

# Psychosocial Effects of a Holistic Ayurvedic Approach to Well-being in Health and Wellness Courses

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## Abstract

**Background:** As individuals are increasingly attending health and wellness courses outside of the conventional medical system, there is a need to obtain objective data on the effects of those programs on well-being.

**Methods:** In total, 154 men and women (mean age 54.7 years; range 25–83) participated in 3 different holistic wellness programs based on Ayurvedic Medicine principles (Seduction of Spirit, Journey into Healing, and Perfect Health) or a vacation control group. Psychosocial outcomes included spirituality (Delaney Spirituality Scale), mindful awareness (Mindful Attention Awareness Scale), psychological flexibility (Acceptance and Action Questionnaire), mood (Center for Epidemiology Studies-Depression), and anxiety (Patient-Reported Outcomes Measurement System Anxiety Scale).

**Results:** Participants in the Seduction of Spirit ( $P < .004$ ), Journey into Healing ( $P < .05$ ), and Perfect Health ( $P < .004$ ) courses showed significant increases in spirituality as compared to vacation controls. Participants in Seduction of Spirit ( $P < .007$ ) also showed significant increases in mindfulness as compared to vacation controls. Participants in the Seduction of Spirit ( $P < .001$ ) and Journey into Healing ( $P < .05$ ) courses showed significant decreases in depressed mood as compared to those in the Perfect Health and vacation control groups. All study participants showed similar increases in psychological flexibility ( $P < .01$ ) and decreases in anxiety ( $P < .01$ ).

**Conclusion:** Participation in wellness courses that incorporate a mind–body–spirit approach to health improves multiple domains of psychosocial well-being, which persists even after course participation.

## Keywords

whole-systems medicine, well-being, spirituality, mindfulness, mood, anxiety

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## Introduction

The current population in the United States and abroad is increasingly seeking and incorporating information on health and well-being, and many access this information from outside of the conventional medical system, including retreats and workshops. It is estimated that world travelers made 691 million wellness trips in 2015, which is 104.4 million more than was estimated in 2013. There is currently a paucity of data, however, on the outcomes of attending various types of well-being programs.

To address this gap in the literature, this study examined the effects of several differently designed holistic health and educational courses on well-being.

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Specifically, we studied effects on emotional and spiritual well-being after attendance at 3 different courses held throughout the year at a well-known national retreat center. The philosophy of healing in the courses was based on a model of body, mind, and spirit as integrated aspects of human experience.<sup>1</sup> The foundation of the meditation practices that were taught comes from Advaita Vedanta, a philosophy of non-dualism, and the medical teachings come from the consciousness-based healing system of Ayurveda which includes practices and techniques to treat imbalances of body, mind, and spirit. Each of the courses incorporated these holistic principles as the foundation of the curriculum and thus offered a unique opportunity to examine potential differences between attending health and wellness courses and trainings where spirituality was integrated into the curriculum versus courses and events where it was not.

While there is a significant body of research demonstrating the importance of spirituality on overall well-being,<sup>2</sup> spirituality is rarely addressed in the majority of health and wellness courses. One study in oncology patients, for example, found that spiritual well-being is associated with quality of life to the same extent as physical well-being is associated with quality of life.<sup>3</sup> Another study of patients with advanced cancer showed that spiritual well-being is more strongly associated with quality of life than emotional or physical well-being individually.<sup>4</sup> Many theories have been postulated as to the mechanisms of this improvement, and the relationship has been found to be complex and multi-faceted.<sup>5</sup> In addition, studies also show that emotional well-being is strongly associated with physical well-being.<sup>6</sup> The mechanisms to explain this benefit are also varied and include modulation of endocrine, immune, and autonomic nervous system function,<sup>7</sup> as well as an association between emotional distress and unhealthy behaviors.<sup>8</sup>

In the courses studied, physical well-being is addressed with nutrition, mindful exercise, and daily routine, including proper sleep with recommendations based on Ayurvedic medicine. Emotional well-being is addressed with stress management practices as well as emotional awareness and regulation training, based on principles of mindfulness. Spiritual well-being is addressed through the practices of meditation, yoga, breathing, and a teaching perspective that consciousness is the basis of existence within which physical form and mental thoughts arise. Therefore, health from a holistic healing perspective involves addressing physical, emotional, and spiritual components of life with tools and practices to support all of these areas.

Courses that offer topics on health and wellness with a spiritual foundation are unique and may offer improvements in health beyond courses that address physical or emotional well-being alone.<sup>9,10</sup> A spiritual foundation does not necessarily suggest religious teachings but

acknowledges a search for deeper meaning and satisfaction in life. Spiritual well-being has been defined as a sense of peace and contentment stemming from an individual's relationship with the spiritual aspects of life, such as meaning and purpose of life, as well as connection to something bigger than their individual self.<sup>11,12</sup> There are observational associations between spiritual well-being and the beneficial health outcomes that can uniquely be explained by these aspects of "existential well-being," such as a sense of peace and meaning in life, with much less of a unique explanatory contribution from religious well-being.<sup>13</sup> Spiritual well-being can also encompass a desire to connect to something bigger than our individual selves, as in consciousness-based spiritual systems where there is a notion of Oneness or Interconnectedness with all beings.<sup>14</sup>

Models of medicine are emerging that acknowledge the need for a more holistic approach to health and include the importance of spirituality in overall well-being for patients as well as practitioners. Despite this acknowledgment, medical education courses do not specifically integrate content regarding spiritual well-being as a foundation of health into their curricula. Medical education courses usually address a primarily physical perspective on health, such as exercise and nutrition, and occasionally address emotional regulation via stress management practices but not necessarily within a foundation of spirituality aimed at expanding perspectives and creating more connection and meaning in life. In addition, burnout and dissatisfaction among physicians and health-care workers are rapidly increasing, which affect the quality of care that is delivered. To address this, some medical education and wellness conferences offer yoga/tai chi or meditation offerings as optional classes to their attendees. However, they are offered as isolated practices within a conventional medical paradigm. The educational content of these courses is not necessarily based on a spiritual foundation, may not improve spiritual well-being, and therefore may not optimize overall well-being, nor offer an opportunity to integrate spirituality into medical practice.

In contrast, the courses investigated in the current study are based on the principles of Ayurvedic medicine, which is a holistic, consciousness-based healing system.<sup>1,15</sup> In this system of traditional medicine, the sensations of the physical body and the thoughts/emotions in the mind are experiences that occur within an underlying field of awareness. This awareness, or consciousness, is regarded as the basis of healing and self-regulation and therefore is necessary in addressing the overall picture of health. It is thus a holistic medicine, one that addresses body, mind, and spirit. The practices and philosophy that are taught to participants at these courses involve physical, emotional, and spiritual practices to improve all aspects of one's health. In essence, these curricula represent a whole-systems approach to health.

The Constitution of the World Health Organization defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (<http://www.who.int/about/mission/en/>). Accordingly, it is important to study the outcomes of health and wellness information that the public is accessing so that reasonable recommendations can be made regarding attendance at wellness courses and participants, including medical professionals, can make informed decisions regarding which courses to attend.

The purpose of the current study was therefore to examine the effects of several holistically oriented curricula—including courses designed for the general public as well as health-care professionals—on improving well-being in multiple psychosocial domains. The authors hypothesized that measures related to mood and well-being would improve in holistic course participants compared to a vacation control group.

### Study Participants and Design

Study participants were recruited from attendees of the *Seduction of Spirit*, *Journey into Healing*, and *Perfect Health* courses offered at the Chopra Center for Wellbeing at the La Costa Resort in Carlsbad, CA. Participants entered each of the courses for different reasons, some to address physical ailments, some to address emotional or mental health concerns, and others to address spiritual aspects of well-being. Any individual who had signed up to attend a mind-body program at the Center was contacted via e-mail about potential participation in the study. Those who were willing to participate signed an online consent form and completed the first set of assessments. All events took place at La Costa Resort in Carlsbad, CA, and participants were housed on the property. The studies were approved by the Institutional Review Boards of the Human Research Protections Program at the University of California, San Diego (#171715 and 161965SX) and BioMed-IRB (#Chopra001) and performed in accordance with institutional guidelines for research with human subjects. All participants provided written informed consent. Data were gathered between November 2015 and October 2016.

### Course Descriptions

***Seduction of spirit.*** This course curriculum was a 6-day meditation and yoga program with a focus on spirituality. The daily schedule included at least twice daily mantra meditation sessions (30–45 min each), twice daily yoga (60 min each), and twice daily lectures on spirituality from the perspective of Advaita Vedanta. The 60- to 90-minute lectures were delivered by a group of experienced meditation teachers and center

staff. One to 2 vegetarian, plant-based meals per day were provided to participants during the course.

***Journey into healing.*** This 4-day health, medical, and wellness program focused on overall health, including physical and emotional health, and included a focus on the Ayurvedic Medicine tradition.<sup>15</sup> In the healing tradition of Ayurveda, there are practices that address physical health, such as nutrition and mindful physical movement, as well as emotional health with an emphasis on shifting perspective from an ego-based perspective to one that is based on a larger sense of self. During the program, there was twice daily mantra meditation (30 min per session), twice daily breathing exercises (5 min per session), daily yoga (60 min per session), and daily lectures (60–90 min per lecture) on nutrition, detoxification, emotional health, and circadian rhythms based on an understanding of humans as part of a bigger system of energy, environment, and consciousness. The medical components and lectures in this conference were approved for AMA Category 1 Continuing Medical Education Credit offered through the University of California, San Diego School of Medicine. Lectures were delivered by physicians and center staff as well as other experts in mind-body health. One to 2 vegetarian, plant-based meals per day were provided to participants.

***Perfect health.*** This 6-day immersion program of detoxification and rejuvenation was based on core principles from the traditional Ayurvedic system of medicine that emphasized holistic principles primarily focused on personalized health and well-being.<sup>16,17</sup> Daily practices included twice daily group meditation (30 min per session), daily yoga (60 min per session), breathing exercises (pranayama) (5 min per session), and emotional expression through a process of daily journaling and emotional support.<sup>18</sup> Lectures (75 min per session) on Ayurvedic lifestyle and mantra meditation were given twice daily. Lectures were delivered by a group of experienced meditation teachers and center staff. Participants also received individualized Ayurvedic massage daily, took herbal supplements twice daily, and were provided with a detoxifying plant-based diet. Some data from this cohort were previously published.<sup>18,19</sup>

***Vacation controls.*** The vacation control group was present at the same locale but did not participate in the specified courses and were instead on a vacation. Participants in this group did what they would normally do on a 6-day vacation at the resort and were instructed not to receive massage therapy or participate in any yoga and/or meditation practices unless they were already part of their routine. Some data from this cohort were previously published.<sup>18,19</sup>

**Table 1.** Precourse Characteristics Among Groups.

	Journey into Healing (n = 53)	Perfect Health (n = 31)	Seduction of Spirit (N = 34)	Vacation Control (n = 36)
Age, mean (SD), years	55.2 (11.7)	54.7 (12.1)	54.2 (8.90)	54.5(11.8)
Gender (no. female/male)	47/6	29/5	29/5	32/5
Months practicing meditation, mean (SD)	88.7 (144)	118.4 (163)	40.5 (58)	96.6 (112)
Months practicing yoga, mean (SD)	70.4 (127)	96.4 (56.7)	64.3 (100)	105.3 (108)
The Delaney Spirituality Scale, mean (SD)	124.6 (10.3)	117.7 (15.3)	118.1 (13.8)	121.9 (15.7)
Center for Epidemiology Studies-Depression, <sup>a</sup> mean (SD)	15.7 (14.8)	10.9 (11.8)	16.5 (12.5)	9.56 (6.9)
PROMIS Anxiety Scale, mean (SD)	54.8 (8.3)	56.1 (10.1)	56.5 (9.0)	52.5 (7.4)7
Acceptance and Action Questionnaire, mean (SD)	54.2 (11.5)	51.7 (11.4)	53.6 (10.9)	53.2 (10.7)
Mindful Attention Awareness Scale, mean (SD)	4.12 (0.77)	4.04 (0.88)	3.77 (0.93)	4.25 (0.92)

Abbreviations: PROMIS, Patient-Reported Outcomes Measurement System; SD, standard deviation.

<sup>a</sup>At precourse, controls had lower scores as compared to those participants entering the Seduction of Spirit ( $P < .05$ ) and Journey into Healing ( $P < .05$ ) courses.

## Assessments

In total, 154 participants completed the pre- and post-course questionnaires for the 3 courses under investigation (Table 1). Subsequently, 113 participants completed a 1-month postcourse follow-up assessment.

**The Delaney Spirituality Scale (DSS).** The DSS is a 23-item scale that assesses beliefs, intuitions, lifestyle choices, practices, and rituals representative of the human spiritual experience.<sup>20,21</sup> Cronbach's  $\alpha$  was 0.933 for this cohort.

**Acceptance and Action Questionnaire-II (AAQ-II).** The AAQ-II is a 10-item measure of psychological inflexibility and experiential avoidance. Studies show acceptable internal consistency as well as convergent and divergent validity.<sup>22,23</sup>

**Mindful Attention Awareness Scale (MAAS).** The MAAS is a 15-item self-report measure of mindfulness, defined as a state of consciousness in which attention and awareness are given to the present moment. Validity of this measure has been shown in various populations.<sup>24,25</sup>

**Center for Epidemiology Studies-Depression (CES-D).** This is a 20-item self-report screening tool for depressive symptoms developed by the National Institute of Mental Health.<sup>26,27</sup>

**Patient-Reported Outcomes Measurement System (PROMIS) Anxiety Scale.** This 8-item scale is part of an National Institutes of Health research initiative, the PROMIS, and Assessment Center, assessing a range of anxiety symptoms.<sup>28</sup>

Additionally, data on age, gender, and number of months practicing meditation and/or number of months practicing yoga were obtained (Table 1).

## Data Analysis

Analyses included Pearson's correlations, 1-way analysis of variance (ANOVA), and 2-way (group by time) repeated measures ANOVA, and analysis of covariance (ANCOVA; SPSS version 25.0). Number of months practicing meditation and number of months practicing yoga were used as covariates. Given the participant attrition from the immediate postcourses to 1-month follow-up assessments (from 154 participants responding immediately postcourse to 113 participants for follow-up), separate 2-way (group by time) repeated measures ANCOVA were conducted that included examination of the 1-month follow-up data.

## Results

### Precourses

There were no significant differences among the groups in age ( $F = 0.64$ ,  $P = .979$ ), gender distribution ( $\chi^2 = 0.298$ ,  $P = .96$ ), months practicing meditation ( $F = 1.94$ ,  $P = .125$ ), or months practicing yoga ( $F = 0.924$ ,  $P = .43$ ) (Table 1). There were no significant precourse differences among the groups in the DSS ( $P = .107$ ), the PROMIS Anxiety Scale ( $P = .354$ ), the Acceptance and Action Questionnaire ( $P = .838$ ), or the MAAS ( $P = .131$ ) (Table 1). There was, however, a significant precourse difference in the CES-D questionnaire ( $F = 3.06$ ;  $P = .030$ ), such that vacation controls had lower values as compared to Seduction of Spirit ( $P = .018$ ) and Journey into Healing ( $P = .019$ ) course participants (Table 1).

Across all study participants, the amount of prior meditation practice correlated with the amount of prior yoga practice ( $r = .351$ ,  $P < .001$ ), age ( $r = .304$ ,  $P < .001$ ), PROMIS Anxiety Scale ( $r = -.141$ ,  $P < .05$ ), Acceptance and Action Questionnaire ( $r = .190$ ,  $P < .01$ ), and MAAS ( $r = .298$ ,  $P < .001$ ). The amount

of prior yoga practice correlated significantly with age ( $r = .185, P < .01$ ) and the MAAS ( $r = -.183, P < .015$ ).

### Postcourse Effects

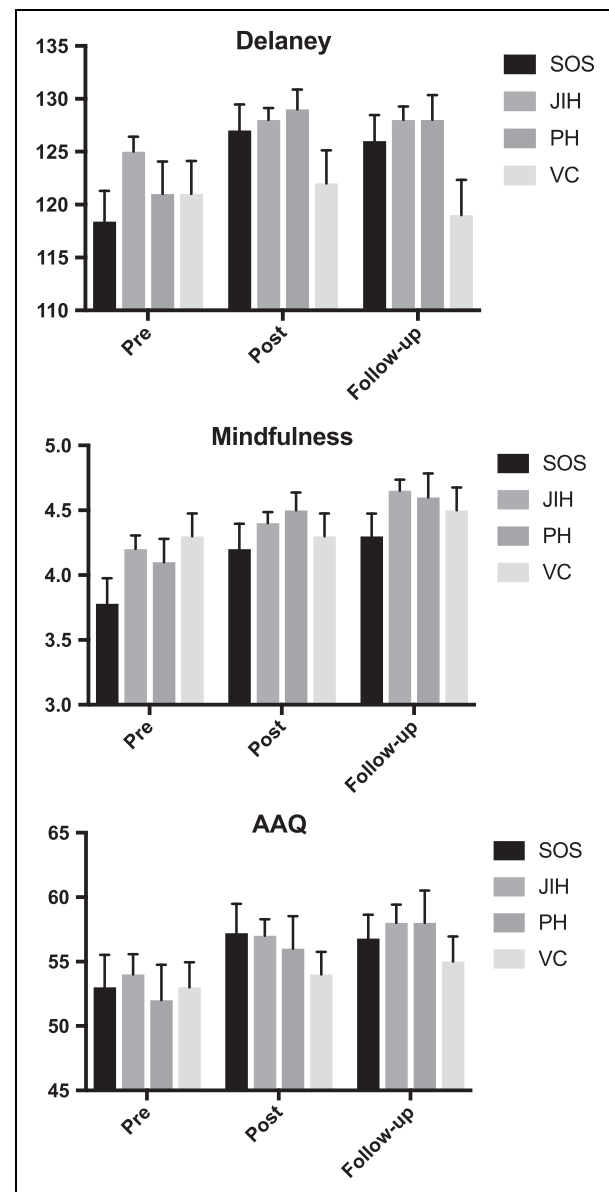
**Delaney Spirituality Scale.** Immediately following the courses, there was a significant main effect of time ( $F = 28.8; P < .001$ ; partial  $\eta^2 = 0.153$ ) and a significant group by time interaction ( $F = 4.37; P = .006$ ; partial  $\eta^2 = 0.081$ ) (Figure 1). Seduction of Spirit ( $P < .004$ ), Journey into Healing ( $P < .05$ ), and Perfect Health ( $P < .004$ ) course participants showed significant increases in spirituality scores as compared to vacation controls. A subsequent analysis including the 1-month follow-up data again showed a significant main effect of time ( $F = 24.6; P < .001$ ; partial  $\eta^2 = 0.184$ ) and a significant group by time interaction ( $F = 5.04; P < .001$ ; partial  $\eta^2 = 0.122$ ), which showed the same pattern of effects for Seduction of Spirit ( $P < .002$ ), Journey into Healing ( $P < .004$ ), and Perfect Health ( $P < .002$ ) as compared to vacation controls.

**Mindful Attention Awareness Scale.** There was a significant main effect of time ( $F = 13.2; P < .001$ ; partial  $\eta^2 = 0.081$ ) and a significant group by time interaction ( $F = 2.73; P = .046$ ; partial  $\eta^2 = 0.052$ ) (Figure 1) at immediate postcourse.

Seduction of Spirit ( $P < .007$ ) participants showed significant increases in mindfulness as compared to vacation controls. The subsequent analysis including the 1-month follow-up showed a significant main effect of time ( $F = 33.2; P < .001$ ; partial  $\eta^2 = 0.233$ ) and a significant group by time interaction ( $F = 2.07; P < .05$ ; partial  $\eta^2 = 0.054$ ), which showed a continuing effect of Seduction of Spirit ( $P < .005$ ) as compared to vacation controls.

**Acceptance and Action Questionnaire.** There was a significant main effect of time ( $F = 23.6; P < .001$ ; partial  $\eta^2 = 0.137$ ); the group by time interaction term was not significant ( $F = .754; P = .75$ ; partial  $\eta^2 = 0.083$ ) (Figure 1). The subsequent 1-month follow-up analysis also showed a significant main effect of time ( $F = 17.36; P < .001$ ; partial  $\eta^2 = 0.137$ ), with nonsignificant group effects ( $F = 0.832; p = .546$ ; partial  $\eta^2 = 0.022$ ).

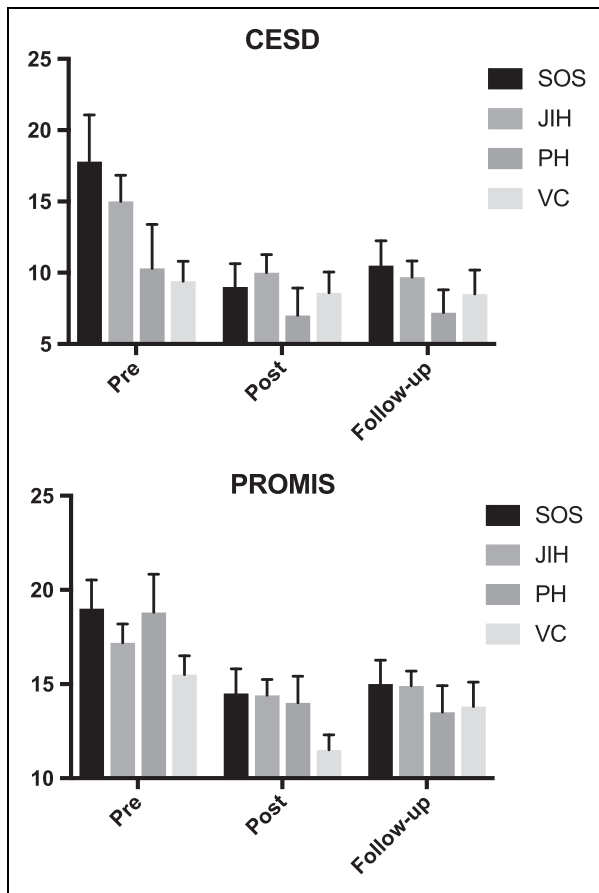
**Center for Epidemiology Studies-Depression.** At immediate postcourse, there was a significant main effect of time ( $F = 38.5; P < .001$ ; partial  $\eta^2 = 0.202$ ) and a significant group by time interaction, indicating group differences ( $F = 4.59; P = .004$ ; partial  $\eta^2 = 0.083$ ) (Figure 2). Participants in the Seduction of Spirit ( $P < .001$ ) and Journey into Healing ( $P < .05$ ) courses showed significant decreases in depressed mood as compared to those in the Perfect Health and vacation control



**Figure 1.** Delaney Spirituality Scale, Mindful Attention Awareness Scale, and Acceptance and Action Questionnaire at Pre-, Post-, and 1-Month Follow-up. Participants in the SOS ( $P < .004$ ), JIH ( $P < .05$ ), and PH ( $P < .004$ ) courses showed significant increases in spirituality scores as compared to VCs. Participants in the SOS ( $P < .007$ ) showed significant increases in mindfulness as compared to VCs. JIH, Journey into Healing; PH, Perfect Health; SOS, Seduction of Spirit; VC, vacation control.

groups. The subsequent analysis including the 1-month follow-up data again showed a significant main effect of time ( $F = 13.8; P < .001$ ; partial  $\eta^2 = 0.111$ ), yet no group effects ( $F = 1.77; P = .118$ ; partial  $\eta^2 = 0.045$ ).

**PROMIS Anxiety Scale.** Immediately postcourse, there was a significant main effect of time ( $F = 81.3; P < .001$ ; partial  $\eta^2 = 0.348$ ), with no group differences ( $F = 2.45$ ;



**Figure 2.** CES-D and PROMIS Anxiety Scale at Pre-, Post-, and 1-Month Follow-up. Participants in the SOS ( $P < .001$ ) and JIH ( $P < .05$ ) courses showed significant decreases in depressed mood as compared to those in the PH and VC groups. All study participants showed similar decreases in anxiety ( $P < .01$ ). CES-D, Center for Epidemiology Studies-Depression; JIH, Journey into Healing; PH, Perfect Health; PROMIS, Patient-Reported Outcomes Measurement System; SOS, Seduction of Spirit; VC, vacation control.

$P = .065$ ; partial  $\eta^2 = 0.046$ ) (Figure 2). The same was observed for the 1-month follow-up data analysis ( $F = 33.8$ ;  $P < .001$ ; partial  $\eta^2 = 0.233$ ) and group effects ( $F = 1.44$ ;  $P = .233$ ; partial  $\eta^2 = 0.038$ ).

## Discussion

In consideration of the growing global wellness industry, this study examined the effects of differently designed education courses on health and well-being. Broadly, the findings suggest that incorporating spirituality as a foundation for health and wellness care, while also addressing emotional and physical well-being, can offer benefits beyond both the current discussions in health care and what is usually offered as health and wellness

information, which typically excludes a spiritual component.

Based on these findings, there may be an opportunity to improve on wellness courses currently offered both to the general population and to health-care providers in order to optimize health and wellness education. An interesting finding was that even participants who attended the courses that were primarily designed to address physical health (Perfect Health and Journey into Healing) experienced improvements in emotional and spiritual well-being. Emotional well-being can be defined as a measure of our happiness and satisfaction with ourselves and our lives, which can be enhanced by a spiritual perspective that offers meaning and purpose in life. By discussing the connection between emotional/mental health and physical health and giving participants tools to incorporate into their daily lives, they continue to improve their health even after participation in the course, as evidenced by follow-up questionnaire data, and appear more motivated to continue daily practices. Spiritual well-being acknowledges our search for deeper meaning in life and is reflected when our actions become more consistent with our beliefs and values.<sup>29</sup> In addition, by giving a spiritual perspective to the experiences of the physical body and mental thoughts, participants are given the opportunity to reevaluate their relationship to these aspects of their lives and lend flexibility to how they perceive their health. It is noteworthy that Acceptance and Action improved following participation in each of the courses and in the vacation control group. A higher score on the questionnaire indicates greater psychological flexibility. There is a growing body of research that shows that increased psychological flexibility is an important factor in overall psychological health.<sup>30</sup>

By acknowledging the importance of spiritual wellness in the general health and wellness discussion and offering practices to address this, we may in a simple and cost-effective manner facilitate the promotion of overall health and wellness, which includes physical and psychological health.

It has also been suggested that spirituality needs to be addressed more often in the medical setting as part of the healing process, whereas many health-care providers do not have a model for incorporating this into the medical visit.<sup>2</sup> As outlined in the research done by Kliewer,<sup>2</sup> studies show that spirituality benefits people by helping prevent illness and increasing their ability to cope with life stressors. Rippentrop et al. propose several mechanisms for the positive effects of spirituality on both mental and physical health, including prayer and meditation practices.<sup>31</sup> There are models that have been developed for the training of medical students and residents to improve the integration of spirituality into patient visits.<sup>32</sup> However, integration of such programs

into the medical environment is not routinely practiced, so people go outside of the conventional medical system to obtain this perspective, hence the importance of studying outcomes of attending these courses.

In addition, there is a growing recognition of the implications of burnout among physicians themselves, therefore creating a movement toward recommending, and most recently *requiring*, medical students to participate in mind–body training programs. As of 2018, Harvard Medical School has begun requiring all first-year medical students to participate in a mind–body resiliency training program. Of particular note in this study, the Journey into Healing course offered Continuing Medical Education (CME) credit for medical providers, thereby providing an opportunity to incorporate spiritual and emotional wellness into both their personal and professional lives. Stress management programs for medical trainees have shown promise for reducing negative symptoms such as anxiety while increasing positive traits such as self-awareness and spirituality.<sup>33</sup> However, no commonly accepted wellness training models have been identified, and it remains unclear as to the features required for the most effective wellness programs in these or other populations. We found that participants in the Seduction of Spirit meditation course experienced a greater reduction in depressed mood scores compared to the other courses, which supports previous data on the beneficial effects of meditation specifically on depression.<sup>34</sup> Participants in the Seduction of Spirit course also spent more time in active meditation than the other courses, and this suggests that, at minimum, participation in meditation retreats could be an effective approach to wellness training for medical students and professionals. Compassion and empathetic concern, often achieved through mindfulness meditation, are known to increase several positive outcomes such as patient safety in clinical practice.<sup>35–38</sup> With reported decreases in empathy in new enrolling medical students, additional studies are needed to assess how best to design health-care professional education and training to include wellness, well-being, compassion, spirituality, and other holistic concepts and practices,<sup>39</sup> such as in these courses. A program for third-year medical students that simply incorporated a wellness handbook promoted a significant decrease in perceived depression and suicidal ideation;<sup>40</sup> therefore, a more in-depth course with instruction by trained educators could potentially offer more benefit. Further, wellness programs implemented for medical students with required resilience and mindfulness training, which is often an overlooked component of medical student health, were associated with significantly lower levels of perceived depression, anxiety, and stress compared to programs that did not have a wellness component.<sup>41</sup>

While mindfulness-based stress reduction training has demonstrated promise in reducing anxiety and

increasing self-awareness and spirituality in students,<sup>42,43</sup> such programs are often stand-alone electives. Thus, these data highlight the potential value for more comprehensive wellness programs for health-care professionals and the general population. In addition, while these wellness programs and curricula show promise, further research is required to better understand which components of wellness programs are most effective, as varied formats, duration, modality, and technique in the current literature make assessment and comparison of curricula difficult.

There are several limitations to this study that need to be noted. The majority of course attendees were women, so it is difficult to know the extent to which the findings might generalize to men. While the current findings may be applicable to men, additional studies with a more equal representation of gender will be needed. An additional point regarding generalizability is that the participants may not reflect a typical population in that they were recruited from a group that had already decided to attend a wellness course. The heterogeneity of wellness programs in the existing literature makes such comparisons between different program types difficult to assess and thus identify the best recommendations for course features. Finally, the courses examined in this study used a framework of spirituality based on Ayurveda, whereas there may be other frameworks that could show benefits as well, and comparative studies are needed.

In summary, as attendance at health and well-being courses appears to be a growing avenue for health-care information for the global population, there is a necessity for more data on the outcomes of attendance at these courses. Advancing such work would allow medical professionals to feel comfortable in recommending attendance at these courses to their patients. In addition, with the recent acknowledgment of the need for wellness training for medical professionals themselves, it becomes even more important to collect data on the efficacy of various programs so that they may become a required part of medical training and ongoing professional education. This study documents the benefits of a body–mind–spirit approach to overall well-being. If sustained improvements in well-being, such as those documented in the current study, can be duplicated, then there is more confidence to use such approaches as a way to facilitate wellness. Health-care practitioners and organizations could feel more confident recommending such approaches in order to further support the well-being of their patients as well as themselves.

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### References

- Halpern M. A review of the evolution of Ayurveda in the United States. *Altern Ther Health Med*. 2018;24(1):12–14.
- Kliwer S. Allowing spirituality into the healing process. *J Fam Pract*. 2004;53(8):616–624.
- Brady MJ, Peterman AH, Fitchett G, Mo M, Cella D. A case for including spirituality in quality of life measurement in oncology. *Psychooncology*. 1999;8(5):417–428.
- Bai M, Lazenby M, Jeon S, Dixon J, McCorkle R. Exploring the relationship between spiritual well-being and quality of life among patients newly diagnosed with advanced cancer. *Palliat Support Care*. 2015;13(4):927–935.
- Thoresen CE, Harris AH. Spirituality and health: what's the evidence and what's needed? *Ann Behav Med*. 2002;24(1):3–13.
- Fisher EB, Thorpe CT, Devellis BM, Devellis RF. Healthy coping, negative emotions, and diabetes management: a systematic review and appraisal. *Diabetes Educ*. 2007;33(6):1080–1103; discussion 1104–1086.
- Wearden AJ, TARRIER N, Barrowclough C, Zastowny TR, Rahill AA. A review of expressed emotion research in health care. *Clin Psychol Rev*. 2000;20(5):633–666.
- Stewart-Brown S. Emotional wellbeing and its relation to health. Physical disease may well result from emotional distress. *BMJ*. 1998;317(7173):1608–1609.
- Naidoo D, Schembri A, Cohen M. The health impact of residential retreats: a systematic review. *BMC Complement Altern Med*. 2018;18(1):8.
- Cone PH, Giske T. Integrating spiritual care into nursing education and practice: strategies utilizing Open Journey Theory. *Nurse Educ Today*. 2018;71:22–25.
- Yoon SJ, Suh SY, Kim SH, et al. Spiritual well being among palliative care patients with different religious affiliations: a multicenter Korean study. *J Pain Symptom Manage*. 2018;56(6):893–901.
- Lee YH, Salman A. The mediating effect of spiritual well-being on depressive symptoms and health-related quality of life among elders. *Arch Psychiatr Nurs*. 2018;32(3):418–424.
- Bai M, Lazenby M. A systematic review of associations between spiritual well-being and quality of life at the scale and factor levels in studies among patients with cancer. *J Palliat Med*. 2015;18(3):286–298.
- Whitford HS, Olver IN. The multidimensionality of spiritual wellbeing: peace, meaning, and faith and their association with quality of life and coping in oncology. *Psychooncology*. 2012;21(6):602–610.
- Sharma R, Kabra A, Rao MM, Prajapati PK. Herbal and holistic solutions for neurodegenerative and depressive disorders: leads from Ayurveda. *Curr Pharm Des*. 2018; 24(22):2597–2608.
- Patwardhan B. Bridging Ayurveda with evidence-based scientific approaches in medicine. *EPMA J*. 2014;5(1):19.
- Jafari S, Abdollahi M, Saeidnia S. Personalized medicine: a confluence of traditional and contemporary medicine. *Altern Ther Health Med*. 2014;20(5):31–40.
- Mills PJ, Wilson KL, Pung MA, et al. The Self-Directed Biological Transformation Initiative and Well-Being. *J Altern Complement Med*. 2016;22(8):627–634.
- Peterson CT, Lucas J, John-Williams LS, et al. Identification of altered metabolomic profiles following a Panchakarma-based Ayurvedic intervention in healthy subjects: The Self-Directed Biological Transformation Initiative (SBTI). *Sci Rep*. 2016;6:32609.
- Monod S, Brennan M, Rochat E, Martin E, Rochat S, Bula CJ. Instruments measuring spirituality in clinical research: a systematic review. *J Gen Intern Med*. 2011;26(11):1345–1357.
- Delaney C. The Spirituality Scale: development and psychometric testing of a holistic instrument to assess the human spiritual dimension. *J Holist Nurs*. 2005;23(2):145–167; discussion 168–171.
- Bond FW, Hayes SC, Baer RA, et al. Preliminary psychometric properties of the Acceptance and Action Questionnaire-II: a revised measure of psychological inflexibility and experiential avoidance. *Behav Ther*. 2011;42(4):676–688.
- Fledderus M, Oude Voshaar MA, Ten Klooster PM, Bohlmeijer ET. Further evaluation of the psychometric properties of the Acceptance and Action Questionnaire-II. *Psychol Assess*. 2012;24(4):925–936.
- Brown KW, Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. *J Pers Soc Psychol*. 2003;84(4):822–848.
- Carlson LE, Brown KW. Validation of the Mindful Attention Awareness Scale in a cancer population. *J Psychosom Res*. 2005;58(1):29–33.
- Radloff LS. The use of the Center for Epidemiologic Studies Depression Scale in adolescents and young adults. *J Youth Adolesc*. 1991;20(2):149–166.
- Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D (Center for Epidemiologic



- Studies Depression Scale). *Am J Prev Med*. 1994;10(2):77–84.
28. Broderick JE, DeWitt EM, Rothrock N, Crane PK, Forrest CB. Advances in patient-reported outcomes: the NIH PROMIS((R)) measures. *EGEMS (Wash DC)*. 2013;1(1):1015.
  29. Gonzalez P, Castaneda SF, Dale J, et al. Spiritual well-being and depressive symptoms among cancer survivors. *Support Care Cancer*. 2014;22(9):2393–2400.
  30. Kashdan TB, Rottenberg J. Psychological flexibility as a fundamental aspect of health. *Clin Psychol Rev*. 2010;30(7):865–878.
  31. Rippentrop EA, Altmaier EM, Chen JJ, Found EM, Keffala VJ. The relationship between religion/spirituality and physical health, mental health, and pain in a chronic pain population. *Pain*. 2005;116(3):311–321.
  32. Barnett KG, Fortin AH. Spirituality and medicine. A workshop for medical students and residents. *J Gen Intern Med*. 2006;21(5):481–485.
  33. Shapiro SL, Shapiro DE, Schwartz GE. Stress management in medical education: a review of the literature. *Acad Med*. 2000;75(7):748–759.
  34. Ravindran AV, da Silva TL. Complementary and alternative therapies as add-on to pharmacotherapy for mood and anxiety disorders: a systematic review. *J Affect Disord*. 2013;150(3):707–719.
  35. Everson N, Levett-Jones T, Pitt V. The impact of educational interventions on the empathic concern of health professional students: a literature review. *Nurse Educ Pract*. 2018;31:104–111.
  36. Doyle C, Lennox L, Bell D. A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. *BMJ Open*. 2013;3(1):e001570.
  37. Singer T, Klimecki OM. Empathy and compassion. *Curr Biol*. 2014;24(18):R875–R878.
  38. Klimecki OM, Leiberg S, Ricard M, Singer T. Differential pattern of functional brain plasticity after compassion and empathy training. *Soc Cogn Affect Neurosci*. 2014;9(6):873–879.
  39. Neumann M, Edelhauser F, Tauschel D, et al. Empathy decline and its reasons: a systematic review of studies with medical students and residents. *Acad Med*. 2011;86(8):996–1009.
  40. Thompson D, Goebert D, Takeshita J. A program for reducing depressive symptoms and suicidal ideation in medical students. *Acad Med*. 2010;85(10):1635–1639.
  41. Slavin SJ, Schindler DL, Chibnall JT. Medical student mental health 3.0: improving student wellness through curricular changes. *Acad Med*. 2014;89(4):573–577.
  42. Shapiro SL, Schwartz GE, Bonner G. Effects of mindfulness-based stress reduction on medical and pre-medical students. *J Behav Med*. 1998;21(6):581–599.
  43. Rosenzweig S, Reibel DK, Greeson JM, Brainard GC, Hojat M. Mindfulness-based stress reduction lowers psychological distress in medical students. *Teach Learn Med*. 2003;15(2):88–92.