



Research article

The effects of a structured mindfulness program on the development of empathy in healthcare students



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1. Introduction

A growing body of literature demonstrates that high levels of anxiety and stress-related health concerns are experienced by undergraduate university students, in particular medical and nursing students (Beddoe and Murphy (2004); Irving, Dobkin, and Park (2009); Hassed (2009); Shapiro (2005); Darling (2007); Candy (2011)). For students to become effective healthcare professionals it is important that they have the mental and emotional skills to manage stress. Mindfulness training has been found to reduce stress in a variety of populations (Hassed, 2016; Kabat-Zinn, 2016). The benefits of mindfulness training for student populations extend beyond stress reduction (Hassed, 2016), and include improved concentration and attention, faster information processing which enables better academic performance (Mrazek, 2013) greater self-reflexivity, and increased student engagement (Napoli & Bonifas, 2011). Mindfulness furthermore assists students to develop self-awareness and emotional regulation which enables greater perspective-taking and empathy (Grant, 2014; Hassed, 2016).

2. Empathy in health practitioner- patient relationships

Empathy, in relation to health care professionals, has been defined as a cognitive attribute that allows an understanding of the experience, concerns, and perspectives of a patient, as well as the ability to communicate that understanding (Hojat, 2013). Empathy has been recognised as being at the centre of the therapeutic process (Colliver, 2010; Spiro, 2009) and it is also considered to be the defining characteristic of all health professions (Larson & Yao, 2005). And some suggest that it is a health care practitioners 'most powerful tool' (Hegazi & Wilson, 2013). Empathy has been named as an essential

learning objective by the American Association of Medical Colleges and it is believed to significantly influence patient satisfaction, adherence to medical recommendations, clinical outcomes and professional satisfaction (Hojat, 2002; Hong, 2012; Stepien & Baernstein, 2006). Furthermore, there is now evidence to support the benefits of education and training to develop empathy in health care professionals (Larson & Yao, 2005; Stepien & Baernstein, 2006). There is no doubt that responding appropriately to the emotional states of a patient produces positive outcomes in the patient-practitioner relationship (Epstein & Street, 2007). To respond appropriately, health practitioners must demonstrate that not only have they accurately recognised the psychological dimension of the patient's state but also that they are able to respond in a way that understands and validates the feelings experienced (Wilson, Prescott, & Becket, 2012).

Mindfulness practice facilitates awareness and being in the present moment, empathically acknowledging one's experience and encouraging critical examination of personal biases while withholding judgment (Birnie, Speca, & Carlson, 2010). Mindfulness practice further enables enhanced attention to what is in the present moment and an 'open heart', attitudes/practices which are fundamental to empathy (Beddoe & Murphy, 2004). Mindfulness practices have been shown not only to enhance the characteristics of empathy and compassion but are pre-requisite for these characteristics to 'take root' (Birnie et al., 2010). In studies where empathy in particular was measured as an outcome in health care providers, levels of empathy improved following a mindfulness intervention (Lamothe, 2016). If we are able to encourage students undertaking health care studies to acknowledge their own experience in a non-judgmental and compassionate way and to listen actively with an 'open heart' it follows that when working with clients as graduate health care workers they may be more authentic and empathic (Carson & Langer, 2006).

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3. Effective health-care practitioner and patient communication

In all health disciplines, effective communication is the cornerstone of practice and there is considerable evidence that communication is a key element in producing positive outcomes for health care workers and patients (Bensing, Rimondini, & Visser, 2013; Charon, 2007; Epstein & Street, 2007; Parry, 2008; Street, 2009). The ability to communicate effectively is increasingly recognised as critical to success in the health care system. Effective communication involves arriving at a shared understanding of a situation and in some cases a shared course of action. This requires a range of communication skills including listening actively and responding empathically and being able to apply these skills across a range of contexts and situations (Stein-Parbury, 2014). In order to listen actively the health care worker must listen with an open mind, stay focussed on the client's message and resist judgment – all fundamental to mindfulness.

4. The practice of traditional Chinese medicine

The present study was carried out in a large Metropolitan University in Australia, with students enrolled in a Bachelor of Health Science in Traditional Chinese Medicine (TCM), a complementary medicine modality.

The use of complementary medicine is said to be increasing worldwide (Adams, 2012; Barnes, 2012; Fonnebo, 2007; Kim, 2012; Kitai, 1998) and one of the reasons proposed for patients using complementary therapists instead of conventional doctors is that complementary and alternate therapists are believed to be better communicators (Bishop, Yardley, & Lewith, 2010; Michlig, Ausfeld-Hafter, & Busato, 2008). Poor communication between health care professionals and patients has been implicated in the increasing number of complaints against health care professionals worldwide and interventions to improve patient - practitioner communication have included enhancing practitioners' empathy (General Medical Council GMC, 2012; Health Care Complaints Commission, 2015; Iedema, 2012).

5. Purpose

The objective of this study was to evaluate the effect a structured mindfulness based program on the development of empathy in the undergraduate TCM students.

6. Methods

6.1. Design

This was a prospective, non-randomised observational study which utilised a repeated measure (JSE-HPS) before and after participation in a 12 week mindfulness-based program. For this study the outcome measure was the 20-item Jefferson Scale Empathy- Health Profession Students' (JSE-HPS) version (Hojat, 2007). This is a validated instrument that measures self-reported levels of empathy in students from healthcare professions (Fields, 2011; Fjortoft, Van Winkle, & Hojat, 2011). It uses a seven-point Likert scale with the descriptors of "strongly disagree" at one end of the scale and "strongly agree" at the other end. The psychometric qualities of the JSE-HPS were evaluated in an Australian student sample where it was shown to be a valid and reliable measure for undergraduate student empathy levels (Williams & Stickley, 2010). In the current study it was used to assess the effect of a structured series of mindfulness experiences on empathy levels in the students over a period of a 12 week academic semester. The scale was administered at the beginning (week one) and also at the completion of the semester (week 14). Participants also answered a brief questionnaire regarding their experience of the mindfulness

program (Slavik, 2014). Ethical approval for the study was obtained from the Human Research Ethics Committee of the university. Prior to gaining consent from the students, an information sheet was given explaining the aim of the project, outlining their right to refuse to participate without penalty and asking them to sign a consent form if they wished to participate.

Questionnaires were distributed and collected by an academic who was not part of the teaching team for the subject and who did not deliver the mindfulness program. Students were asked to complete them anonymously and they were collected in an unidentified envelope for collation.

All students enrolled in the subject (n=57) agreed to participate and it was interesting to note that whilst lectures for the subject were compulsory students were advised that if they wished to attend the lecture and not attend the mindfulness exercises that they wouldn't be penalised. There was 100% attendance for every week's mindfulness exercise.

6.2. Participants

Of the 57 students who participated in the study, 30 (53%) were female and 22 (39%) were male with five participants not recording their gender. All were first year undergraduate students with a mean age of 30 years (range 19–51 years).

6.3. Data collection

Data were collected during the Australian Spring academic semester (March to June 2014).

6.4. Mindfulness training

The mindfulness program was a structured weekly program involving a variety of experiences based on the development of mindfulness skills. The exercises and activities were facilitated by two experienced mindfulness meditation teachers with fifteen years of experience each (NY, TS). For the purposes of the present study, there was a particular focus on the engenderment of empathy through mindful awareness. During the first week, a two-hour workshop was facilitated where mindfulness and mindfulness meditation were explained. Mindfulness was placed in a context and evidence was provided to support the benefits of mindfulness practices in tertiary education settings. Students were encouraged to ask questions and to share their previous experiences of meditation if they wished to. As many of the students were mature age, often with undergraduate degrees in fields other than health or from Eastern cultural traditions, many had previous experience with some sort of mindfulness, meditation, yoga or tai chi for example. The program for the mindfulness exercises was developed by one of the facilitators of the mindfulness exercises who chose a variety of exercises considered relevant to the students. Following the introduction students were led through a body scan and breathing meditation. For the following eleven weeks at the commencement of the scheduled two hour 'Communication for The Complementary Therapist' lecture, students were introduced to a different mindfulness practice for approximately 15–20 min. This was followed by a 15–20 min debriefing session that solicited verbal feedback about the experience, and a discussion of how the activity might be utilised in the student's personal and/or professional life as a health care practitioner.

On the final session, in addition to completing the JSE-HPS, students were invited to reflect on their experiences and complete a short questionnaire (Table 1). This measure asked participants to describe their experiences of participating in the exercises each week and if they thought the weekly exercises had any impact on their learning. Each of the 15 items in the questionnaire represented an indicator of the broad benefits of mindfulness (questions 2,4,6,7,11,12,14) or discreet benefits of mindfulness in the context of

Table 1
The 15 item mindfulness-based practices in the classroom questionnaire (Slavik, 2014).

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|--|
| Question 1: Participation in the mindfulness-based practice at the start of class helped me transition from the busyness of life outside to the task at hand in class | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 2: Participation in the mindfulness-based practice at the start of class helped me engage with the moment | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 3: Participation in the mindfulness-based practice at the start of class helped me engage with the learning process | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 4: Participation in the mindfulness-based practice at the start of class helped me attune or attend | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 5: Participation in the mindfulness-based practice at the start of class improved my ability to concentrate and process information | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 6: Participation in the mindfulness-based practice at the start of class decreased my stress and anxiety | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 7: Participation in the mindfulness-based practice at the start of class helped me regulate negative emotions | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 8: Participation in the mindfulness-based practice at the start of class helped me build capacity for insight & creativity | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 9: Participation in the mindfulness-based practice at the start of class helped me be more open to learning | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 10: Participation in the mindfulness-based practice at the start of class helped me to be more reflective | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 11: Participation in the mindfulness-based practice at the start of class helped foster emotional balance | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 12: Participation in the mindfulness-based practice at the start of class helped me connect to course content | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 13: Participation in the mindfulness-based practice at the start of class promoted a good climate for learning | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 14: Participation in the mindfulness-based practice at the start of class helped me be more self-aware | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| Question 15: Participation in the mindfulness-based practice at the start of class helped me be more aware of others | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |

Reflecting on the mindfulness-based practices in which you participated, please answer the following statements with 1 being “not at all” and 10 being “to a high degree”. Please indicate the degree to which the following statements are true.

higher education (questions 1,3,5,8,9,10,13,15) as evidenced in the literature (Diefenderfer, 2015). Students were asked to rate the statements on a scale of 1–10 with 0 indicating “not at all” and 10 “to a high degree” as to the extent to which the statement was true.

6.5. Data analysis

Data were tabulated into a spreadsheet and then transferred into SPSS (version 21, SPSS Inc, Chicago, IL) for statistical analysis. Data were checked for normality and found to be normally distributed. An

Table 2:
Mean scores (pre and post the introduction of the mindfulness program) for the Jefferson Scale Empathy- Health Profession Students’ (JSE-HPS) version.

| Mean pre-intervention score (standard deviation) | Mean post- intervention score (standard deviation) | P value |
|--|--|-----------|
| 93.2 (24.8) | 109.1 (13.8) | p < 0.001 |

ANOVA (general linear model) was computed to evaluate the effect of the mindfulness training on empathy as well as for any significant differences attributed to gender. The significance level was set a priori at $\alpha=0.05$. Descriptive data are also presented for the questionnaire on the students’ experience of the mindfulness program.

7. Results

7.1. JSE-HPS

The results from the JSE-HPS shown in Table 2 found a statistically significant increase in the overall mean empathy score from 93.2 (SD=24.8) prior to the commencement of the program to 109.1 (SD=13.8) at the completion of the program indicating increased levels of self-reported empathy ($p < 0.001$).

Analysis of the 20 individual questions on the JSE-HPS revealed that there was a mean increase in scores for all questions ranging from 0.45 for question 14 (“I believe that emotion has no place in the treatment of medical illness”) to 1.57 for question 9 (“Health care providers should try to stand in their patients shoes when providing care to them”).

Male participants experienced an increase of 19.5 points in the empathy score (from a mean pre score of 90.7 to a mean score of 110.2), while female participants commenced with a mean score of 100.2 and completed the study with a mean score of 108.9; a total change of only 8.7 points. This is also highlighted by the non-overlapping 95% confidence intervals (CI) between pre and post scores for males (pre 95%CI=80.6–100.7 and post 95%CI=104.1–116.2) while for females they were overlapping (pre 95%CI=91.6–108.8 and post 95%CI=103.7–114.0). However, this interaction effect of gender* and time did not reach statistical significance ($p=0.163$). There was also no main effect for gender ($p=0.288$).

7.2. Mindfulness experience questionnaire

On analysing the results from the post program questionnaire (Table 1) on the student experience throughout the semester, all 15 questions scored above seven (mean score 7.63; range 7.1- 8.1). This indicates that there was a high level of agreement that the students experienced broad advantages from participating in the embedded mindfulness program within the subject as well as discreet benefits from undertaking mindfulness training in the context of higher education.

8. Discussion

The results indicate that the introduction of a structured program of mindfulness was successful in engendering higher levels of empathy in Australian undergraduate students of Chinese medicine across 12 weeks of practice. Chinese medicine, while a relatively new health profession outside of Asia, is similar to many of the established health professions in that empathy is an important aspect of a therapeutic relationship (Coutinho, Silva, & Decety, 2014; Hojat, 2013; Parkin, de Looy, & Farrand, 2014).

8.1. Empathy and gender

The difference in scores for the genders was also of interest. This is consistent with data reported for other health profession students. There is evidence of a ‘gender gap’ in levels of empathy among students in health care programs. Female students demonstrate higher empathy scores than their male counterparts in a variety of courses and cultures (Fields, 2011; Hegazi & Wilson, 2013; Hsiao, Tsai, & Kao, 2013; Kataoka, 2009a; Wen, 2013; Wilson et al., 2012).

Other studies using an earlier version of the scale used in this study, the Jefferson Scale of Physician Empathy Student version, found female medical, nursing and pharmacy students had significantly higher empathy scores than their male counterparts (Hegazi & Wilson, 2013; Hojat, 2007; Kataoka, 2009b; Wilson et al., 2012). A similar gender difference in favour of female students was found for 613 Taiwanese nursing students (Hsiao et al., 2013) and 265 nursing students at a public university in the south eastern part of the USA (Fields, 2011). Females were also shown to have higher levels of empathy in a Japanese study of 400 medical students across six years of their medical program (Kataoka, 2009a). There are data available, however, to support the trend from the data in the present study that female students start out with higher levels of empathy (Hojat, 2007; Kataoka, 2009a). The higher levels of empathy in females generally have been attributed to gender role expectations and socialization as well as evolutionary gender characteristics (Hojat, 2002, 2007). Similarly, we observed that males, even though they started at a lower baseline of empathy, they experienced greater increases after the training when both genders achieved similar scores. This is an important preliminary finding as it demonstrates the potential of mindfulness training to close the empathy “gender gap” among health care professionals.

One important issue that was not addressed was whether empathy can be maintained over the period of health professional training. While this study showed a significant increase in JSE-HPS scores, it is of course important to assess whether this can be maintained over time. Some studies have found empathy scores to be maintained over a five year period of medical education (Hegazi & Wilson, 2013) while others have shown a decline (Hojat, 2009, 2004).

The decline in empathy has been attributed to students’ exposure to the clinical setting, particularly with medical students as their exposure to patients in real life settings usually occurs mid-way through their university programs. Further, traditional medical programs often don’t introduce communication skills training until later in the course (Hojat, 2004). The students in this study were introduced to communication skills training and mindfulness during their first semester at university. They were also introduced to clinical environments in their first semester where they completed 25 h of supervised practice with patients in the public TCM clinic attached to the university. This is different from most of the studies on students in other health profession courses where the focus on communication and the exposure to clinical environments begins later. Further data need to be obtained from these students as they progress through their programs and have increasing amounts of time interacting with patients in clinical settings, to evaluate if empathy was maintained in this cohort.

The place of empathy in both teaching programs and professional practice is a hot topic amongst health profession educators. Empathy is recognised as perhaps the greatest intervention a health professional can have (Campbell, 2012; Larson & Yao, 2005). Not only is empathy considered fundamental to the establishment of a positive relationship between a health care practitioner and a patient, it has been embraced more broadly in the public sphere. Barack Obama, for example, made empathy one of his major campaign themes in the lead-up to the 2008 election, stating that the empathy deficit should be more of a concern than the federal financial deficit (Krzynaric, 2014). Educators should address the development and maintenance of empathy in training our

future health care workforce. Increasingly, individuals are seeking health care from complementary and alternate therapists based on their perceived ability to communicate and “care”. Modern Western health care with its emphasis on technology and evidence-based practice often results in the “person” and empathy, going largely ignored in what are mostly scientific pursuits (Spiro, 2009).

Further, tertiary education curricula is often content-heavy, particularly in professional courses which are accredited by professional registration authorities, where graduates are required to meet certain competencies. The emphasis is often on teaching students to be competent rather than capable (Napoli & Bonifas, 2011) and this often doesn’t leave enough time in the curriculum to facilitate the ‘soft’ skills essential for effective interpersonal communication. A recent report (Oliver, 2011) on good practice in assuring graduate outcomes suggested that academics appeared to place greater emphasis on general knowledge and less on interpersonal competency. Mindfulness introduced into curricula may be a cost effective way to provide students with the interpersonal skills essential to ease them into positive practices to assist them during their studies and beyond into their professional practice.

There were a number of limitations with the present study. First, it was not a controlled study, in that there was no historical or control group for comparison. Hence the changes observed in participants may have come about as a result of their progression through their course, rather than due to the specific effects of mindfulness training. Future studies should consider using mediation analysis in similar studies in order to identify the relationship between mindfulness training and the development of empathy during a semester long course. Secondly, the number of participants was not large (n=57) and consideration should be given to designing a more strongly powered study in the future. Finally, it only evaluated the effect of mindfulness on one health profession, that of Chinese medicine. It is possible that this profession may have a bias towards accepting meditation practice compared to more orthodox allied health professions such as medicine or nursing.

9. Conclusion

This study has shown that empathy can be increased over a 12 week period when mindfulness practice is embedded within a curriculum. Healthcare educators should give consideration to embedding mindfulness activities within a subject and possibly over an extended period to ensure empathy is maintained.

Conflict of interest statement

None declared.

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