

The International Journal of

WHOLE PERSON CARE

VOLUME 7 • NUMBER 2 • 2020 • 3-11

MINDFULNESS IN MEDICAL EDUCATION: STUDENTS' PERCEPTIONS AND FOUR RECOMMENDATIONS FOR IMPLEMENTATION OF A MINDFULNESS INTERVENTION

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ABSTRACT

Background: Faculties of Medicine around the globe have implemented mindfulness-based curricula to deal with medical student's burnout, anxiety, and depression. The purpose of this qualitative study was to assess students' perceptions of a mandatory mindfulness intervention and to elicit recommendations for further curricula development and implementation.

Mindfulness in Medical Education: Students' perceptions and four recommendations for implementation of a mindfulness intervention
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Methods: Third-year medical students participated in a mandatory three-hour mindfulness workshop embedded in their family medicine academic week. Eleven students consented to two interviews which explored their perceptions of mindfulness and the workshop in relation to their personal and professional wellbeing as well as their views for the implementation of a longitudinal mindfulness curriculum.

Results: Student and institutional benefits and barriers relating to the curriculum were identified. Students' benefits included positive changes in stress, self-awareness and personally - this translated into self-reported improved patient care. Students reported lack of time, forgetting to practice and lack of knowledge about mindfulness as barriers. Institutional pride for their support of student wellness and an overfilled curriculum were the major institutional benefits and barriers respectively, to the expansion of this curriculum. Among developing and implementing a longitudinal mindfulness curriculum, we found four key features to consider. Firstly, engage the stakeholders; secondly, incorporate the mindfulness intervention into the curriculum with both a mandatory and an elective component; thirdly, emphasize the clinical implications of the mindfulness intervention and fourthly, provide protected time for wellness interventions.

Conclusions: Introducing mindfulness into the undergraduate medical school curriculum through this workshop resulted in perceived personal, institutional, and professional benefits. Further research is needed to better quantify the benefits and to identify ways to manage barriers at both individual and institutional levels.

KEYWORDS: Medicine, Mindfulness, Medical education

Clinical training exerts physical, mental, and emotional demands on medical students[1]. Despite the implementation of changes aimed to positively improve teaching and learning environments in the last thirty years (such as moving from a graded to a pass/fail system [2], reducing the number of didactic teaching hours [3], and changing duty hour restrictions [4]) prevalence of student depression, suicidal ideation and burnout remain unchanged and alarmingly high [5,6]. Medical student burnout has been associated with self-reported unprofessional behaviors and less altruistic professional values regarding a physician's responsibility to society [7,8]. Although mindfulness benefits of self-awareness, compassion, reflection, and tolerance are explicitly identified as key attributes and skills of a good physician,[9,10] they are rarely addressed in formal teaching sessions [11-14].

The research literature on mindfulness practices promoting wellbeing in a variety of lay [15-17] and professional populations [18-20] has grown exponentially in the last decade and some of this literature has transformed health policy [21-23]. Medical students' acceptance of such interventions integrated into their

mandatory curriculum has not been systematically studied. There is ample data regarding elective mindfulness.

METHODS AND PROCEDURES

A qualitative design was implemented over a two-year period. Third year-medical students from two academic cohorts (2013/2014 and 2014/2015) were invited to participate in two semi-structured interviews: one week and twelve weeks after the workshop by one of two study researchers not involved in teaching or evaluation of the students. Ethics approval was obtained from two research ethic boards, the Bruyère Research Institute (REB Protocol #M16-13-053) and the Ottawa Research Science Network (REB Protocol #20130731-01H).

The interview questions were identical at both time points (

APPENDIX in order to determine if there were changes in the students' views and perceptions over the twelve-week period. Basic student demographics and data regarding amount and type (formal/informal) of previous and current mindfulness practice were collected – at baseline only. The interview questions explored the students' perceptions of the mindfulness practice for their personal and professional lives, and of implementing an expanded, longitudinal mindfulness curriculum at our faculty of medicine. We did not send reminders or give other informal mindfulness sessions after the workshop. Interview recruitment was terminated when saturation was reached. Most of the interviews (Participants 1 to 7) took place in the first year of recruitment and the remainder in the second year of recruitment.

DATA ANALYSES

We employed a conventional content analysis of the interview transcripts as outlined by Hsieh and Shannon [27]. Conventional content analysis is generally used with a study design to explore a complex phenomenon.

Two researchers independently read through interview transcripts to derive an initial coding scheme and then sorted these codes into broad categories or themes. The researchers met twice to review identified themes, resolve any differences as well as to identify when saturation was reached. To further increase rigour of the study, 4 members of the research team met on three occasions to confirm the data coding. Any discordance amongst team members in coding was resolved through in person group consensus.

RESULTS

Eleven participants consented to participate and completed the first interviews (one-week post workshop). Eight of these participants completed the second twelve-week follow up interview. Three participants were unable to complete the second interview due to their limited availability. The demographic information and participants' previous experience with mindfulness practice is shown in Table 1.

Participant	Age	Gender	MP* Before Workshop	MP* After Workshop	MP* 12-weeks After Workshop
1	23	Male	None	30-60 min/day	30-60 min/day
2	26	Female	30-60 min/day	30-60 min/day	5-15 min/day
3	31	Female	None	10 min/day	10 min/day
4	23	Male	None	30-60 in/week	30-60 min/week
5	24	Female	None	30-45 min/week	30-45 min/week
6	25	Female	Some	5-15 min/day	30-60 min/week
7	26	Female	10 min/day	10 min/day	-----
8	30	Male	None	5-10 min/day	5-10 min/day
9	25	Female	None	5 min/day	-----
10	27	Female	None	10 min/day	-----
11	32	Female	None	None	None

*MP=Mindfulness Practice

Table 1 Participants' demographics

No changes in responses were noted between the two interview time points. Four major themes and 4 recommendations were identified. The four themes were (1) perceived personal benefits, (2) perceived personal barriers, (3) perceived institutional benefits, and (4) perceived institutional barriers of the mindfulness intervention.

(1) Student benefits included positive changes in stress.

"I have better managed my stress," P6, I2; self-awareness: "[I]t was my first time experiencing my five senses at once," P9, I1; and personal life that also translated into self-reported better patient care: "[W]hen it comes to patients I feel like ...trying to use those mindful practices to make sure that you are not being judgmental during an interaction", P4,

I2. "Everyone should know the basics of mindfulness so they can suggest it to patients", P11, I2.

Students noted the beneficial effects of mindfulness practice for stress relief through increased ability to enjoy themselves in the present moment due to less rumination about the future, better coping skills, and in supporting work/life balance.

P8, I1: *"(M)indfulness...reminded me how important it is sometimes to enjoy yourself and to let go". P8, 1.*

Two students reported having a benefit in their study habits noting less stress which contributed to a more positive study experience. For the Francophone stream, the workshop was scheduled the day before the final exam in family medicine. While students mentioned that initially they were irritated for having the workshop scheduled the day before their exam, afterwards they felt that the intervention was beneficial in decreasing their exam related stress.

"It actually brought the stress level down quite a bit, more than I thought. At first I went in and I have to admit when I went in I was a bit...I am not sure what the right word is...but maybe irritated because this was right before the exam", P6, I1. For one participant, the workshop experience was described as *"life changing", P4, I2.*

(2) Among personal barriers, students reported lack of time, forgetting to practice, skepticism, excessive stress, and lack of knowledge about mindfulness.

"I think the problem, or a barrier for a lot of people is that they think it is silly, they haven't tried it or seen the benefit with their first attempt at trying it and...they...brush it off as being not useful", P7, 1; "I have trouble just kind of relaxing and calming myself down and controlling my general stress and anxiety (to be able to meditate)", P3, I1.

(3) Institutional pride for supporting student wellness was the main perceived institutional benefit.

"I think that we have a really great faculty...very pro-student wellness," P7, I1; "I was telling my friends and family...about it (mindfulness), they were all very impressed that we were actually learning about this in medical school," P1, I1.

(4) An overfilled curriculum and emphasis in biomedical education and evaluation were the main barriers to the expansion of this curriculum.

"A busy schedule is the main barrier," P4, I1; "...time. The medical curriculum is already very full..." P6, I1; "[I]t is kind of a shame because usually all of the [non-biomedical] subjects are useful for patient care or for some other purpose, but it is not always exam stuff," P8, I1; "[I]t

is already very hard to get students to take part into activities that are outside of hard- core medical training," P6, I1.

For developing and implementing a longitudinal mindfulness curriculum, we found 4 key features to consider. Firstly, engage the stakeholders; secondly, incorporate the mindfulness intervention into the curriculum with both a mandatory and elective component; thirdly, emphasize the clinical implications of the mindfulness intervention, fourthly, to have continued protected time for student wellness.

Stakeholders' engagement is important when adding a course into the curriculum, being elective, mandatory or a combination of both as students suggested. Some students proposed to have mindfulness practice implemented through the Student Affairs Office. Students' preferences were for the most part to have the curriculum either as an elective or a combination of elective and mandatory. Students also mentioned that they wanted the mindfulness curriculum to be tailored to the practice of medicine and/or added to other clinical rotations and to start in first year rather than waiting to third year. Again, due to the overfilled curriculum, they mentioned that their priorities might not be in the right place and having protected time for mindfulness, would be beneficial for them. We also found that students preferred small group sessions rather than lectures for the mindfulness curriculum.

DISCUSSION

Although there are more females enrolled in medical school in general, our sample was overrepresented by females (8/11). Rojiani et al found that university women benefited more than men from mindfulness training in that they had greater decreases in negative affect as well as increases in mindfulness and self-compassion [28]. Our participants may have self-selected to be interviewed due to having had a more favorable experience. Generally, third year medical students are worried about upcoming residency matching and are busy scheduling fourth-year electives. These issues may explain their reluctance to get involved in a research study. Besides one participant (P2) who had a robust self-reported steady mindfulness practice of 30-60 minutes daily and another participant (P7) who was practicing for 5-10 minutes daily before the intervention, all others had no previous mindfulness experiences.

We did not provide reminders to meditate which could have affected our study findings in that the participants were interested enough in mindfulness to self-motivate themselves to meditate. Another possibility could be that they experienced some benefits that motivated them to practice. Moreover, we need to interpret with caution their self-reported practice time.

The study participants' perceptions of the mindfulness workshop confirmed the overwhelmingly positive evaluations during its inaugural year in 2012/2013. Since that time, the workshop has remained a mandatory part of the curriculum and continues to take place in the first clerkship year during the family medicine rotations for our institution's Anglophone and Francophone streams.

The four main identified themes from the post-workshop interviews provided insights into the value and acceptability of a mindfulness intervention to promote student wellbeing. We did not anticipate that students would praise their institution for the intervention - this might be something worthy of consideration for other medical schools considering adding a mindfulness curriculum. In addition, we identified barriers that need to be addressed to increase the potential success in mitigating student stress and burnout.

Despite most student participants not being familiar with this practice prior to the workshop, all noted the impact on either their personal wellbeing and/or professional functioning during the follow-up interview periods. One participant who felt that the intervention was "life changing." For the participant who noted that s/he did not benefit from the intervention, s/he stated that "everyone should know about mindfulness to recommend it to patients." This comment is consistent with the literature.[25] The simple concepts relating to present moment awareness were identified by students as helpful means to incorporate moments of wellness into their daily activities. None of the students in the study group felt the workshop should be abandoned - most implemented changes into their daily lives which they perceived to have affected their personal and professional practices.

Several recommendations were offered for implementation of this curriculum; these are similar to other institutions' findings [29]. Provide protected time for student wellness, use a combination of mandatory and elective mindfulness sessions, incorporate the curriculum into other rotations with more emphasis on clinical applications. Students pointed out that having had a mandatory mindfulness intervention embedded in their own curriculum showed them, despite their initial skepticism, how it was valuable. Thus, a mandatory curriculum would expose everybody, preventing self-selection that naturally occurs with any elective course. The latter may be helpful for interested students to deepen their understanding of mindful medical practice. For other faculty who wish to start a mindfulness curriculum or make it longitudinal, we summarized students' recommendations into four main points for consideration. These may be considered in the planning stages.

STUDY LIMITATIONS

The limitations of this study are the self-selected nature of the group and the self-reported practice time.

CONCLUSIONS

Introducing mindfulness into the undergraduate medical school curriculum through this workshop resulted to be a feasible intervention which translated in perceived personal, institutional, and professional benefits. For faculties of medicine that want to implement a mindfulness intervention, we found four key components for carrying out a mindfulness intervention. Additional efforts should be directed towards identifying and managing system issues (e.g. duty hours) which impact individual levels of wellness and distress. Further

research is needed to better quantify the benefits of mindfulness interventions and to identify ways to manage barriers at both the individual and institutional level. ■

ACKNOWLEDGMENTS

Special thanks to Joseph Burns and Veronique Duchesne for their contributions to the research.

CONFLICTS OF INTEREST

No conflicts of interest to declare.

FUNDING

Funding was obtained through a research grant from the Department of Family Medicine, University of Ottawa.

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APPENDIX

Interview Questions

- Did you find the session useful? - Probe: How? Why not?
- Did this experience lead to changes in your personal life? In your patient care practices. In your study practices? If so, please elaborate.
- Were you aware of mindfulness prior to this exposure? Probe: what part of mindfulness?
- What do you feel are the most accessible/useful parts of mindfulness? Probe: Which parts would you favour being used in an integrated mindfulness curriculum? Why?
- Did you find any barriers in implementing mindfulness in your day-to-day life? In the medical school curriculum?
- What solutions could you suggest to these barriers?
- What are your thoughts on permanently implementing mindfulness in the medical curriculum?
- Is there anything that you would like to add about your experience with mindfulness as a medical student?