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RESEARCH ARTICLE

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Pragmatic randomized controlled trial of the Mind Management Skills for Life Programme as an intervention for occupational burnout in mental healthcare professionals

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ABSTRACT

Background: Occupational burnout is highly prevalent in the mental healthcare workforce and associated with poorer job satisfaction, performance and outcomes.

Aims: To evaluate the effects of the Mind Management Skills for Life Programme on burnout and wellbeing.

Methods: $N = 173$ mental health nurses were recruited from the English National Health Service during the acute phase of the COVID-19 crisis. Participants were allocated to an immediate intervention or a delayed intervention control group, using a stepped wedge randomized controlled trial design. Measures of burnout (OLBI) and wellbeing (WEMWBS) were completed at four time-points: [1] baseline; [2] after the first group finished the intervention; [3] after the second group finished the intervention; and [4] six-months follow-up.

Results: Between-group differences were compared at each time-point using ANCOVA adjusting for baseline severity. Statistically significant effects on burnout ($d = 0.60$) and wellbeing ($d = -0.62$) were found at time-point 2, favouring the intervention relative to waitlist control. No significant differences were found at subsequent time-points, indicating that both groups improved and maintained their gains after the intervention.

Conclusions: This intervention led to moderate improvements in burnout and wellbeing, despite the adverse circumstances of the COVID-19 pandemic at the time of the study.

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Introduction

Occupational burnout refers to a state of job-related emotional exhaustion and disengagement (Demerouti et al., 2002). Burnout is known to be particularly acute in healthcare professionals (da Costa & Pinto, 2017). Previous studies have demonstrated that burnout has a negative impact on psychological wellbeing and also physical health (Salvagioni et al., 2017). Burnout is also associated with poorer job performance (Taris, 2006), and increased absenteeism and staff turnover (Lee et al., 2011; Salvagioni et al., 2017). Burnout not only has adverse consequences for healthcare professionals, but it is also associated with medical errors (Shanafelt et al., 2010), medico-legal cases (Balch et al., 2011), and healthcare related infections (Cimiotti et al., 2012). Furthermore, burnout is one of the main reasons for staff shortages due to sickness in publicly (Sizmur & Raleigh, 2018).

Studies in the field indicate that burnout is particularly acute in mental health workers, affecting around 40% according to one meta-analysis (O'Connor et al., 2018). This is likely to be related to the emotionally demanding nature of mental health care, and is associated with reactions such as compassion fatigue and vicarious trauma (Figley, 1995, 2002). Research in the field of psychological therapies indicates that mental health workers with higher indices of burnout and those with lower job satisfaction attain poorer patient treatment outcomes (Delgadillo et al., 2018). This evidence indicates the need for health services in general, and mental health services in particular, to establish policies, resources and interventions that could support the occupational health and wellbeing of their staff.

Approaches to address occupational burnout include individual interventions (e.g. stress management courses, cognitive-behavioral interventions, mindfulness and relaxation skills) and organizational interventions (e.g. workload redesign, practice delivery changes, adjustment of workload

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or work hours, social support within organization, increasing decision-making autonomy). Numerous studies have assessed the remedial or preventive effect of such interventions across various occupational contexts (e.g. Maricuțoiu et al., 2016; Richardson & Rothstein, 2008). Meta-analyses of studies involving health care workers indicate that both individual and organizational strategies can help to reduce burnout (e.g. Lee et al., 2016; West et al., 2016). Of these, cognitive-behavioral interventions are the most well-established, showing larger effects than relaxation skills interventions and organizational interventions (Richardson & Rothstein, 2008). In the specific field of mental health care, studies of burnout-focussed interventions have yielded mixed results (e.g. Morse et al., 2012) and meta-analytic investigations of controlled trials indicate that these interventions may not be as effective as in other occupational groups. For example, a meta-analysis of 27 studies reported a small (Hedges' $g = .13$, $p = .006$) but positive effect of burnout interventions in mental health professionals (Dreison et al., 2018). This pooled effect size is smaller than the effects of similar interventions in other health professionals such as nurses (Lee et al., 2016) and physicians (Panagioti et al., 2017; West et al., 2016).

Overall, occupational burnout remains a considerable burden on mental health professionals, for whom currently available individual and organizational interventions have limited effects. Current empirically-supported interventions based on cognitive behavioural therapy are based on theories that were developed to understand and treat psychopathology – such as depression. Such theories often take a deficit-orientation, suggesting that people who develop mental disorders have some underlying vulnerabilities and coping deficits that need to be understood and overcome (e.g. Beck et al., 1979). However, burnout is a context-specific stress reaction that occurs in relation to occupational demands (Maslach, 1982), and its maintaining mechanisms (e.g. demands-resources imbalance; Demerouti et al., 2001) are distinctive to those that maintain mental disorders such as depression and anxiety. There is a need to develop and empirically test the potential value of novel interventions, and particularly those that are individual-focussed, which do not necessarily take a psychopathological perspective on burnout.

The *Mind Management Skills for Life Programme* was developed by Professor Steve Peters based on a model of the human mind elaborated in the book called The Chimp Paradox (Peters, 2012). This guided self-help programme integrates insights from neuroscience and psychological theory and aims to offer practical strategies and skills for the individual to learn how to understand their mind and to guide their actions according to their personally-relevant life goals. Unlike other contemporary dual-processing theories (Kahneman, 2011), this model understands human reasoning and decision-making as emerging from the interplay of three subsystems. In the book called A Path Through the Jungle (Peters, 2021), the author explains that the mind functions by operating two interdependent decision-making systems, with a third system that supports these two systems. The first reacting system operates from an emotional basis and is primed to work with in-built drives (Kringebach & Berridge, 2016), instincts and emotionally based thinking. This system is primed to optimise survival of the species and the individual. The second responding system works by using executive skills and forms a personal agenda under the control of the individual. The third system supports both of the first two systems and can act independently to carry out automatic thinking and behavioural processes. By emotional skills management, the second system can work with a rational approach to help achieve robustness and resilience and avoid emotionally led thinking and behaviours, which can lead to problems.

Thus, the *Mind Management Skills for Life Programme* guides participants to understand the structure and functioning of the mind. Having understood this, the programme offers participants individual insights into how to optimise the functioning of their own unique mind. The programme specifically considers how to acquire emotional skills to manage thinking, behaviours and emotions. To achieve this, the model guides participants to reflect on and plan how they can manage the following specific areas: understanding and working with emotion; changing habits and managing life events; stabilising the mind; creating a stress-free lifestyle; optimising interactions with others; and building robustness and resilience. In an occupational context, this programme is intended to support individuals to understand and manage how they react to experiences at work, in order to reduce their occupational burnout, improve their wellbeing and work towards their personal goals.

The present study was the first empirical test of the *Mind Management Skills for Life Programme* in a healthcare context, involving mental health nurses in the English National Health Service. We hypothesised that exposure to the intervention would be associated with significantly lower occupational burnout and higher wellbeing indicators compared to a wait-list control group, expecting a maintenance of effects at a six-month follow-up assessment.

Materials and method

Design and hypotheses

This was a pragmatic, stepped wedge, open-label, randomized controlled trial involving mental health nurses who worked for a large healthcare organization in the north of England, Rotherham Doncaster and South Humber (RDaSH) NHS Foundation Trust. Participants were recruited from 13th February 2020 to 3rd March 2020. Overall participants accessed interventions and were followed-up between 3rd March 2020 to 19th January 2021. All participants accessed an eight-week, group-based psycho-educational intervention. Participants were randomized to one of two groups, [1] an immediate intervention group or [2] a delayed intervention group which accessed the intervention eight weeks later. As such, group two served as a waitlist control group during the first eight-weeks. Measures of burnout and wellbeing were collected online

using and industry-standard, fully anonymised, survey system. Scores were compared between groups at three timepoints; after group 1 received the intervention, after both groups received the intervention, and at six months' follow-up after the second measurement. Further details of the randomization, intervention, measures and analyses are described below. The study tested three hypotheses: [A] Exposure to the intervention will be associated with significantly lower mean burnout severity and higher wellbeing by comparison to a waitlist (delayed intervention) control group. [B] After the control group is exposed to the intervention, there will be no significant differences between the two groups. [C] Six-month follow-up measures will be significantly better than baseline severity measures (i.e. lower burnout and higher wellbeing), but not significantly different to end-of-intervention measures, indicating maintenance of gains.

The trial was approved by a UK NHS research ethics committee and the Health Research Authority (REF: 20/WA/0029), and the procedures and planned analyses were pre-registered in the international database of controlled trials (ISRCTN34503872).

Eligibility criteria and recruitment process

Nurses were eligible to be included if [1] they currently worked at RDaSH either full-time or part-time, [2] they held an active professional registration with the Nursing and Midwifery Council, and [3] were aged 18 or over. Nursing staff who were ineligible if they did not meet the above criteria or if they were currently accessing or had been referred to any concurrent psychological intervention delivered by a professional (to minimize confounding). Nurses that were not in active service at the time of recruitment (for example, those on sick leave, maternity leave or suspended for any reason) were also ineligible, as this would preclude them from applying the intervention in their daily work routine.

The study was promoted using a variety of methods, including information circulated via email from the NHS communications team, via the staff intranet, via posters placed in communal hospital areas, and members of the research team promoted the study at clinical team meetings. Participants were involved on a purely voluntary basis and they provided informed consent forms directly to the research team. As part of the consent form, participants agreed to the use of their data in research.

Randomization and masking

Consenting participants were randomly allocated to [1] an immediate intervention group or [2] a waitlist and delayed intervention group. Randomization was carried out by a member of the research team, applying a simple (no minimization or stratification) 1:1 computerized randomization schedule. Random allocation was communicated directly to each participant, and the intervention team had no knowledge of or influence on the allocation schedule. The resulting study dataset was anonymised in a way that masked the group number/sequence, and an independent researcher carried out the data analysis with blinded randomization sequence.

Intervention

In the present study, the *Mind Management Skills for Life Programme* was delivered through a structured and group-based self-help intervention that lasted eight weeks (one ninety minute-long session per week). The sessions involved a combination of lecture-style presentations, group-based discussions, self-reflection and written tasks. Sessions were supplemented by written materials derived from the primary resource. The programme offers an understanding of how the mind is structured and how it functions in everyday life, based on research from neuroscience and psychology. Participants are helped to learn and to relate the "rules of the mind" to their own experiences. An eight-stage workshop series applies their learning to areas including: self, others, communication, their environment, health and wellbeing and personal functioning. "Self" includes understanding and management of behaviours, thinking and emotions.

The course handbook (Mind Management Skills for Life Programme; Peters, 2012) expands on the topic areas and offers references for further reading. It also includes practical exercises to clarify and consolidate the emotional skills that are being developed. Examples of exercises include; establishing reflective practice, recognising and managing unhelpful thoughts and behaviours, gaining insights into unconscious processes and developing effective communication. Facilitated group discussions give the opportunity to explore and appreciate the experiences of others.

The full programme leads participants to develop practical plans and to acquire emotional skills to establish robustness and resilience.

The groups were delivered by experienced facilitators who were trained and supervised by the intervention developer, although no formal adherence or competence assessments were performed. The present study was the first experimental investigation of the efficacy of this intervention, conducted by an independent research team.

Group sizes ranged from three to 28 participants. A total of four 90-minute long sessions were run each week. All sessions were exactly the same, but due to the nature of nurses working in different shift patterns, running multiple groups increased flexibility allowed participants to attend around their shift patterns each week. The sessions were run at lunch time (noon) and at 5PM on Tuesdays and Thursdays. All participants were paid for their time (as part of their job) if they attended the session, regardless of whether they were on shift or not. For this reason, a register was kept for each session. Following each session, participants were provided with a summary sheet to remind them of what they had learnt. This was alongside being provided the handbook free of charge (*Mind Management Skills for Life Programme*; Peters, 2012).

Initially the intervention was planned to be delivered at a hospital site that was accessible to participants and in a training room adequate for confidential group-based interventions. The first two sessions for group 1 were attended in person. However, due to the mandatory COVID-19 quarantine measures imposed in England in March 2020, the intervention was delivered via video-conference software thereafter for the duration of the study.

Measures

Oldenburg burnout inventory (OLBI, Demerouti et al., 2002)

The OLBI was the primary outcome measure in this trial. This is a 16-item self-report measure with two factors – "Disengagement" and "Exhaustion". The "Disengagement" factor measures how disengaged an individual is with their job. The "Exhaustion" factor measures how tired (physically, cognitively and emotionally) an individual is during and after work. Scores can range from 8 to 32 on each factor, and 16–64 overall. The higher the score on OLBI, the higher the level of burnout. The OLBI has satisfactory psychometric properties when tested against a mixed group of working adults. It has moderate test-retest reliability ($r = .51$, $r = .34$; for the "Exhaustion" and "Disengagement" factors respectively, Halbesleben & Demerouti, 2005). It also has good internal consistency (Cronbach's alpha ranging from .74 to .87; Halbesleben & Demerouti, 2005).

Warwick-Edinburgh mental well-being scale (WEMWBS, Tennant et al., 2007)

The WEMWBS was a secondary outcome of interest. This is a 14-item self-report scale, that measures an individual's mental well-being. Higher WEMWBS scores reflect more positive mental well-being. Scores range from 14 to 70. The WEMWBS has good psychometric properties when tested in a student and general populations. It has excellent test-retest reliability ($r = .83$; Tennant et al., 2007). It also has good internal consistency (Cronbach's alpha ranging from .89−.91; Tennant et al., 2007).

Sample size calculation

There was no precedent for this type of intervention in this setting, or published effect size data that we could refer to. We therefore followed conventional sample size calculation methods described by Cohen (1992). In order to detect a medium effect size using between-groups analysis of covariance, with 80% power, and an alpha level of 0.05, and controlling for intake severity, we estimated that at least 67 participants were needed per group. This yielded a minimum sample size of 134. We expected a 30% dropout rate, which is common in studies of psychological interventions, therefore we inflated the recruitment target to 192.

Statistical analysis

The reporting of trial data was compliant with CONSORT guidelines (Altman et al., 2001) and all analyses were based on *intention-to-treat* principles. Prior to conducting formal analyses, missing outcome data-points were imputed using an expectation-maximization algorithm (Do & Batzoglou, 2008), with separate imputations for groups 1 and 2. The data that support the findings of this study are available from the corresponding author upon reasonable request.

The primary hypothesis test was based on comparing mean outcome measures between groups at week 8, after group 1 finished the intervention. Mean scores were compared between groups using analysis of covariance (ANCOVA), controlling for baseline severity, with separate models for the primary (OLBI) and secondary measures (WEMWBS).

Secondary analyses repeated the ANCOVA described above at each of the measurement-points (weeks 0, 8, 16, 40) for all measures, including totals and subscales of the OLBI measure (exhaustion, disengagement). A within-group (pooled sample combining both groups) paired-samples *t*-test was applied to compare baseline and six-month follow-up measures. A sensitivity analysis repeated all of the above using a completers analysis (excluding cases with missing outcomes data).

Results

The flow of participants and data has been summarised using a CONSORT diagram (Figure 1), and Table 1 summarises the sample characteristics. Overall, $N = 173$ participants were recruited and completed baseline measures. As expected, outcomes data were missing in some cases, with 31% missing at week 8, 42% missing at week 16, and 50% missing at six-months follow-up.

Mean OLBI scores are presented in Figure 2, 95% confidence intervals, and between-groups effect sizes at each measurement point. Throughout the course of the study, both groups showed a trend of reduction in mean burnout levels over time, although group 1 had significantly lower mean burnout levels at 8-weeks follow-up (–3.19 [95% CI −4.36 to −2.02], $p < .001$), equating to a medium effect size ($d = 0.60$; number-needed-to-treat = 3.04). Differences were no longer statistically significant after group 2 received the intervention (0.32 [95% CI −0.94 to 1.58], $p = .617$), nor at six-months follow-up (–0.45 [95% CI −1.84 to 0.94], $p = .521$). Table 2 reports the ANCOVA models and between-group effect sizes for all comparisons in the stepped wedge design for the primary (OLBI total score) and secondary outcomes.

The mean scores at each time point for the three secondary outcomes are displayed in Figure S3 (available in Supplemental materials), they show similar trends of improvements as the primary outcome in both the disengagement and exhaustion facets of burn out and wellbeing. ANCOVA models for all measures revealed the same pattern as described above; where between-group differences

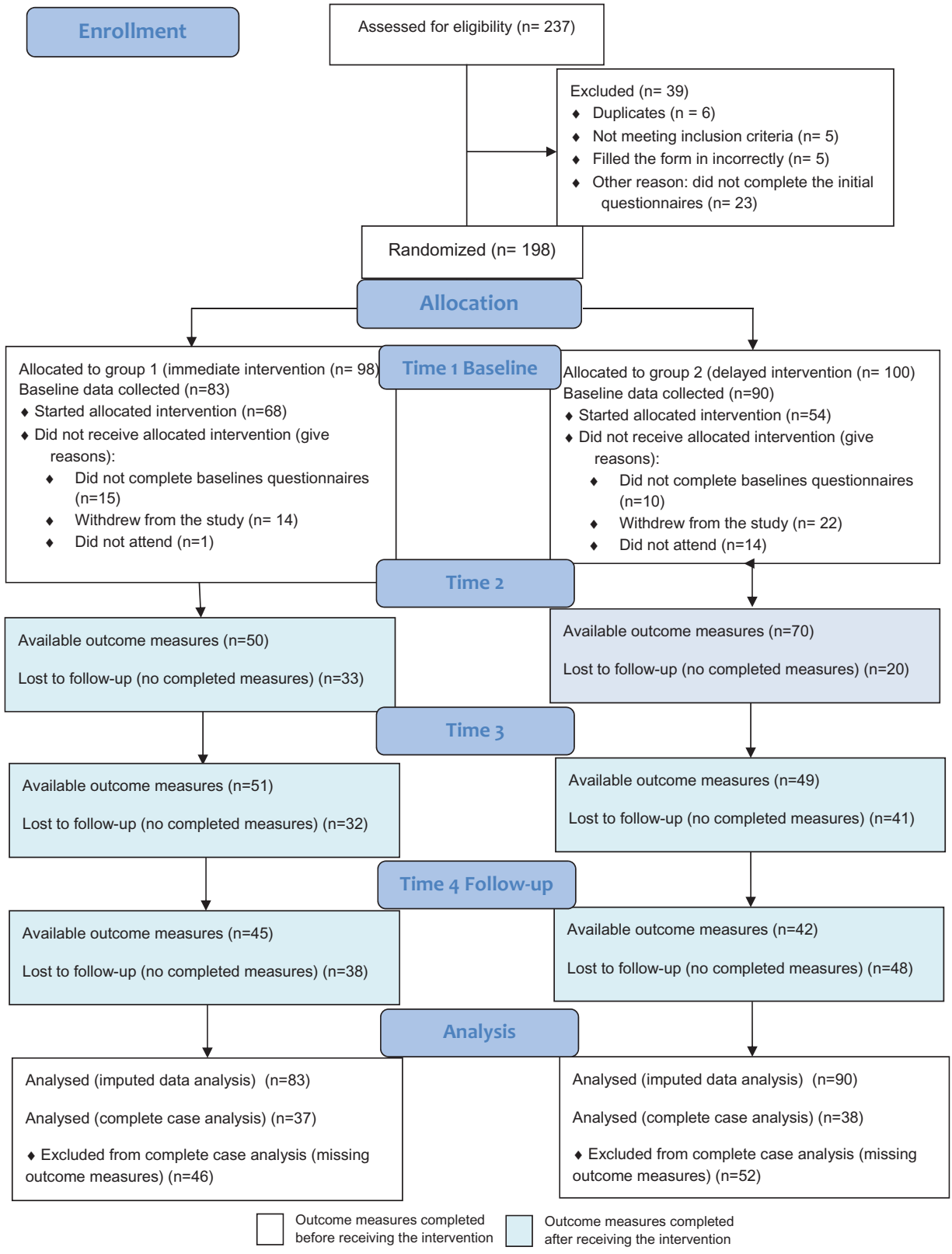

Figure 1. CONSORT flow diagram adapted for a stepped wedge design.

were significant at week 8, but no longer at weeks 16 or at six-months follow-up.

Within-group differences comparing baseline and six-months follow-up measures in the full study sample were statistically significant, indicating that participants had reduced burnout and increased wellbeing at the end of the study (OLBI total mean difference = 3.62 [SD = 5.77], $p < .001$; OLBI disengagement mean difference = 1.23 [SD = 3.10], $p < .001$; OLBI exhaustion mean difference = 2.39 [SD = 3.22], $p < .001$; WEMWBS mean difference = –3.44 [SD = 6.55], $p < .001$). Figure S4 (see supplemental materials) depicts the within-groups effect sizes for the magnitude

Table 1. Sample description and baseline characteristics.

	Demographic characteristics		
	Mean	*(SD)*	% missing
Mean age	45.14	(9.40)	20.2%
	%	*(n)*	
Gender			17.9%
Female	75.1%	(130)	
Male	6.9%	(12)	
Ethnicity			21.8%
White	76.3%	(132)	
Ethnic minority	1.7%	(3)	
Work pattern			16.8%
Full time	61.8%	(107)	
Part time	19.7%	(34)	
Bank	0.6%	(1)	
Part time & bank	1.2%	(2)	
	Baseline characteristics		
	Group 1 ($n = 83$)	Group 2 ($n = 90$)	p value[a]
OLBI total mean (SD)	40.48 (6.12)	40.28 (5.14)	.735
OLBI disengagement subscale mean (SD)	18.66 (3.40)	18.50 (2.89)	.933
OLBI exhaustion subscale mean (SD)	21.82 (3.40)	21.78 (3.10)	.812
WEMWBS mean (SD)	44.06 (6.82)	43.74 (6.79)	.761
Mean sessions attended (SD)	4.13 (2.86)	4.03 (3.48)	.837

[a]Based on independent t-tests comparing group 1 and 2 mean values.

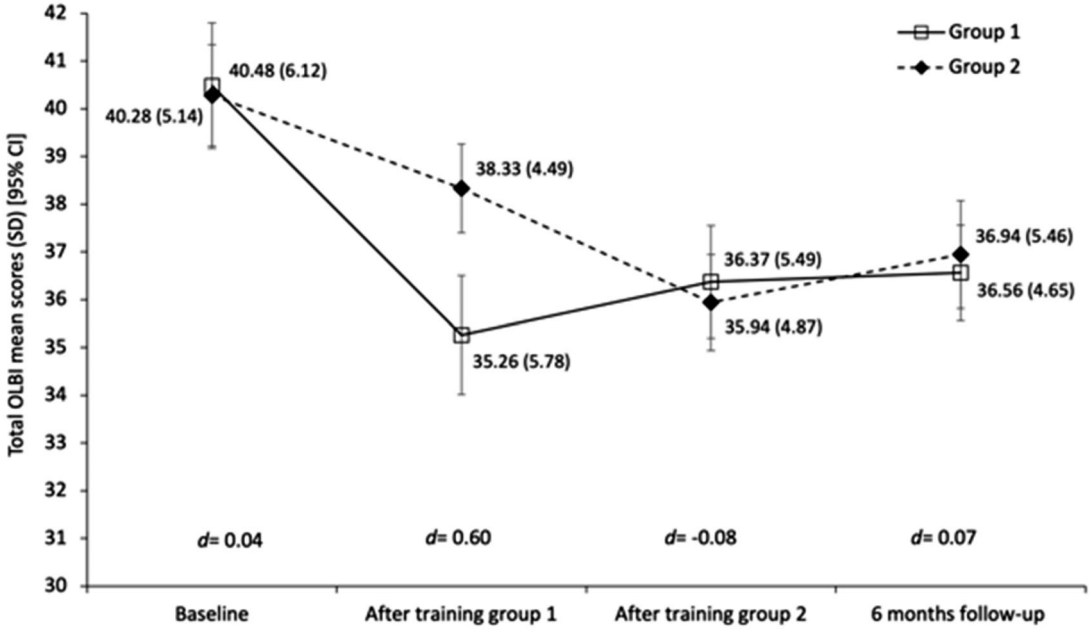

Figure 2. Unadjusted mean total OLBI scores and between-groups effect size (*d*) at each time point (error bars represent 95% CI).

of change in OLBI total scores in each group at relevant measurement points. Although both groups experienced overall moderate improvements in burnout between baseline and end of follow-up, group 1 gained greater benefits from the intervention (large effect) compared to the delayed intervention group 2 (moderate effect). Prior to starting the intervention, group 2 exhibited a reduction in mean burnout scores during the wait period, indicative of a small effect size. Both groups showed a small increase of burnout scores during the follow-up period after finishing the intervention.

All analyses conducted with complete-data cases revealed the same pattern of results (available in Supplemental Materials). No adverse events were reported or recorded.

Discussion

This was the first experimental and independent evaluation of the *Mind Management Skills for Life Programme*, delivered as a structured and self-help intervention for healthcare professionals. Consistent with our hypotheses, the intervention was associated with significant improvements in

Table 2. ANCOVA adjusted outcome measure estimates at each time point[a].

Time point	Group 1 estimate (SE)	Group 2 estimate (SE)	Mean difference (95% CI)	*F*	*p*
Primary outcomes	*N = 83*	*N = 90*			
OLBI total scores					
Time 2: after training group 1	35.20 (0.43)	38.39 (0.41)	−3.19 (−4.36 to −2.02)	28.74	**<.001**
Time 3: after training group 2	36.32 (0.46)	36.00 (0.44)	0.32 (−0.94 to 1.58)	0.25	.617
Time 4: at 6 months follow-up	36.52 (0.51)	36.97 (0.49)	−0.45 (−1.84 to 0.94)	0.41	.521
Secondary outcomes					
OLBI disengagement subscale					
Time 2: after training group 1	16.71 (0.23)	17.96 (0.22)	−1.25 (−1.86 to −0.63)	16.00	**<.001**
Time 3: after training group 2	17.07 (0.24)	17.25 (0.23)	−0.18 (−0.83 to 0.47)	0.30	.586
Time 4: at 6 months follow-up	17.05 (0.27)	17.62 (0.26)	−0.57 (−1.33 to 0.18)	2.28	.133
OLBI exhaustion subscale					
Time 2: after training group 1	18.49 (0.26)	20.43 (0.25)	−1.94 (−2.65 to −1.24)	29.59	**<.001**
Time 3: after training group 2	19.24 (0.27)	18.75 (0.26)	0.49 (−0.24 to 1.23)	1.75	.188
Time 4: at 6 months follow-up	19.47 (0.29)	19.36 (0.28)	0.11 (−0.67 to 0.90)	0.08	.774
WEMWBS					
Time 2: after training group 1	48.98 (0.53)	45.27 (0.51)	3.71 (2.26 to 5.16)	25.60	**<.001**
Time 3: after training group 2	48.69 (0.51)	49.25 (0.49)	−0.56 (−1.96 to 0.83)	0.64	.426
Time 4: at 6 months follow-up	47.48 (0.59)	47.21 (0.56)	0.26 (−1.34 to 1.87)	0.10	.747

[a]Estimates adjusted for baseline severity at time 1. Measurement time points: 8 weeks between time 1 and time 2; 8 weeks between time 2 and time 3; 6 months between time 3 and time 4.

burnout and wellbeing relative to a waitlist control group, and these improvements were maintained at six-months, albeit with a small effect size reduction during the post-intervention follow-up phase. It is not possible to determine if this small reduction of gains indicates that the effects of the intervention "wear off" slightly over time, or whether this may be explained by the adverse effects of the COVID-19 pandemic situation. Nevertheless, it is striking that the levels of burnout and wellbeing measured at six-months follow-up, during the acute phase of the COVID-19 crisis, were significantly better than pre-pandemic levels measured at the start of the study. Despite the pandemic circumstances, the effect size attributable to the intervention ($d = 0.60$) was considerably larger than the typically small effect sizes observed in other burnout interventions targeting mental healthcare workers (e.g. see meta-analysis by Dreison et al., 2018). The observed effect size is equivalent to a number needed-to-treat of 3.04, which suggests that one in three healthcare workers exposed to this intervention would considerably benefit from it, compared to no intervention.

The above results should be interpreted in light of a number of strengths and limitations. The study was adequately powered to detect a medium effect size, as we were able to recruit beyond the minimum necessary target of 134. Despite the adequate sample size, the sample was predominantly characterised by females of a white British background. As such, the sample does not reflect the demographic and culturally diversity of the National Health Service. As expected, attrition led to missing outcomes data, but results were robust and consistent when comparing analyses in complete-data and imputed-data samples. Furthermore, the COVID-19 crisis forced us to shift from initial in-person delivery to video-conference delivery of interventions, thus introducing some variability in the experience of the intervention between groups 1 and 2.

Overall, the results indicate that this is a promising intervention to reduce occupational burnout and to improve psychological wellbeing in mental healthcare practitioners, a professional group that is known to be at high risk of burnout and associated with modest intervention effects in prior studies. Future replications of this work are warranted in more ethnically diverse samples to gain a better understanding of the generalisability of effects and cross-cultural acceptability.

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Disclosure statement

The Mind Management Skills for Life Programme was developed by Chimp Management Ltd. The authors had no part in the development, delivery or supervision of the intervention, which was independently delivered by experienced facilitators employed by Chimp Management Ltd. and who had access to supervision from the intervention developer. This company provided in-kind funding to cover the costs of the delivery of this intervention as part of this study, and therefore no funding or payment was provided to the research team. All authors

declare that they do not have any advisory, consultancy, financial or informal relationships with Chimp Management Ltd. As such, this is an independent evaluation of this intervention by an external and independent research team that specialises in mental health and occupational health research.

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Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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