

Wellbeing, burnout, and safe practice among healthcare professionals

Prudenzi, Arianna; Graham, Christopher D.; Flaxman, Paul E.; O'Connor, Daryl B.

DOI:

[10.1080/13548506.2021.1898651](https://doi.org/10.1080/13548506.2021.1898651)

License:

Creative Commons: Attribution (CC BY)

Document Version

Publisher's PDF, also known as Version of record

Citation for published version (Harvard):

Prudenzi, A, Graham, CD, Flaxman, PE & O'Connor, DB 2021, 'Wellbeing, burnout, and safe practice among healthcare professionals: predictive influences of mindfulness, values, and self-compassion', *Psychology, Health & Medicine*. <https://doi.org/10.1080/13548506.2021.1898651>

[Link to publication on Research at Birmingham portal](#)

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Wellbeing, burnout, and safe practice among healthcare professionals: predictive influences of mindfulness, values, and self-compassion

Arianna Prudenzi, Christopher D. Graham, Paul E. Flaxman & Daryl B. O'Connor

To cite this article: Arianna Prudenzi, Christopher D. Graham, Paul E. Flaxman & Daryl B. O'Connor (2021): Wellbeing, burnout, and safe practice among healthcare professionals: predictive influences of mindfulness, values, and self-compassion, *Psychology, Health & Medicine*, DOI: [10.1080/13548506.2021.1898651](https://doi.org/10.1080/13548506.2021.1898651)

To link to this article: <https://doi.org/10.1080/13548506.2021.1898651>



© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



[View supplementary material](#)



Published online: 15 Apr 2021.



[Submit your article to this journal](#)



Article views: 989







[View related articles](#)



[View Crossmark data](#)

Wellbeing, burnout, and safe practice among healthcare professionals: predictive influences of mindfulness, values, and self-compassion

Arianna Prudenzi ^a, Christopher D. Graham ^b, Paul E. Flaxman ^c
and Daryl B. O'Connor ^a

^aSchool of Psychology, University of Leeds, Leeds, UK; ^bSchool of Psychology, Queen's University Belfast, Belfast, Northern Ireland; ^cCity, University of London, London, UK

ABSTRACT

Poor wellbeing and burnout are significant issues among healthcare professionals (HCPs) and may contribute to unsafe practice. In this exploratory study, we aimed to: provide the first investigation of the combined and unique influences of these psychological factors in predicting safe practice; confirm the role played by mindfulness in relation to wellbeing, burnout and safe practice; and investigate whether values and self-compassion predict additional variability above and beyond mindfulness skills. Ninety-eight NHS staff completed measures of wellbeing, burnout, perceived safety of practice, mindfulness, values and self-compassion. Practitioners with higher perceived safety of practice reported higher levels of mindfulness, but not values or self-compassion, particularly lower experiential avoidance and nonjudgmental attitude toward difficult thoughts. Mindfulness explained significant variability in psychological distress (20%), emotional exhaustion (8%), cognitive weariness (10%), patient safety related to oneself (7%), and related to work (8%). Values (obstruction) added unique variance for psychological distress (12%) and physical fatigue (10%). Moreover, self-compassion explained a small yet significant portion of variability in emotional exhaustion. These preliminary findings suggest that mindfulness processes may be associated with perceived safety of practice. The results also indicate that mindfulness-based interventions for HCPs may benefit from the inclusion of values-based action components and self-compassion practices.

ARTICLE HISTORY

Received 28 August 2020
Accepted 1 March 2021

KEYWORDS

Wellbeing; burnout; patient safety; mindfulness; values; self-compassion; worry and rumination

Introduction

Poor wellbeing and high levels of work-related stress are well documented in health-care professionals (HCPs) (Johnson et al., 2018; O'Connor et al., 2020). Prolonged symptoms of work-related stress can have serious consequences at an individual level (poor work-life balance, reduced quality of life, substance abuse and suicidality) and at an organisational level (high staff turnover, sickness absence, poor quality of care), both of which contribute to poor patient care (Hall et al., 2016; Johnson et al., 2018). When HCPs

CONTACT Arianna Prudenzi  a.prudenzi@leeds.ac.uk  School of Psychology, University of Leeds, Leeds LS2 9JF, UK
 Supplemental data for this article can be accessed [here](#).

© 2021 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.
This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

experience symptoms of distress following an error or near miss, they may be reluctant to seek help. As a consequence, depression, anxiety, shame and guilt are reported consistently (see Sirriyeh et al., 2010; Seys et al., 2013, for reviews). These effects may affect the health and wellbeing of ‘second victims’ – clinicians who encounter a medical error or witness adverse event (Stewart et al., 2015).

Given these challenges, we designed the current study to examine the potential influences of various psychological processes on both stress-related and patient safety outcomes among HCPs. Specifically, we explored the role played by a number of variables proposed by the theories underlying ‘third wave’ cognitive behavioural therapies, such as Acceptance and Commitment Therapy (ACT), mindfulness-based interventions (MBIs), and Compassion Focused Therapy (CFT) as important determinants of psychological wellbeing, alongside more established factors such as work-related worry and rumination. Specifically, we investigated the integration of values and self-compassion alongside mindfulness in explaining wellbeing, burnout and perceived safety of practice among health-care staff. It is hoped that the findings will hold practical implications for the design of ACT and mindfulness-based programs being delivered to staff in health-care settings. In particular, we intend to examine the congruency of this study’s findings with recent discussions around integrating values-based behavioural processes within mindfulness interventions (Puolakanaho et al., 2020), and the potential benefits of integrating SC strategies within workplace ACT programs.

Mindfulness, values and self-compassion in health-care professionals

The first variable of interest in the current study is mindfulness. Mindfulness is commonly defined as ‘paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally’ (Kabat-Zinn, 1994, p. 4). Growing evidence suggests that mindfulness-based programmes are effective for improving wellbeing in HCPs (see Bartlett et al., 2019 for a review). These programmes also teach acceptance-based ways to interact with unwanted emotions as alternatives to unhelpful attempts to control or avoid these experiences (experiential avoidance) (Lindsay & Creswell, 2017).

Secondly, we are interested in investigating the role of values, which is explicitly included as the motivational and behavioural activation process within ACT’s intervention model. Values are defined as one individual’s freely chosen orientations (e.g., caring for others) that influence daily behaviours, goals and activities (e.g., caring for a severely ill patient) (Wilson, 2009).

The close integration of mindfulness and values-based processes has long been a feature in newer types of workplace cognitive behavioural programs, such as ACT (e.g., Bond & Bunce, 2000; Flaxman et al., 2013). However, little is known about the more specific role of values-based processes above and beyond mindfulness and, specifically, the degree to which both values progress (e.g., engaging in action that is consistent with personal values) and values obstruction (e.g., experiences of obstacles to pursuing such actions) uniquely influence psychological distress, burnout, and practice outcomes among health-care staff.

The third variable of interest is self-compassion (SC), the primary treatment target of Compassion-Focused Therapy (CFT; Gilbert, 2009). CFT aims to engender SC by helping participants reduce the amount of harshly comparative and self-critical thoughts

being experienced (self-kindness), by teaching self-reflection and self-awareness skills (mindfulness), and purposefully adopting a caring approach toward oneself, patients and colleagues (common humanity) (Neff, 2003). Several studies have shown that SC correlated positively with wellbeing in HCPs (Beaumont, Durkin, Hollins Martin et al., 2016; Beaumont, Durkin, Martin et al., 2016; Linley & Joseph, 2007).

In recent years, there has been growing interest in integrating SC processes in cognitive behavioural interventions with the overarching aim of helping clients to engage more fully in value-consistent behaviours with self-kindness and self-validation (Neff & Tirsch, 2013; Polk et al., 2016). In health-care contexts, SC techniques can support employees to deal with negative emotions such as shame and guilt, especially in the face of errors and patient incidents. SC can help foster particular qualities such as self-kindness, self-awareness or recognizing one's own humanity. However, in the current literature little is known about the combined and unique influences of mindfulness, values, and SC on the psychological health and practice of HCPs.

Finally, we were interested in testing whether these variables together explain unique variance in addition to more established drivers of poor well-being and burnout in working populations, such as worry and rumination (Brosschot et al., 2006; Flaxman et al., 2012; O'Connor et al., 2021, 2013). In this study, we were interested in investigating work-related worry and rumination (work-related WR), defined as perseverative 'thought or thoughts directed to issues relating to work' (Cropley & Zijlstra, 2011, p. 6).

While previously separate strands of evidence suggest that each of the focal variables contribute to well-being in HCPs, it is unknown the extent to which they are associated with perceived safety of practice. Also, in terms of informing practice, it seems timely to investigate whether values and SC processes can account for unique variance in HCPs' wellbeing, burnout and perceived safety of practice beyond mindfulness alone. Understanding the unique effects for one or more of these variables allows us to understand which processes should be optimally targeted within existing mindfulness programs that are being delivered in the workplace, and particularly to staff in health-care organisations.

Primary aims

- (1) To investigate the association between mindfulness, values, self-compassion, work-related worry and rumination and perceived safety of practice in a sample of NHS staff;
- (2) To confirm the role played by mindfulness in explaining wellbeing, burnout and perceived safety of practice in HCPs;
- (3) To explore whether values contribute unique variance in explaining wellbeing, burnout and perceived safety of practice after accounting for mindfulness;
- (4) To explore whether self-compassion (SC) contributes unique variance in explaining wellbeing, burnout and perceived safety of practice after accounting for mindfulness and values.

Secondary aim

- (1) To explore whether mindfulness, values and SC explain unique variability in wellbeing, burnout and safety of practice beyond work-related WR.

Method

Design

A cross-sectional questionnaire-based study. The ethical approval was granted by the School of Psychology Research Ethics Committee (ref#17-0212 accepted on 22/07/2017) and the Health Research Authority R&D approval (ref#18/HRA/0200 accepted on 21/09/2017).

Participants

Of a total of 146 participants who showed interest in the study, 98 staff (90.8% female) within the NHS in West Yorkshire, England returned both the consent form and the questionnaire and, thus, were included in the study. The mean age was 42.97 years (SD = 10.18). On average, staff reported working 34.14 (SD = 8.5) hours per week and a mean of 8.06 (SD = 7.59) years in the current role. Forty-eight percent of staff reported working full time with the remainder working part-time.

Measures

Participants completed the survey via Bristol Online Survey (BOS).

Procedure

The NHS employees were contacted via the NHS Leeds primary care managers who sent out posters and advertisements for taking part in this research. If participants were interested in the research, primary care managers would send a link with the Participant Information Sheet and a consent form to take part.

Mindfulness, values and self-compassion

Mindfulness was measured by following the compartmentalisation of attention monitoring and acceptance mechanisms suggested by Lindsay and Creswell (2017). The mechanism of attention monitoring was assessed with the Observing subscale of the Five Facet Mindfulness Questionnaire (FFMQ) (Baer et al., 2008). The acceptance component of mindfulness was assessed with the Distress Endurance subscale of the Multidimensional Experiential Avoidance Questionnaire (MEAQ) (Gámez et al., 2011) and the FFMQ facets of Nonjudgment and Nonreactivity. Each subscale, except for the MEAQ, was composed of three items. Higher scores indicate higher acceptance. The Cronbach's α for the MEAQ was .90, for the FFMQ-Observing was .70, for the FFMQ-Nonjudgment was .78, and the FFMQ-Nonreactivity was .80.

Values. Values-based behaviour was assessed with the Valuing Questionnaire (Smout et al., 2014). This 10-item scale is designed to assess people's ability to engage in actions that are consistent with their personal values (values progression), and also their experiences of internal obstacles to pursuing such actions (values obstruction). The Cronbach's α in the current study was .79 for the progress component and .74 for the obstruction subscale.

Self-Compassion was measured with the short-form 12-item Self-Compassion Scale (Raes et al., 2011). The Cronbach's α in the current study was .83 for the total scale.

Work-related worry and rumination was measured with two 5-item questionnaires capturing affective rumination (Cropley et al., 2012) and perseverative cognition (Flaxman et al., 2012). The Cronbach's α for the combined worry and rumination scale was .93.

Psychological health outcomes and perceptions of safe practice

Perceived safety of practice

Perception of safe practice was measured using the Safe Practitioner measure via the following two items: 'In the past four weeks, my practice was not as safe as it could be because of work-related factors/conditions' (individual perceptions of safe practices about work); and, 'My practice is safe' (individual perceptions of safe practice about one's self). These measures were validated in previous studies (Louch et al., 2016, 2017).

Wellbeing

We used the 12-item General Health Questionnaire 12 (Goldberg & Williams, 1988) to assess recent symptoms of distress. The Cronbach's α in the current study was .84 for the total scale.

Burnout

The 14-item Shirom-Melamed Burnout Measure (Shirom & Melamed, 2006) was employed to measure work-related burnout. The Cronbach's α in the current study was .90 for the total scale ($\alpha = .86$ physical fatigue; $\alpha = .94$ emotional exhaustion; $\alpha = .94$ cognitive weariness).

Statistical analyses

For the main analyses, we employed the GHQ Likert method. Caseness of psychological distress was also calculated by using a GHQ-scoring method, with scores greater than 4 points indicating symptomatic levels of distress (Russ et al., 2012). Missing data analysis are reported in supplementary materials.

Statistical analyses were conducted in SPSS (version 24). Pearson's correlations between variables of interest were examined, and effect sizes were interpreted as $r = .10$ weak, $r = .25$ moderate, and $r = .40$ strong effects (Cohen, 1988). Hierarchical regression analyses were conducted, after having controlled for age, length of time in the current role, number of hours typically worked in a week and mindfulness practice. Four hierarchical regressions were tested to explore whether: 1) mindfulness explained psychological distress, burnout (physical fatigue, emotional exhaustion, cognitive weariness) and perceived safety of practice; 2) values would add a unique contribution to mindfulness in explaining

psychological distress, burnout, and perceived safety of practice; 3) SC would add a unique contribution, after mindfulness and values, in explaining psychological distress, burnout, and perceived safety of practice; 4) psychological distress, burnout, and perceived safety of practice could be explained by the addition of mindfulness, values and self-compassion mechanisms together (step 2) to work-related worry and rumination (step 1).

Results

Descriptive statistics

Means, standard deviations and correlations for the outcomes and process measures are reported in Table 1. The mean GHQ-12 score was just above the cut-off indicating a symptomatic level of distress ($M = 15.75$, $SD = 4.90$) with participants reporting scores across the whole range of the scale: highly symptomatic (26.5), symptomatic (34.7), subclinical (22.4%), and asymptomatic (15.3%).

Associations between mindfulness, values, self-compassion, work-related worry/ rumination and perceived safety of practice

The participants who reported that their practice was unsafe were also less willing to accept unpleasant thoughts and emotions (mindfulness-EA) ($r = .22$, $p = .03$), and were making more judgments about their inner experience (mindfulness-nonjudgment) ($r = .25$; $p = .01$). Participants who reported that their practice was unsafe because of work-related conditions reported that they were less able to pay attention without judgment (mindfulness-nonjudgment) ($r = -.32$, $p = .002$), and had higher levels of work-related worry and rumination about work ($r = .27$, $p = .008$).

Role of mindfulness and values in explaining psychological distress, burnout and safe practice perceptions

Regarding mindfulness, for psychological distress, at step 1, mindfulness-nonjudgment together with mindfulness-nonreactivity were found to be significant predictors, $F(4, 93) = 7.176$, $p < .001$, accounting for 20% variance (see step 1 for each regression model in Table 2). For physical fatigue, mindfulness at step 1 was not found to be a significant predictor, $F(4, 93) = 2.281$, $p = .066$. For emotional exhaustion, mindfulness-nonjudgment at step 1, $F(4, 93) = 3.157$, $p = .02$, was found to be significant explaining 8% of the variance. For cognitive weariness, experiential avoidance ($\beta = -.21$, $p = .04$) and mindfulness-nonjudgment ($\beta = -.23$, $p = .04$), at step 1 explained 10% of the variance. For both perceived safety of practice related to one's self ($\beta = .27$, $p = .003$) and perceived safety of practice related to work ($\beta = -.33$, $p = .02$), mindfulness-nonjudgment alone explained, respectively, 7% and 8% of the variance.

Table 1. Pearson's correlations between main study variables (N = 98).

	M	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Psychological distress (1)	15.75	4.91	1													
Physical fatigue-burnout (2)	3.81	.97	.50**	1												
Emotional exhaustion-burnout (3)	2.78	1.29	.26*	.20*	1											
Cognitive weariness-burnout (4)	3.85	1.33	.21*	.29**	.13	1										
Patient safety (work) (5)	1.91	1.07	1	1												
Patient safety (self) (6)	1.83	0.89	-.54**	1												
Mindf- exp avoidance (DE) (7)	41.63	7.63	.22*	1												
Mindfulness-observing (8)	8.76	2.71	1	1												
Mind-nonjudgment (9)	9.64	3.08	0.18	1												
Mindfulness - nonreactivity (10)	8.06	2.54	1	1												
Values- obstruction (11)	19.02	5.72														
Values-progression (12)	21.5	5.80														
Self-compassion (13)	31.98	7.67														
Work-related worry and rumination (14)	14.95	4.83														

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).DE: distress endurance subscale.



Table 2. Hierarchical linear regression models testing the relationship between mindfulness, values and self-compassion and psychological health

	Predictors	β step 1	β step 2	β step 3	R2 change for step	Total ΔR2
Step 1	Mindfulness	.05	.13	.13		.20**
	Exp Avoidance (DE)	.03	.05	.11		
	Mindfulness-Observing					
	Mindfulness-Nonjudgment	-.31**	-.20*	-.14		
	Mindfulness-Nonreactivity	-.28*	-.14	-.12		
Step 2	Values		-.08	-.06	.12**	.31**
	Values-Progression					
	Values-Obstruction		.39**	.38**		
Step 3	Self-Compassion			-.20	.02	.33
Step 1	Mindfulness	.09	.18	.18		.05
	Exp Avoidance (DE)	.05	.09	.15		
	Mindfulness-Observing					
	Mindfulness-Nonjudgment	-.20	-.09	-.04		
	Mindfulness-Nonreactivity	-.17	-.02	.00		
Step 2	Values		-.20	-.18	.10**	.14**
	Values-Progression					
	Values-Obstruction		.31**	.30**		
Step 3	Self-Compassion			-.17	.02	.15
Step 1	Mindfulness	.14	.13	.13		.08*
	Exp Avoidance (DE)	-.05	-.07	-.15		
	Mindfulness-Observing					
	Mindfulness-Nonjudgment	-.29**	-.29**	-.37**		
	Mindfulness-Nonreactivity	-.08	-.09	-.11		
Step 2	Values		.09	.06	.00	.07
	Values-Progression					
	Values-Obstruction		.06	.07		
Step 3	Self-Compassion			.26*	.04*	.11*
Step 1	Mindfulness	-.21*	-.15	-.15		.10*
	Exp Avoidance (DE)	-.05	-.02	-.01		
	Mindfulness-Observing					
	Mindfulness-Nonjudgment	-.23*	-.17	-.16		
	Mindfulness-Nonreactivity	-.03	.07	.07		
Step 2	Values		-.11	-.11	.04	.12
	Values-Progression					
	Values-Obstruction		.20	.20		
Step 3	Self-Compassion			-.02	.00	.11
Step 1	Mindfulness	.17	.16	.16		.07*
	Exp Avoidance (DE)	-.06	-.07	-.05		
	Mindfulness-Observing					
	Mindfulness-Nonjudgment	.27**	.27**	.29**		
	Mindfulness-Nonreactivity	-.12	-.13	-.12		

(Continued)

Table 2. (Continued).

		Predictors	β step 1	β step 2	β step 3	R2 change for step	Total ΔR2
Step 2	Values	Values-Progression		.04	.05	.00	.05
		Values-Obstruction		.00	.00	.00	
Step 3	Self-Compassion	Self-Compassion			-.07	.00	.04
		Patient Safety related to work					
Step 1	Mindfulness	Exp Avoidance (DE)	-.09	-.09	-.09		.08*
		Mindfulness-Observing	.09	.10	.10		
		Mindfulness-Nonjudgment	-.33**	-.32**	-.32**		
		Mindfulness-Nonreactivity	.04	.05	.05		
Step 2	Values	Values-Progression		.01	.01	.00	.06
		Values-Obstruction		.03	.03		
Step 3	Self-Compassion	Self-Compassion			-.01	.00	.05

Note: DE: Distress endurance

** p<.005

* p<.05

Testing the unique influence of values in explaining psychological distress, burnout and perceived safety of practice

Introducing values obstruction after mindfulness did significantly enter the regression equation (see step 2 for each regression model in Table 2) for psychological distress ($\beta = .39, p = <.001$), contributing 12% of unique variance, and for physical fatigue ($\beta = .31, p = .007$), contributing 10% of unique variance. Values did not enter the regression equation for cognitive weariness, emotional exhaustion, or perceptions of patient safety.

Testing the unique influence of self-compassion in explaining psychological distress, burnout and perceived safety of practice

After controlling for both mindfulness and values, self-compassion was found to be a significant predictor of the emotional exhaustion component of burnout, explaining an additional 4% of variance (see step 3 for each regression model in Table). However, SC was not a unique predictor of psychological distress, physical fatigue, cognitive weariness, or safe practice.

Secondary aim

Combined measures of mindfulness, values and SC added 23% of unique variance after work-related worry and rumination were included in the models in explaining psychological distress, 14% to physical fatigue and 12% to the cognitive weariness component of burnout (see Supplementary Table 1).

Discussion

Three main findings emerged from this study. First, it was found that those who reported that their practice was unsafe presented higher scores in EA and lower scores in the nonjudgment component of mindfulness. Second, values explained unique variance in psychological distress and physical fatigue, above and beyond the influence of attentional and attitudinal facets of mindfulness. Third, SC explained unique variance in emotional exhaustion after both mindfulness and values were included in the models. These findings lend support to the view that mindfulness-based programs delivered in the workplace could be enhanced by the inclusion of values based behavioural activation component (e.g., Puolakanaho et al., 2020).

To the best of our knowledge, this is the first study to investigate relationships between variables such as specific components of mindfulness, values, and SC in relation to perceived safety of healthcare practice. These findings are important because they suggest that mindfulness processes could affect the perceived safety of practice in several ways. Considered prospectively, EA could lead to avoidance of difficult emotions that might arise with the need to change behaviour in the service of implementing safe practice. Or perhaps the relationship between these variables is explained by participants who have

made mistakes at work, trying to avoid having the emotions and thoughts that come along with reflecting on one's mistakes.

The findings may also have practical implications for mindfulness-based interventions in the workplace. For example, staff who perceive themselves to have made a mistake may benefit from a mindfulness-based approach with an acceptance focus – on developing their ability to open-up to associated aversive emotions, like fear and anxiety. Similarly, it may be that training HCPs to notice their EA could lead to better patient safety of practice. Disentangling the direction of the relationships between EA and safety practices will allow us to know which intervention strategies are likely to be most effective. To this end, prospective study designs, such as daily diary studies, are recommended.

Commensurate with several previous studies (McCracken & Yang, 2008; Noone & Hastings, 2011; Vilardaga et al., 2011), findings from this study also confirm the role played by mindfulness and values in explaining significant proportions of variance in psychological distress (31%), and several aspects of burnout: physical fatigue (14%), emotional exhaustion (8%), and cognitive weariness (10%).

With regards to our second aim, SC explained a small yet statistically significant portion of additional variance (4%) in emotional exhaustion once mindfulness facets and values-based behaviour had been accounted for. These results are compatible with previous reviews of research involving HCPs showing the potential role of SC in helping HCPs reduce stress and increase clinical effectiveness (Raab, 2014). Based on the conservation of resources (COR) conceptualisation of job burnout, the emotional exhaustion measure used in this study was specifically capturing HCPs' emotional resources for offering interpersonal support at work (an example item was 'I feel I am not capable of investing emotionally in co-workers and patients'). Accordingly, the predictive role of SC in relation to this aspect of burnout implies that an increase in self-compassion could provide HCPs with adequate resources for helping co-workers and patients without becoming personally over-depleted (Shirom, 2003). In terms of the intervention implications, this unique relationship observed between SC and emotional exhaustion (above and beyond both mindfulness and values) suggests that workplace programs targeting staff burnout would benefit from the deliberate cultivation of SC around existing strategies (see Polk et al., 2016; Tirsch, 2010).

Results from this exploratory study should be interpreted cautiously given a number of limitations. First, while the findings regarding relationships between EA and perceived safe practice are novel, causality cannot be assumed due to the cross-sectional design employed. Second, self-report and not behavioural measures were used. Third, a relatively small convenient sample of NHS staff in England were recruited, potentially reducing the generalisability of results.

In conclusion, this study has shown that the attitudinal facets of mindfulness (i.e., EA and nonjudgment) are associated with perceptions of safe practice among HCPs. The findings suggest that practitioners who adapt mindfulness-based interventions for workplace settings could consider the potential of integrating techniques designed to promote mindful awareness of values-oriented behaviour. Similarly, our results suggest that mindfulness programmes delivered to reduce burnout among health-care staff could be enhanced by integrating processes that target SC.

Disclosure statement

The authors report no conflict of interest.

Funding

This research was supported by the National Health System Clinical Commissioning Group (NHS CCG), the National Institute for Health Research Yorkshire and Humber Patient Safety Translational Research Centre (NIHR Yorkshire and Humber PSTRC) and the University of Leeds. The views expressed in this article are those of the author(s) and not necessarily those of the NHS, the NIHR, the Department of Health and Social Care or University. The funders played no role in design, data collection, analyses, interpretation of data, writing the report or in the submission of the paper. They accept no responsibility for the content.

ORCID

Arianna Prudenzi  <http://orcid.org/0000-0002-5185-2807>

Christopher D. Graham  <http://orcid.org/0000-0001-8456-9154>

Paul E. Flaxman  <http://orcid.org/0000-0002-6417-2499>

Daryl B. O'Connor  <http://orcid.org/0000-0003-4117-4093>

References

- Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., . . . Williams, J. M. G. (2008). Construct validity of the five facet mindfulness questionnaire in meditating and non-meditating samples. *Assessment*, 15(3), 329–342. <https://doi.org/10.1177/1073191107313003>
- Bartlett, L., Martin, A., Neil, A. L., Memish, K., Otahal, P., Kilpatrick, M., & Sanderson, K. (2019). A systematic review and meta-analysis of workplace mindfulness training randomized controlled trials. *Journal of Occupational Health Psychology*, 24(1), 108. <https://doi.org/10.1037/ocp0000146>
- Beaumont, E., Durkin, M., Hollins Martin, C. J., & Carson, J. (2016). Measuring relationships between self-compassion, compassion fatigue, burnout and well-being in student counsellors and student cognitive behavioural psychotherapists: A quantitative survey. *Counselling and Psychotherapy Research*, 16(1), 15–23. <https://doi.org/10.1002/capr.12054>
- Beaumont, E., Durkin, M., Martin, C. J. H., & Carson, J. (2016). Compassion for others, self-compassion, quality of life and mental well-being measures and their association with compassion fatigue and burnout in student midwives: A quantitative survey. *Midwifery*, 34, 239–244. <https://doi.org/10.1016/j.midw.2015.11.002>
- Bond, F. W., & Bunce, D. (2000). Mediators of change in emotion-focused and problem-focused worksite stress management interventions. *Journal of Occupational Health Psychology*, 5(1), 156. <https://doi.org/10.1037/1076-8998.5.1.156>
- Brosschot, J. F., Gerin, W., & Thayer, J. F. (2006). The perseverative cognition hypothesis: A review of worry, prolonged stress-related physiological activation, and health. *Journal of Psychosomatic Research*, 60(2), 113–124. <https://doi.org/10.1016/j.jpsychores.2005.06.074>
- Cohen, J. (1988). *Statistical power analysis for the social sciences*. Laurence Erlbaum Associates.
- Cropley, M., Michalianou, G., Pravettoni, G., & Millward, L. J. (2012). The relation of post-work ruminative thinking with eating behaviour. *Stress and Health*, 28(1), 23–30. <https://doi.org/10.1002/smi.1397>
- Cropley, M., & Zijlstra, F. R. (2011). Work and rumination. *Handbook of Stress in the Occupations*, 487–503.

- Flaxman, P. E., Bond, F. W., & Livheim, F. (2013). *The mindful and effective employee: An acceptance and commitment therapy training manual for improving well-being and performance*. New Harbinger Publications.
- Flaxman, P. E., Ménard, J., Bond, F. W., & Kinman, G. (2012). Academics' experiences of a respite from work: Effects of self-critical perfectionism and perseverative cognition on postrespite well-being. *Journal of Applied Psychology*, 97(4), 854. <https://doi.org/10.1037/a0028055>
- Gámez, W., Chmielewski, M., Kotov, R., Ruggero, C., & Watson, D. (2011). Development of a measure of experiential avoidance: The multidimensional experiential avoidance questionnaire. *Psychological Assessment*, 23(3), 692. <https://doi.org/10.1037/a0023242>
- Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment*, 15(3), 199–208. <https://doi.org/10.1192/apt.bp.107.005264>
- Goldberg, D., & Williams, P. (1988). *General health questionnaire*. Granada Learning Group.
- Hall, L. H., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D. B. (2016). Healthcare staff wellbeing, burnout, and patient safety: a systematic review. *PLoS one*, 11(7), e0159015.
- Johnson, J., Hall, L. H., Berzins, K., Baker, J., Melling, K., & Thompson, C. (2018). Mental healthcare staff well-being and burnout: A narrative review of trends, causes, implications, and recommendations for future interventions. *International Journal of Mental Health Nursing*, 27(1), 20–32. <https://doi.org/10.1111/inm.12416>
- Kabat-Zinn, J. (1994). *Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life*. Hyperion.
- Lindsay, E. K., & Creswell, J. D. (2017). Mechanisms of mindfulness training: Monitor and Acceptance Theory (MAT). *Clinical Psychology Review*, 51, 48–59. <https://doi.org/10.1016/j.cpr.2016.10.011>
- Linley, P. A., & Joseph, S. (2007). Therapy work and therapists' positive and negative well-being. *Journal of Social and Clinical Psychology*, 26(3), 385–403. <https://doi.org/10.1521/jscp.2007.26.3.385>
- Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83(404), 1198–1202. <https://doi.org/10.1080/01621459.1988.10478722>
- Louch, G., O'Hara, J., Gardner, P., & O'Connor, D. B. (2016). The daily relationships between staffing, safety perceptions and personality in hospital nursing: A longitudinal on-line diary study. *International Journal of Nursing Studies*, 59, 27–37. <https://doi.org/10.1016/j.ijnurstu.2016.02.010>
- Louch, G., O'Hara, J., Gardner, P., & O'Connor, D. B. (2017). A daily diary approach to the examination of chronic stress, daily hassles and safety perceptions in hospital nursing. *International Journal of Behavioral Medicine*, 24(6), 946–956. <https://doi.org/10.1007/s12529-017-9655-2>
- McCracken, L. M., & Yang, S.-Y. (2008). A contextual cognitive-behavioral analysis of rehabilitation workers' health and well-being: Influences of acceptance, mindfulness, and values-based action. *Rehabilitation Psychology*, 53(4), 479. <https://doi.org/10.1037/a0012854>
- Neff, K. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, 2(2), 85–101. <https://doi.org/10.1080/15298860309032>
- Neff, K., & Tirsch, D. (2013). Self-compassion and ACT. In T. B. Kashdan & J. Ciarrochi (Eds.), *The Context Press mindfulness and acceptance practica series. Mindfulness, acceptance, and positive psychology: The seven foundations of well-being* (pp. 78–106). New Harbinger Publications, Inc.
- Noone, S. J., & Hastings, R. P. (2011). Values and psychological acceptance as correlates of burnout in support staff working with adults with intellectual disabilities. *Journal of Mental Health Research in Intellectual Disabilities*, 4(2), 79–89. <https://doi.org/10.1080/19315864.2011.582230>
- O'Connor, D. B., Hall, L. H., & Johnson, J. (2021). Job strain, burnout, wellbeing and patient safety. In A. Montgomery, M. Van Der Doef, E. Panagopoulou, & M. Leiter (Eds.), *The Triple Challenge: Connecting health care worker well-being, patient safety and organisational change* (pp. 11–23). Springer
- O'Connor, D. B., Aggleton, J. P., Chakarabati, D., Cooper, C. L., Creswell, C., Dunsmuir, S., Fiske, S. T., Gathercole, S., Gough, B., Ireland, J. L., Jones, M. V., Jowett, A., Kagan, C.,

- Karanika-Murray, M., Kaye, L. K., Kumari, V., Lewandowsky, S., Lightman, S., Malpass, D., Meins, E., ... Armitage, C. J. (2020). Research Priorities for the COVID-19 pandemic and beyond: A call to action for psychological science. *British Journal of Psychology*, *111*(4), 603–629. <https://doi.org/10.1111/bjop.12468>
- O'Connor, D. B., Walker, S., Hendrickx, H., Talbot, D., & Schaefer, A. (2013). Stress-related thinking predicts the cortisol awakening response and somatic symptoms in healthy adults. *Psychoneuroendocrinology*, *38*(3), 438–446. <https://doi.org/10.1016/j.psyneuen.2012.07.004>
- Polk, K. L., Schoendorff, B., Webster, M., & Olaz, F. O. (2016). *The essential guide to the ACT matrix: A step-by-step approach to using the ACT matrix model in clinical practice*. New Harbinger Publications.
- Puolakanaho, A., Tolvanen, A., Kinnunen, S. M., & Lappalainen, R. (2020). A psychological flexibility-based intervention for burnout: A randomized controlled trial. *Journal of Contextual Behavioral Science*, *15*, 52–67. <https://doi.org/10.1016/j.jcbs.2019.11.007>
- Raab, K. (2014). Mindfulness, self-compassion, and empathy among health care professionals: A review of the literature. *Journal of Health Care Chaplaincy*, *20*(3), 95–108. <https://doi.org/10.1080/08854726.2014.913876>
- 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 & Psychotherapy*, *18*(3), 250–255. <https://doi.org/10.1002/cpp.702>
- Russ, T. C., Stamatakis, E., Hamer, M., Starr, J. M., Kivimäki, M., & Batty, G. D. (2012). Association between psychological distress and mortality: Individual participant pooled analysis of 10 prospective cohort studies. *Bmj*, *345*(jul31 4), e4933–e4933. <https://doi.org/10.1136/bmj.e4933>
- Seys, D., Wu, A. W., Gerven, E. V., Vleugels, A., Euwema, M., Panella, M., ... Vanhaecht, K. (2013). Health care professionals as second victims after adverse events: A systematic review. *Evaluation & the Health Professions*, *36*(2), 135–162. <https://doi.org/10.1177/0163278712458918>
- Shirom, A. (2003). Job-related burnout: A review. In J. C. Quick & L. E. Tetrick (Eds.), *Handbook of occupational health psychology* (pp. 245–264). American Psychological Association. <https://doi.org/10.1037/10474-012>
- Shirom, A., & Melamed, S. (2006). A comparison of the construct validity of two burnout measures in two groups of professionals. *International Journal of Stress Management*, *13*(2), 176. <https://doi.org/10.1037/1072-5245.13.2.176>
- Sirriyeh, R., Lawton, R., Gardner, P., & Armitage, G. (2010). Coping with medical error: A systematic review of papers to assess the effects of involvement in medical errors on healthcare professionals' psychological well-being. *Quality and Safety in Health Care*, *19*(6), e43–e43. <https://doi.org/10.1136/qshc.2009.035253>
- Smout, M., Davies, M., Burns, N., & Christie, A. (2014). Development of the valuing questionnaire (VQ). *Journal of Contextual Behavioral Science*, *3*(3), 164–172. <https://doi.org/10.1016/j.jcbs.2014.06.001>
- Stewart, K., Lawton, R., & Harrison, R. (2015). Supporting “second victims” is a system-wide responsibility. *BMJ*, *350*, h2341. <https://doi.org/10.1136/bmj.h2341>
- Tirch, D. D. (2010). Mindfulness as a context for the cultivation of compassion. *International Journal of Cognitive Therapy*, *3*(2), 113–123. <https://doi.org/10.1521/ijct.2010.3.2.113>
- Vilardaga, R., Luoma, J. B., Hayes, S. C., Pistorello, J., Levin, M. E., Hildebrandt, M. J., ... Bond, F. (2011). Burnout among the addiction counseling workforce: The differential roles of mindfulness and values-based processes and work-site factors. *Journal of Substance Abuse Treatment*, *40*(4), 323–335. <https://doi.org/10.1016/j.jsat.2010.11.015>
- Wilson, K. G. (2009). *Mindfulness for two: An acceptance and commitment therapy approach to mindfulness in psychotherapy*. New Harbinger Publications.