psychological well-being of hospital nurses. *Asian Nursing Research*, 14(3), 150–157. doi: 10.1016/j.anr.2020.06.002.
- Xin, S., Jiang, W., Xin, Z. (2019). Changes in Chinese nurses' mental health during 1998-2016: A cross-temporal meta-analysis. doi: 10.1002/smi.2907.
- Yıldırım, N. et al. (2017). The relationship between educational stress, stress coping, self-esteem, social support, and health status among nursing students in Turkey: A structural equation modeling approach. *Nurse Education Today*, 48, 33–39. doi: 10.1016/j.nedt.2016.09.014.

Zhao, F. et al. (2015). The study of perceived stress, coping strategy and self-efficacy of Chinese undergraduate nursing students in clinical practice. *International Journal of Nursing Practice*, 21(4), 401–409. doi: 10.1111/ijn.12273.

Zeldin, T. (2015). *The hidden pleasures of life: a new way of remembering the past and imagining the future*. MacLehose Press.

Supplemental Material

Multiple regression: Resilience, engagement, motivation and mental wellbeing to self-compassion among nursing students (n = 182).

	Self-Compassion		
	B	SE _B	β
Step 1			
Gender (1=M, 2=F)	-.06	.04	-.11
Age	.003	.002	.13
Adj. R ²		.02	
Step 2			
Gender (1=M, 2=F)	-.04	.03	-.07
Age	-.001	.001	-.03
Resilience	.38***	.05	.50
Engagement	.05	.06	.07
Intrinsic Motivation	.03	.04	.04
Amotivation	-.04	.04	-.06
Mental Wellbeing	.11***	.03	.29
Δ Adj. R ²		.52	

B=unstandardised regression coefficient, SE_B=standard error of the coefficient, β=standardised coefficient; *** $p < .001$.