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Original article

Two new scales for integrative medical education and research: confidence in providing calm, compassionate care scale (CCCS) and self-efficacy in providing non-drug therapies (SEND) to relieve common symptoms

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Abstract

Introduction: Training in integrative medicine aims to promote compassionate, patient-centered care, including non-pharmaceutical therapies to reduce common symptoms. Although specific competencies have been identified, few tools are available to assess clinician confidence in providing integrative care. We evaluated two instruments to address this gap.
Methods: We assessed face validity with focus groups. We assessed internal reliability (Cronbach's alpha) and convergent validity in a survey of 213 health professionals, correlating the new instruments to each other and to standard measures of mindfulness, compassion, empathy, training, and practice.
Results: The two measures each had 10 items with scores ranging from 0 to 100, and had good face validity. Cronbach's alpha was 0.87 for the calm, compassionate care scale (CCCS) and 0.95 for self-efficacy in providing non-drug therapies to relieve common symptoms (SEND). Scores for CCCS were significantly correlated with measures of mindfulness, compassion, empathic concern, and perspective-taking as well as training and practice ($p < 0.05$ for each). Scores for SEND were similarly correlated with CCCS, compassion, empathic concern, and perspective-taking as well as training and practice ($p < 0.05$ for each).
Conclusion: These two new tools, CCCS and SEND, have good psychometric properties and may be useful to educators and researchers evaluating clinicians' confidence in providing calm, compassionate care and self-efficacy in using non-drug therapies to relieve common symptoms.

Keywords: Integrative; Complementary; Compassion; Mindfulness; Empathy; Mind-body; Education; Confidence; Self-efficacy; Training; Psychometric; Questionnaires.

Introduction

Based on the growing use of complementary and alternative medical (CAM) therapies by the American public, a growing number of academic health centers have developed training programs in integrative medicine [1–3]. Specific competencies for physicians practicing integrative medicine have been identified [4–7].

Ultimately, the goal of training is to improve the quality of care and patients' lives, but the vast majority of medical education focuses on intermediate steps thought to contribute to these outcomes (acquisition of knowledge and confidence). The most commonly measured outcomes are changes in knowledge as these are readily and reliably assessed with easily scored multiple choice questions. A few programs have also measured changes in attitudes [8], but these often reflect attitudes

Abbreviations: CCCS, Calm, Compassionate Care Scale; SEND, Self-Efficacy in providing Non-Drug therapies to relieve common symptoms.

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about complementary therapies themselves and the value of the clinician–patient relationship, e.g., the CAM Health Belief Questionnaire and the Integrative Medicine Attitudes Questionnaire [9–12].

Self-efficacy is the strength of one's belief in one's own ability to complete tasks and achieve goals; it is highly predictive of trainees' motivation and learning as well as the ability to initiate, persist in, and succeed with a task [13]. Bandura's social cognitive theory posits that self-efficacy develops from external experiences and observations, and suggests that those with high self-efficacy are more likely to view a difficult task as something to be mastered rather than something to be avoided [14]. Theoretically, four major factors affect self-efficacy: a) experience of mastery (success); b) seeing someone else succeed (modeling); c) encouragement (social persuasion); and d) interpreting physiologic responses to stress (such as higher heart rate, sweating, and fatigue) as normal and unrelated to ability [15]. Self-efficacy is strongly linked to behavior change [16,17]; it is also linked to mood and social support among family caregivers [18]. Self-efficacy includes an affirmation of a capacity and the strength of that belief, whereas self-confidence is a more general concept that might include, for example, confidence that one will fail at a task. Self-efficacy is a critical factor in taking the step from new knowledge about integrative medicine to offering integrative care in practice. However, few training programs have measured self-efficacy among diverse health professionals using integrative, complementary, or non-drug therapies to relieve common symptoms [19,20].

Although self-report scales may over- or under-estimate actual performance, they are often used because in general, self-reported self-efficacy and self-reported behavior have significant correlations with actual behaviors [21–24], and they are less expensive to administer and score than observational methods or focus groups. In the field of mind-body health, self-report instruments are widely used to measure stress [25], mindfulness [26–28], empathy [29,30], and self-compassion [31].

Integrative care requires at least two related aspects of self-efficacy: a) clinicians' ability to provide calm, compassionate, relationship-based care and b) their confidence in using non-drug therapies to relieve common symptoms and achieve patients' unique health goals. To assess the first of these, when teaching a medical student elective on Therapeutic and Healing Touch, one of us (KK) developed a questionnaire to measure changes in students' sense of self-confidence in providing calm, compassionate, comforting care [32]. Although this scale showed expected improvements from before to after the course, it has not been formally evaluated for its psychometric characteristics.

Interprofessional training programs to educate health professionals to use an integrative approach to address patients' symptoms may benefit from another instrument to assess clinicians' sense of self-efficacy. Accordingly, we developed a self-efficacy scale focusing on confidence in using non-drug therapies to help relieve common symptoms: pain, anxiety, nausea, insomnia, coping, stress (PANICS), and fatigue. Though similar to the first instrument, the second focused more explicitly on self-efficacy in relieving symptoms and less on the clinician's internal state of calm and compassion.

Before using these new tools to evaluate training programs, we wished to assess their psychometric properties. Specifically, our three goals were: 1. describe their face validity and internal reliability by discussing them in focus groups and measuring Cronbach's alpha; 2. describe their convergent validity by examining correlations between scores on these measures with established measures; and 3. describe the relationship between scores on these measures and training and experience in mind-body therapies.

Methods

Face validity

Two of us (KK and GG) provided workshops in April and May, 2014, on outcome measures in integrative medicine for interprofessional groups of researchers, students, clinicians, and teachers both at our institution in the Midwestern USA and at the International Research Congress on Integrative Medicine and Health in Miami, FL. Both workshop discussions included these measures and over a dozen other outcome measures for multiple domains of health. Discussion topics included conceptual foundations, ease of use, face validity, reliability, correlations with other instruments, and general impressions.

Reliability and convergent validity

These constructs were assessed in a cross-sectional pre-training survey of participants registered for online training programs in integrative care.

Subjects

Participants included trainees and practicing professionals in nursing, medicine, dietetics, and social work. Participants were eligible if they agreed to participate in a study evaluating a new online curriculum in integrative medicine. Recruitment occurred by email. Our goal was to recruit 200 diverse participants within the three months prior to the start of the 2014 fall semester.

The administrative offices of the Deans of the Colleges of Medicine, Social Work, and Nursing, the Director of the PhD Program in Human Nutrition and Dietetics; as well as the Program Directors for Pediatrics, Family Medicine, and Palliative Care at OSU sent emails to incoming graduate students, residents, and fellows in May and June of 2014 inviting them to participate in the project with a link to the pre-training survey. The last page of the survey included a link to register for an online course on herbs and dietary supplements (HDS) or mind-body skills training (MBST) for resilience, effectiveness, and mindfulness. Approximately 450 individuals received a direct email inviting them to participate; we did not count email "bounces" or returns, though there were a substantial number since many trainees were moving from other institutions. A few faculty and staff who heard about the project also asked to participate so they could review the curriculum and better advise trainees. Participants who completed the survey were eligible to receive $10

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for completion. Identifying information was removed prior to analysis.

Demographic measures

Demographic items used to describe the survey sample included age, gender, and profession.

Two scales of interest

Confidence in providing calm, compassionate, comforting care was assessed using a scale developed for a training program aimed at increasing clinician's capacity to provide calm, compassionate care (calm, compassionate care scale, CCCS) [32,33]. The original scale had nine items, two of which asked how important it was to be calm and offer calm compassionate care, and the other seven asking how confident or how often clinicians engaged in behaviors reflecting this kind of care. Because there was almost no variability in the responses to the questions about whether clinicians thought it was important to be calm and offer compassionate care (mean scores on both items were >9.5 out of 10 possible), these two items were omitted from the final scale. Three new items were added with the hope of finding 10 items that could be included in a scale with a range from 0 to 100, a Cronbach's alpha greater than 0.75, and moderate correlation with mindfulness, compassion, self- compassion, and empathy. See Appendix A for final 10 items on the calm, compassionate care scale (CCCS).

The scale to measure self-efficacy in providing non-pharmacologic (non-drug) therapies to relieve common symptoms contained 10 items reflecting clinicians' confidence in relieving common symptoms such as pain, anxiety, nausea, insomnia, coping, stress (PANICS) and fatigue. As with the CCCS, the goal for this scale (self-efficacy in providing non-drug therapies, SEND scale) was to have a good (>0.75) Cronbach's alpha on a scale that was easily scored (each item scored on a 0, 10 scale, for a total range of 0, 100 for the 10 items), had some correlation with the CCCS and measures related to compassion and empathy, and correlated with training and practice in CAM. See Appendix A for final items on the CAM Self-Efficacy Scale.

Other measures for convergent validity

Mindfulness was assessed using the 10-item Cognitive and Affective Mindfulness Scale, Revised, CAMS-R) [34],which has a four-point summative rating scale (1 = rarely or never at all, 5 = almost always), and one reverse-coded item, with a typical total mean score of 31 ± 5.

Compassion was measured using the five-item Santa Clara Brief Compassion Scale which uses a seven-point summative rating scale (1 = not at all true of me and 7 = very true of me), and has a typical mean score of 30, with a range from 9 to 35 [35].

Self-compassion has three key components: mindfulness, self-kindness, and common humanity [36,37]. Self-compassion is distinct from self-esteem, self-pity, and self-indulgence in that it focuses on kindness toward self as a human being, not better or worse than others. It is distinct from mindfulness by including two additional constructs, and it is distinct from but closely related to compassion in its focus on self. Self-compassion was assessed using the 12-item Neff's self-compassion scale, which has six reverse-scored items rated on a 0 = "never" to 5 = "always" scale and a mean score among undergraduate students of 36 ± 7 and a median of 37 [31].

Two subscales were administered from the Interpersonal Reactivity Index: the seven-item empathic concern scale (ECS) and the seven-item perspective-taking (PT) scale which are widely used to measure empathy in health professionals [29,30,38–43]. Both scales use a five-point summative rating scale where 0 = "does not describe me well" and 4 = "describes me well"; both the ECS and PT scales have normative median scores of 24. We chose these measures rather than the Jefferson Scale of Physician Empathy because our participants included diverse health professionals, not just physicians [39].

Training and practice

Because the primary focus of our larger, ongoing study was evaluating a course on mind-body skills, the questions about training and practice focused on this topic. One question asked about training in mind-body practices ("In which of the following have you had formal training in the past 3 years?" Over 10 practices were listed; and answers were scored as the number of practices (0 to 10) in which the participant had received formal training in the past three years. Another question asked about frequency of mind-body practice; answers included 0 (never), 1 (once or twice a month), 2 (two to three times monthly), 3 (weekly), 4 (three to five times weekly), and 5 (six to seven times weekly). We hypothesized that those with more training and more ongoing personal practice would have higher scores on both new scales.

Surveys were completed online using Survey Monkey®. Data were de-identified and cleaned by a research assistant blind to the study question, exported into a spreadsheet and exported into Statistical Program for the Social Sciences (SPSS 22®) for scoring. Univariate analysis (e.g., percentages, mean, and standard deviation) was employed to evaluate the distribution of each variable including demographic variables and then questionnaire scores. Cronbach's alpha was used to assess internal reliability, and Pearson or sample correlation coefficients were calculated to assess convergent validity.

This study was approved by the OSU Office of Research Institutional Review Board (2013B0611).

Results

The focus groups were attended by a range of participants including students, faculty, and staff in medicine, nursing, public health, dietetics, and social work. Participants found the scales easy to read, score, and interpret, and suggested no additions or deletions to the two instruments.

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Table 1
Participant description.

Characteristic	Mean ± SD or *N* (%) *N* = 213
Age	28.3 ± 8.8 years
Gender	155 (73%) female
Profession	
Dietetics/nutrition	24 (11%)
Nurses	30 (14%)
Physicians	81 (38%)
Social workers	52 (24%)
Other (psychologist, public health, other)	26 (12%)
Mind-body training in past 3 years (NONE)	114 (54%)
Frequency of mind-body practice	89 (42%) never 39 (18%) once/month 31 (15%) 2–3/month 23 (11%) 1–2/week 15 (7%) 3–5/week 4 (2%) 6–7/week

Subjects

The 213 survey participants represented diverse health professionals (Table 1). They had a mean age of 28 years; most (73%) were female; and 76% were trainees. Nearly half (46%) had received formal training in one or more mind-body therapies in the previous three years, most often yoga (26% of the sample); 42% reported never practicing mind-body skills, and 9% engaged in one or more practices three or more times weekly, providing a range of training and practice frequency.

Scores on questionnaires

Responses to the study questionnaires are shown in Table 2. Scores for mindfulness, compassion, self-compassion, and empathy are similar to those reported in other studies of health professionals and trainees.

For the CCCS, scores ranged from 12 to 100 with a mean score of 61.7 and a standard deviation of 19.2. The Cronbach's alpha measure of reliability for the CCCS was 0.87.

For the SEND scale scores ranged from 0 to 100; the mean score was 46.9, the standard deviation was 24.8, and Cronbach's alpha was 0.95.

Table 2
Survey responses.

Characteristic	Mean ± SD or *N* (%)
Standard measures	
Mindfulness (CAMS-R)	27.7 ± 5.4
Santa Clara compassion scale	29 ± 5
Self-compassion	37.7 ± 7.5
Empathic concern scale (ECS)	23.8 ± 3.9
Perspective-taking scale (PT)	23.5 ± 4.4
New measures	
Confidence in calm, compassionate care (CCCS)	61.7 ± 19.2
Self-efficacy in providing non-drug therapies to relieve common symptoms (SEND)	46.9 ± 24.8

Correlations with other measures

Correlations with standard measures are shown in Table 3. The conceptually-related CCCS and SEND scales (for which items on both focused on confidence) were strongly correlated with each other (Table 3; $r = 0.68$, $p < 0.0001$). Scores on the CCCS were significantly correlated with scores for mindfulness, compassion, self-compassion, empathy, and perspective-taking ($p < 0.05$ for each). Scores on the SEND were also significantly correlated with compassion, self-compassion, empathy, and perspective-taking. Scores on both new scales were also significantly correlated with the number of trainings and the frequency of practice of mind-body skills (Table 4, $p < 0.05$ each).

Discussion

This is the first study to describe two new scales to measure clinicians' confidence and self-efficacy in providing integrative care: 1) confidence in providing calm, compassionate care and 2) self-efficacy in providing non-drug therapies to relieve common symptoms. In this sample, both scales showed good face validity, internal reliability, and meaningful correlations with other measures, as well as training and practice experience. Not surprisingly, since both scales measured the closely related concepts of confidence in providing calm, compassionate care and self-efficacy in relieving common symptoms, they were also significantly correlated with one another.

The participants in this study had similar scores to expected normative values on the standardized scales of compassion [35], empathy [38,39], perspective-taking [38], and self- compassion [44], supporting the generalizability of these findings. The

Table 3
Correlations between new scales and other scales.

Instrument	1	2	3	4	5	6	7
1. CCCS	1	0.68***	0.16*	0.29***	0.24**	0.18*	0.23**
2. SEND		1	ns	0.15*	0.21**	0.16*	0.21**
3. Mindfulness CAMS-R			1	0.63***	–	–	0.24**
4. Self-Compassion				1	–	–	0.31***
5. Compassion					1	0.7***	0.28***
6. Empathic Concern						1	0.29***
7. Perspective Taking							1

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

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Table 4
Correlations between CCCS, SEND, training, and practice frequency.

Instrument	Number of mind-body trainings in past three years	Frequency of mind-body practice
Calm, compassionate care scale	0.25***	0.21**
Non-drug self-efficacy scale	0.27***	0.18*

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

participants in this study had slightly lower scores on mindfulness (27.7) than the normative scores on this scale (31), which might be expected among trainees who planned to register for a course on mind-body skills training [34].

The most obvious use of these new scales is to evaluate training programs, but they could be useful in other settings as well, particularly with additional testing. For example, self-efficacy in providing non-drug therapies could be compared among traditionally trained biomedical clinicians (medical doctors and nurses) and clinicians trained in complementary therapies (naturopathic doctors, chiropractors, acupuncturists, massage therapists, and others) as well as before and after training programs focusing on integrative care. SEND could also be used to compare different types of training programs drawing on different components of self-efficacy, e.g., comparing a training program in which trainees practiced a new behavior vs. training that simply modeled the behavior or encouraged the behavior or a combination of components. Confidence in providing calm compassionate care could be compared among practitioners working in different settings (emergency room or intensive care unit compared with primary care). In addition, these new scales could be used to identify specific learning needs among both trainees and practitioners, and to design training programs to meet those needs as well as measuring outcomes.

Although this study answered our primary questions, it has several limitations. It was done at one academic health center that has a strong program in integrative health and wellness, and the questionnaires may not perform the same way in a community setting. This is the case for many questionnaires whose psychometric characteristics are defined initially in a university setting. Similarly, our study population was primarily trainees, and results may differ for experienced clinicians. The observed correlations were statistically significant, but tended to be somewhat lower than in our earlier studies among samples in a similar population [45,46]; we attribute these differences to expected sampling differences since the variation in individual variables was similar. The modest correlations with other factors such as mindfulness, compassion, self-compassion, and empathy suggest that these new instruments capture unique characteristics not identical to other widely used scales. Our sample, though representing diverse professions, was predominantly young and female, and results may differ in a group of older and/or male physicians. Although we tested the instruments against several standard measures, we did not compare them to observed practices, and the sense of self-confidence and self-efficacy may over- or under-estimate actual performance. Additional research is necessary to determine how scores on these scales of self-confidence are related to scores on knowledge, and how both are impacted by training.

Despite these limitations, these new instruments do appear to have solid psychometric characteristics that encourage their use as new tools to assess the impact of training programs in integrative health. While self-reports are imperfect proxies for actual performance, it is important to measure attitudes and confidence as well as knowledge and observable skills when assessing training programs, and these instrument could fill an important niche.

Conclusions

Two new scales, a) self-confidence in providing calm, compassionate care (calm, compassionate care scale, CCCS) and b) self-efficacy in providing non-drug therapies to relieve common symptoms (SEND scale) have good face validity, are easily scored, and have good convergent validity with standard measures of related constructs as well as with training and experience. Additional research is needed to confirm their correlation with actual performance in diverse practitioners and settings, but they appear to be a valuable addition to the tools used to identify training needs, and design and evaluate training programs in integrative health care.

Conflicts of interest statement

The authors declare no actual or potential conflicts of interest. This work has not been published previously, is not under consideration for publication elsewhere, and, if accepted, will not be published elsewhere in the same form without the written consent of the copyright holder.

Authors' roles

All research was done by the authors.

KK conceived of the study, designed the questionnaires, collected the data, conducted the final analysis of the data, and wrote and edited the drafts of the manuscript.

GG co-led the focus groups, conducted the initial analysis and interpreted the data, and assisted in editing and revising the manuscript

JM recruited participants, interpreted the data, and assisted in drafting and revising the manuscript.

All approve the final version of the submitted manuscript.

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Appendix A. Appendix

Confidence in providing calm, compassionate care scale

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For each of the following three statements, please select the number that reflects how confident you feel today (0–100% in increments of 10%; for scoring, 10% = 1, 20% = 2, and so on with 100% = 10).

1. In what percentage of your patient encounters do you practice centering (being peaceful and focused)?
2. In what percentage of your patient encounters do you trust your intuition?
3. In what percentage of your patient encounters do you use non-drug therapies to help a patient feel better?

For each of the following seven statements, please select the number that reflects how confident you feel today (0, not confident–10, very confident):

4. I can be peaceful and focused (centered) when my body is quiet and still, and it is quiet in my environment.
5. I can be peaceful and focused (centered) when my body is moving or there is noise in the background.
6. I regularly practice non-verbal, non-pharmacological approaches to calming and reassuring patients.
7. I am confident in being calm, peaceful and focused (centered) before and during patient encounters.
8. I can describe the major risks and benefits of mind-body therapies for patients.
9. I can describe the major risks and benefits of mind-body therapies for myself and other clinicians.
10. I can extend kindness, peace and compassion to patients, colleagues, and myself.

Self-efficacy scale for using non-drug therapies to relieve common symptoms

1. I am confident in being calm, peaceful, mindful, and compassionate (centered) before and during patient encounters.

I can effectively help . . .

2. . . . patients who are in pain using non-drug therapies.
3. . . . anxious or worried patients using non-drug therapies.
4. . . . patients or colleagues feel more relaxed.
5. . . . patients with nausea or vomiting using non-drug therapies.
6. . . . patients with insomnia or sleep problems using non-drug therapies.
7. . . . patients cope using non-drug therapies.
8. . . . patients who are stressed using non-drug therapies.
9. . . . patients prepare for a surgery or a procedure using non-drug therapies.
10. . . . patients who are fatigued using non-drug therapies.

References

[1] Carlston M, Stuart MR, Jonas W. Alternative medicine instruction in medical schools and family practice residency programs. Fam Med 1997;29(8):559–62.
[2] Maizes V, et al. The integrative family medicine program: An innovation in residency education. Acad Med 2006;81(6):583–9.
[3] Quartey NK, et al. Complementary and alternative medicine education for medical profession: Systematic review. Evid Based Complement Alternat Med 2012;2012:656812.
[4] Kligler B, et al. Competency-based evaluation tools for integrative medicine training in family medicine residency: A pilot study. BMC Med Educ 2007;7:7.
[5] Lebensohn P, et al. Integrative medicine in residency education: Developing competency through online curriculum training. J Grad Med Educ 2012;4(1):76–82.
[6] Locke AB, et al. Recommended integrative medicine competencies for family medicine residents. Explore (NY) 2013;9(5):308–13.
[7] Gardiner P, et al. Family medicine residency program directors attitudes and knowledge of family medicine CAM competencies. Explore (NY) 2013;9(5):299–307.
[8] Cook DA, et al. A web-based course on complementary medicine for medical students and residents improves knowledge and changes attitudes. Teach Learn Med 2007;19(3):230–8.
[9] Schneider CD, Meek PM, Bell IR. Development and validation of IMAQ: Integrative medicine attitude questionnaire. BMC Med Educ 2003;3:5.
[10] Kligler B, et al. Measuring the whole system outcomes of an educational innovation: experience from the integrative family medicine program. Fam Med 2009;41(5):342–9.
[11] Rees CE, et al. Medical students' attitudes to complementary and alternative medicine: Further validation of the IMAQ and findings from an international longitudinal study. Med Teach 2009;31(2):125–32.
[12] Lie D, Boker J. Development and validation of the CAM health belief questionnaire (CHBQ) and CAM use and attitudes amongst medical students. BMC Med Educ 2004;4:2.
[13] Zimmerman BJ. Self-efficacy. An essential motive to learn. Contemp Educ Psychol 2000;25(1):82–91.
[14] Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. Psychol Rev 1977;84(2):191–215.
[15] Muretta RJ. Exploring the four sources of self-efficacy, in college of business administration. Cypress, CA: Touro University; 2004. p. 122.
[16] Khdour MR, et al. Potential risk factors for medication non-adherence in patients with chronic obstructive pulmonary disease (COPD). Eur J Clin Pharmacol 2012;68(10):1365–73.
[17] Schwarzer R, et al. Adoption and maintenance of four health behaviors: Theory-guided longitudinal studies on dental flossing, seat belt use, dietary behavior, and physical activity. Ann Behav Med 2007;33(2):156–66.
[18] Steffen AM, et al. The revised scale for caregiving self-efficacy: reliability and validity studies. J Gerontol B: Psychol Sci Soc Sci 2002;57(1):74–86.
[19] Beal T, et al. Long-term impact of four different strategies for delivering an on-line curriculum about herbs and other dietary supplements. BMC Med Educ 2006;6:39.
[20] Kemper KJet al. Randomized controlled trial comparing four strategies for delivering e-curriculum to health care professionals [ISRCTN88148532]. BMC Med Educ 2006;6(1):2.
[21] Tudor-Locke C, et al. Utility of pedometers for assessing physical activity: Convergent validity. Sports Med 2002;32(12):795–808.
[22] Hales D, et al. Development of HomeSTEAD's physical activity and screen time physical environment inventory. Int J Behav Nutr Phys Act 2013;10:132.
[23] Biltoft-Jensen A, et al. Evaluation of web-based dietary assessment software for children: comparing reported fruit, juice and vegetable intakes with plasma carotenoid concentration and school lunch observations. Br J Nutr 2013;110(1):186–95.
[24] Storfer-Isser A, et al. Psychometric properties of the adolescent sleep hygiene scale. J Sleep Res 2013;22(6):707–16.
[25] Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Soc Behav 1983;24(4):385–96.
[26] Feldman G, et al. Mindfulness and emotion regulation: The development and initial validation of the cognitive and affective mindfulness scale-revised (CAMS-R). J Psychopathol Behav Assess 2007;29(3):177–90.
[27] Baer RA, et al. Using self-report assessment methods to explore facets of mindfulness. Assessment 2006;13(1):27–45.
[28] Walach H, et al. Measuring mindfulness – the Freiburg Mindfulness Inventory (FMI). Personal Individ Diff 2006;40(8):1543–55.
[29] Spraggins EF, Fox EA, Carey JC. Empathy in clinical dietitians and dietetic interns. J Am Diet Assoc 1990;90(2):244–9.

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[30] Rosen IM, et al. Evolution of sleep quantity: Sleep deprivation, mood disturbances, empathy, and burnout among interns. Acad Med 2006;81(1):82–5.
[31] Neff KD. The development and validation of a scale to measure self-compassion. Self Identity 2003;2:223–50.
[32] Kemper K, et al. Impact of a medical school elective in cultivating compassion through touch therapies. Complement Health Pract Rev 2006;11(1):47–56.
[33] Kemper KJ, et al. Electives in complementary medicine: are we preaching to the choir? Explore (NY) 2005;1(6):453–8.
[34] Feldman G, et al. Mindfulness and emotion regulation: the development and initial validation of the cognitive and affective mindfulness scale-revised (CAMS-R). J Psychopathol Behav Assess 2007;29:177–90.
[35] Hwang JY, Plante T, Lackey K. The development of the santa clara brief compassion scale: an abbreviation of sprecher and fehr's compassionate love scale. Pastoral Psychol 2008;56:421–8.
[36] Neff KD, Rude S, Kirkpatrick K. An examination of self-compassion in relation to positive psychological functioning and personality traits. J Res Personality 2007;41:908–16.
[37] Neff KD, Vonk R. Self-compassion versus global self-esteem: Two different ways of relating to oneself. J Pers 2009;77(1):23–50.
[38] Coman GJ, Evans BJ, Stanley RO. Scores on the interpersonal reactivity index: A sample of Australian medical students. Psychol Rep 1988;62(3):943–5.
[39] Hojat M, et al. Relationships between scores of the Jefferson Scale of Physician Empathy (JSPE) and the interpersonal reactivity index (IRI). Med Teach 2005;27(7):625–8.
[40] Shanafelt TD, et al. Relationship between increased personal well-being and enhanced empathy among internal medicine residents. J Gen Intern Med 2005;20(7):559–64.
[41] Sands SA, Stanley P, Charon R. Pediatric narrative oncology: Interprofessional training to promote empathy, build teams, and prevent burnout. J Support Oncol 2008;6(7):307–12.
[42] Neumann Met al. Physician empathy: Definition, outcome-relevance and its measurement in patient care and medical education. GMS Z Med Ausbild 2012;29(1):Doc11.
[43] Imran N, et al. Educating tomorrow's doctors: A cross sectional survey of emotional intelligence and empathy in medical students of Lahore. Pak J Med Sci 2013;29(3):710–4.
[44] Raes F, et al. Construction and factorial validation of a short form of the self-compassion scale. Clin Psychol Psychother 2011;18(3):250–5.
[45] Olson K, Kemper KJ. Factors associated with well-being and confidence in providing compassionate care. J Evid Based Complement Altern Med 2014;19(4):292–6.
[46] Kemper KJ, Yun J. Group online mindfulness training: proof of concept. J Evid Based Complement Altern Med 2014, pii: 2156587214553306 [epub ahead of print].

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