

CHERIL Final Report: Mindfulness: The Phase One Medics Perspective

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'Mindfulness is to become more aware of one's own mental processes, listen more attentively, become flexible, recognise bias and judgements, and thereby act with principles and compassion.'

Epstein (1999)

Aims

The purpose of this study was to evaluate the feasibility, acceptability and efficacy of a short term mindfulness-based intervention and its effect on mental well-being, self-efficacy and burnout in a sample of first and second year undergraduate medical students from Manchester Medical School.

Method

Ethical approval was obtained from the University of Manchester Ethics Committee (ref 15020).

Participants

First and Second year medical students at the University of Manchester were all eligible and invited to take part in a 5 week mindfulness course. Students were offered a Portfolio Certificate for taking part in the study.

Intervention: The mindfulness course was led by an experienced facilitator. It consisted of five weekly group sessions, each lasted one hour, and took place in the Consultation Skills Learning Centre (CSLC) at Manchester Medical School. The training included guided meditations and mindfulness skills teaching, with handouts covering key mindfulness concepts.. A University of Manchester Podcast was developed, this included 3 guided meditations recordings, spoken by the facilitator, and was provided to all participants to supplement home practice. Tea, coffee and biscuits were provided at the beginning of a session, as were blankets and pillows.

Design and Procedure

This study was a pre post within participant's trial design.

Participants were recruited via adverts on the student's virtual learning environment and posters in the medical school. A Mindfulness taster session was also conducted as part of the recruitment strategy, any students could attend this to help inform consent into the study. Students who indicated interest, via email or at the taster session, were provided with an information sheet and consent form to return. Participants were encouraged to commit to the full 5 week course. Participants could choose whether they wanted to attend the group sessions or use only the Podcast, they indicated this on the baseline set of measures.

All participants completed a baseline set of measures prior to the first mindfulness class and following the final mindfulness class. Measures were provided in paper or online according to participant preference. Participants completed questionnaires, either online or in person, before and after the 5 week course.

Measures

Validated questionnaires with known psychometric properties were used to measure standard outcomes. Demographics (age, gender, year of study, ethnicity, and previous experience of mindfulness) were taken at baseline.

The following questionnaires were all taken at baseline and end of trial.

Burnout. Participants completed the Maslach Burnout Inventory, Student Survey (MBI-SS) validated for use in a university student population. This is a 22-item questionnaire with a 7 point Likert scale which asks participants to rate how often they experience feelings relating to exhaustion, cynicism and professional efficacy. Burnout is defined as a state of exhaustion, cynicism and a lack of professional efficacy (Maslach & Jackson, 1981). The MBI is the most frequently used questionnaire for determining the presence and severity of burnout (Kleijweg, Verbraak, Dijk, 2013). This is the study's primary measure.

Self-efficacy. Defined as an individual's belief in their ability to respond to novel or difficult situations and deal with any associated obstacles or setbacks (Schwarzer et al., 1995). Participants completed the General Self-Efficacy Scale (GSE), a 10-item Likert scale (1-4) that asks participants to indicate the extent to which a statement applies to them. Validation studies found that this scale to have acceptable psychometric properties and self-efficacy to be a universal construct (Scholz, Doña, Sud, & Schwarzer, 2002).

Mental Well-Being. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) is a 14-item questionnaire that asks participants to rate how often they've experienced various positive feelings, such as feeling loved, optimism and confidence, in the past two weeks using a Likert scale (1-5). The measure was previously found to have good psychometric properties, with a test-retest correlation coefficient of 0.83, and is sensitive to change (Tennant et al., 2007).

Focus groups.

One month following the end of the course all participants were invited to take part in a focus group to discuss their experiences of the Mindfulness course. A semi structured interview schedule was created to guide the discussion. This focused on gathering experiences, confidence with techniques learnt, uses, challenges, and sustainability of skills.

Analysis

Measures

In order to compare data pre to post a Wilcoxon sign rank test was carried out.

Focus Groups

Focus groups were analysed using framework analysis (Ritchie and Spencer). Firstly broad key themes and subthemes were identified and agreed upon between authors SS and CM. The themes were then numbered and applied to the abstract using an index. Indexed quotes were lifted from the transcript and placed into a structured table for final interpretation and agreement review.

Results

Sample

Out of 726 eligible participants, 33 participants (5%) attended the course and completed the first questionnaire. During the five weeks of mindfulness meditation training, four students attended one session but did not complete a questionnaire. Of those original 33 participants, 22 participants (67%) completed the final questionnaire and on average attended three of the five sessions. We ran an additional session outside of those five weeks during the exam revision week which was attended by 10 new students (not study related).

There were few demographic differences between eligible students and study participants. However, when comparing students who were eligible to participate with those who did, it can be observed participants were more likely to aged 24 – 29 (22.7% vs. 5.1%). See Table 1 for study participant demographics.

Table 1 Demographics of all participants, including those lost to follow-up. Values are percentages (numbers).

	All students in Phase 1 (n = 726)	All participants (n = 33)	Baseline sample (n = 11)	Time 2 Sample (n = 22)
Gender				
Male	48.4 (351)	42.4 (14)	45.5 (5)	41 (9)
Female	51.6 (375)	57.6 (19)	54.5 (6)	59 (13)
Age group				
18 - 23	94.2 (684)	81.8 (27)	90.9 (10)	77.3 (17)
24 - 29	5.1 (37)	18.2 (6)	9.1 (1)	22.7 (5)
>30	0.7 (5)	0	0	0
Ethnicity				
White British	58.8 (427) White	60.6 (20)	63.6 (7)	60 (13)
White other		21.2 (7)	36.4 (4)	13.6 (3)
Asian Indian	31.8 (231) Asian	3.0 (1)	0	4.5 (1)
Asian Pakistani		3.0 (1)	0	4.5 (1)
Asian other		3.0 (1)	0	4.5 (1)
Mixed white and black African	2.6 (19) Black	3.0 (1)	0	4.5 (1)
Mixed white and Asian		3.0 (1)	0	4.5 (1)
Mixed other	6.2 (45) – other	3.0 (1)	0	4.5 (1)
No answer	0.6 (2)	0	0	0
Year of study				
First	51.7 (375)	45.5 (15)	54.5 (6)	41 (9)
Second	47.8 (347)	54.5 (18)	45.5 (5)	59 (13)

Podcast

Only one participant opted for Podcast only. Only eight students (36%) used the MM podcast and of those eight students, only one student (0.5%) used the podcast regularly.

Burnout

More than two-thirds of the 22 participants (73%) who completed the first questionnaire reported experiencing high levels of EX, 59% reported high levels of CY and 36% reported low levels of PE. Overall, 50% of participants met the criteria to be considered 'burnt out' pre-mindfulness intervention.

Half of the 22 participants (50%) who completed the questionnaire post-mindfulness intervention still reported experiencing high levels of EX, 27% reported high levels of CY and 18% reported low levels of PE. Overall, there was a statistically significant decrease in burnout levels with only 4% of participants met the criteria to be considered 'burnt out' post-mindfulness intervention.

Wilcoxon Signed Rank Tests revealed statistically significant reductions on two components of the burnout inventory post mindfulness invention. Exhaustion levels were significantly higher pre-intervention ($Md = 21$) than post-invention ($Md = 17$), $z = -3.15$, $p = .002$, with a medium effect size ($r = .48$). Cynicism levels were also significantly higher pre-intervention ($Md = 12$) compared to post-intervention ($Md = 9$) $z = -2.138$, $p = .032$, with a medium effect size ($r = .32$). There was no significant change in professional efficacy pre-intervention ($Md = 27$) compared to post-intervention ($Md = 28$), $z = -1.591$, $p = .112$.

Self-efficacy

A Wilcoxon Signed Rank Test revealed a statistically significant increase in self-efficacy following participation in the MM intervention, $z = -2.274$, $p = < .023$, with a medium effect size ($r = 0.34$). The median score on the self-efficacy scale increased pre-intervention from ($Md = 31$) to post-intervention ($Md = 32$).

Mental Wellbeing

A Wilcoxon Signed Rank Test revealed a statistically significant increase in well-being following participation in the MM intervention, $z = -3.554$, $p = < .001$, with a large effect size ($r = 0.55$). The median score on the WEMWBS scale increased pre-intervention from ($Md = 44$) to post-intervention ($Md = 50$).

Focus Group

One Focus group was conducted with 7 participants (3 males – 2 1st year, 1 2nd year; 4 females, 1 1st year, 3 2nd year). The following 4 themes emerged from the data.

A. You're ok, I'm not OK

1. I'm not OK – the experience of Pressure

Participants reflected on the amount of pressure they imposed on themselves as part of their medical education.

'If I let myself slip up for one minute then I fall down, I forget things' (Male A, 1st year)

'The pressure taps were full on erm because I can't fail this' (Male B, 1st year)

Participants spoke about feeling the need to be busy and take on a lot beyond the basic requirements of the course.

'I've found myself doing a lot and feeling that need to do so' (Female, 1st year)

'I did a lot you know a lot of extra-curricular things and a lot of like was on a lot of committees and went to lots of meetings and wrote a lot of notes but I actually didn't learn any better because I wasn't in my own head properly' (Female B, 2nd year)

Furthermore they perceived the medical school as requesting them to be well and calm at all times.

'Look after yourself so that you can be a good doctor, not look after yourself so that you can practise so that you can be a good human who is a doctor' (Female B, 2nd year)

'They do like tell it tell like the importance of having a work life balance they don't really give you any ways of doing it' (Female C, 2nd year)

2. I'm not OK, You're OK – nowhere to go

Participants didn't feel they were able to discuss this feeling of pressure with their colleagues or members of medical school staff

'I kind of find this environment that [feeling stressed] doesn't seem to be very well tolerated or very well well looked upon' (Female, 1st year)

'It's the difference between actually saying you can talk to someone and actually feeling like you can talk to them' (Female C, 2nd year)

All participants acknowledged together it would be beneficial to have someone to speak with about feeling stressed and managing it, without feeling critiqued for fitness to practice.

'It'd be nice to have some like another level where you can just acknowledge that you're stressed and work through it maybe' (Male, 2nd year)

'I know people who I've spoken to who are worried about kind of accessing welfare ... like something will come up and then they'll be kind of questioned about whether they're fit to be in the course' (Female B, 2nd year)

'To let you know that it's actually okay to feel like that ... to say like yeah all these other people have had problems and things here's some ways you know' (Female C, 2nd year)

B. I'M OK

Participants reported an awareness of their thoughts and behaviours, the acquisition of skills to manage feelings of stress and the ultimate sense of feeling OK following the mindfulness course.

1. Awareness of thoughts and their impact on behaviour

The group recognised the pressure they spoke about was self-inflicted and acknowledged the mindfulness course had helped them to become more aware of the thoughts they were having.

'I'm only starting to notice that now that what you think is not actually what it is' (Female, 1st year)

'Forcing me to ask myself how I was feeling that day and if I was particularly preoccupied or just feeling really annoyed, it was the first time I'd actually addressed that ... I hadn't thought about myself in quite a long time' (Female A, 2nd year)

'I think I was almost encouraged to laugh at it all and Mary was really good at that saying well okay brain yeah you you're gonna bring that one right now are you' (Male A, 1st year)

This awareness of thoughts was further translated into understanding and having some control over behaviours or feelings.

'It's helped me a lot in terms of realising I don't have to always be regurgitating facts in my head over and over and over again and I can say yeah I'll probably remember them in an hour in a week in a month and that's okay ... and have that confidence in yourself' (Male B, 1st year)

'usually I found it really difficult to motivate myself after lectures but after we did the mindfulness like after it happened I felt like really great like it was weird I felt like energised and more awake even though you'd think I'd be more sleepy so I definitely felt it just I just felt really good in myself afterwards' (Female C, 2nd year)

'it's helped me to kind of go well no I don't need to do that right now because I can go and just sit and read instead I don't have to go to all, I don't have to fill my day from nine till seven with meetings' (Female B, 2nd year)

2. Feeling OK

Participants all described a sense of feeling better and more settled following the course

'It's blown the cobwebs off my brain' (Male A, 1st year)

'Life's always gonna be very crappy but we've kind of been given a way of handling it or a means to cope with anything better ... there was a kind of like oh okay so I can use this, I'll just breathe and calm down kind of whatever, it's like have this kind of skill now which is quite good to have' (Male B, 1st year)

'Like well I'm okay I, that, that's it, it's not I don't I'm not fantastic I'm not ridiculously happy I'm not you know I dunno suddenly know everything that I need to know but I'm okay and that was really important to me' (Female B, 2nd year)

3. Explicit Acceptance

Participants reported they felt the mindfulness course encouraged the social acceptance of stress amongst their peers; it facilitated them to speak comfortably with each other about the experience without the fear of judgement or stigmatisation.

'you know a quiet place where you come and it is explicitly acknowledged that things are sometimes stressful' (Male A, 1st year)

'Quite an exciting sort of idea that we could kinda come together and people could kinda admit these things without kinda shameful stigmatisation or kinda feeling any kinda negative connotations' (Female, 1st year)

Although this was a research project participants perceived it as an important message from the Medical school that fundamentally expressed non-judgemental care and support and promoted the acquisition of managing stress.

'It's [the] Medical School saying it was sort of like come along this might help you know you're feeling a bit stressed' (Male., 2nd year)

Implications

Findings

This study showed that a 5 week mindfulness course significantly increases self-efficacy, mental well-being and significantly lowers levels of burnout. All measures, other than professional efficacy, had medium to large effect sizes, suggesting not only was something learnt but that the course produced practically and clinically significant changes

Consistent with other studies in this area (Cecil et al., 2014; IsHak, et al., 2013) the baseline results of this study show that burnout exists in the undergraduate medical student population and that students may be at high risk of developing burnout early in their medical career. The accumulation of the 3 findings paint an encouraging picture of a student who is feeling more engaged with their work, more confident and more positive. Furthermore the focus groups demonstrate how effectively students acquired the skills of mindfulness and put them to practice, ultimately leading to a more effective working strategies and more importantly feeling more able and in control of their thoughts and behaviours to a positive outcome.

Although we can hypothesise the Mindfulness helped students in many ways it is not as clear which parts helped. The focus group highlights that some of the effect may have been down to a social acceptance amongst peers and an importance message from the medical school that stress could be induced but should be spoken about freely and without judgement.

Strategic goals

This project falls in line of the University's strategic goals by enhancing the learning and student experience through supportive methods to enable students to manage and cope with the demands of a university course. Furthermore, in line with the goals of social responsibility we would hope the skill set mindfulness teaches could enable students to be responsible graduates and so produce distinctive graduate attributes. This holds the utmost importance in a professional degree such as medicine demonstrated and supported by the GMC summary guidance on supporting students with mental health conditions includes in its suggestions to Medical Schools that they "provide sessions on techniques such as mindfulness and meditation" (GMC 2013).

As far as we are aware very little research has been undertaken and published with Mindfulness in UK Medical schools, to that aim we are beginning to become UK leaders in a very new area of research.

Dissemination

We have submitted an abstract to the international conference WELL-MED. We have also presented at; Student Welfare and Professionalism committee, Mindfulness working group and we will present in March at Wythenshawe Education meeting; Positive Psychology and Generation Y: Understanding and Promoting Resilience in Ourselves, Our Trainees and Our Medical Students. We intend to further submit to the following conferences; European Association of Communication in Healthcare, Association for Medical Education in Europe, Association for the study of Medical Education, European society for Person centered healthcare and the first Annual European Conference on Person-centered Undergraduate Medical Education.

We are also in the process of submitting a journal article to Medical Education, impact factor 3.196.

The Budget

CHERIL granted us £6,675.

Our final statement included the following:

Product	Cost
Mindfulness delivery – transfer to Counselling services	£500 (@ £3/session/person)
Research Assistant - hours	£6175

Although we remained on budget we under estimated the amount of time needed for the Research assistant and so some voluntary work was undertaken in order for the project to be completed. Unfortunately we did not budget for refreshments {estimated at total £50} which turned out to be an important part of the experience for students, or the purchase of the Burnout Inventory Scale for 100 licences (\$110 / £73) and so this was absorbed by the Researchers.

We have submitted to CHERIL for further funding to strengthen our findings and enable us to work and share our experiences with other Manchester University Schools and UK medical schools. We are also very well supported by the medical school who are exploring how to continue to fund this intervention in the future.

Limitations

This was a self-selecting group of students in addition to a small number of eligible students (5%) who took part. As a consequence these findings must be taken within such context of a limited sample size. However, participants can be seen as quite representative of the year 1 and 2 medical school population. Furthermore, the aim of the study was to pilot mindfulness to explore it's acceptability with medical students and the sensitivity of the measures. We found it was deemed as an acceptable form of managing stress and the measures we have chosen were acceptable and sensitive to change.

Longer recruitment period with a more robust recruitment strategy – many students following the study reported an interest in mindfulness but had not seen the recruitment materials or heard about it until too late.

The follow up study will be trailing a longer mindfulness course and comparing it to a discussion group, to unpack the impact of mindfulness versus talking aloud with peers about the impact of stress. Measures will be taken 6 months following the interventions to evaluate the maintenance of skills.