

An Internet-Delivered Mantram Repetition Program for Spiritual Well-Being and Mindfulness for Health Care Workers

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Prior studies have shown that spiritual well-being is a protective factor in reducing psychological distress among health care workers (HCWs). An Internet-delivered Mantram Repetition Program (MRP) that teaches mantram (sacred word) repetition, slowing down, and 1-pointed attention was provided to HCWs to enhance spiritual well-being and mindfulness in order to reduce psychological distress that might interfere with quality patient care. A quasi-experimental, within-subjects, repeated measures design was utilized. Participants enrolled in six 50-min sessions of MRP delivered over 3 months and completed the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being scale (FACIT-Sp) and the Mindfulness Attention Awareness Scale (MAAS) at baseline, postintervention, and 3 months postintervention using Internet surveys. Results demonstrated significant improvements in self-reported spiritual well-being and mindfulness and over time. Nearly three fourths (72%) of HCW's reported continued practice of all 3 program tools at follow-up. MRP may benefit HCWs seeking innovative, portable methods to improve mindfulness and well-being.

Keywords: mantra, mindfulness, meditation, spirituality, health care workers

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The United States is facing an unprecedented health care crisis, and health care workers (HCWs) are essential for the delivery of patient care. Workforce issues of increasing psychological distress, rapid change, and greater demands with fewer resources, all affect individuals and organizations. According to the National Institute for Occupational Safety and Health (NIOSH; 2014), stress is a major concern for over 18 million U.S. HCWs. Another national survey found that health care workers were among the top three most stressed professions and 25% of medical personnel planned to switch jobs in the coming year (Lorenz, 2014). High patient acuity and heavy technology use, coupled with increasing physical and emotional demands, create a stressful work environment. Stress may in turn lead to depression, decreased job satisfaction, and other psychological distress among HCWs (NIOSH, 2008). Finding ways to improve well-being among HCWs is imperative; and improving spiritual well-being and mindfulness are two possible ways to achieve these goals.

Spiritual well-being is defined as finding meaning and purpose in life and appears to have a wide-reaching impact on aspects of psychological health. Spiritual (CESAMH) well-being has been positively associated with improved psychological functioning in both patient and nonpatient groups (Bredle, Salsman, Debb, Arnold, & Cella, 2011; Jenkins, Wikoff, Amankwaa, & Trent, 2009) and linked to reduced exhaustion in nurses (Rushton, Batcheller, Schroeder, & Donohue, 2015). In a literature review of spirituality and mental health, Cornah and Ryrie (2006) found there were significant inverse relationships among spiritual well-being and psychological distress in a variety of samples. In other words, individuals reporting greater spiritual well-being endorsed lower levels of psychological distress. Similarly, in a study of medical students, spiritual well-being was shown to serve as a protective factor in reducing anxiety and depression (Wachholtz & Rogoff, 2013). Furthermore, spiritual well-being has been positively associated with adaptive coping strategies, life satisfaction (Wachholtz & Rogoff, 2013), and personal empowerment (Pargament et al., 1992). The broad effects of spiritual well-being may influence various aspects of HCWs occupational

performance and satisfaction by reducing psychological distress.

Mindfulness is a way of purposefully paying attention to the present moment without judgment (Kabat-Zinn, 1994). Mindfulness is a particularly important component for the nursing discipline because it encourages well-being, therapeutic qualities, and health promotion (White, 2014). A systematic review of research on mindfulness practices for HCWs has shown that mindfulness improves psychosocial functioning (Escuriex & Labbe, 2011). Other studies have found that techniques, such as repetitive word speech, trigger a global inhibition of thought processes resulting in a psychological calming effect (Berkovich-Ohana, Wilf, Kahana, Arieli, & Malach, 2015) and similar meditative practices are associated with structural changes in the prefrontal cortex of the brain, the area involved with executive functioning, decision-making, and awareness (Lazar et al., 2000; Lazar et al., 2005). Although studies of the relationship between mindfulness and spiritual well-being are sparse (Astin, 1997), they may yield similar, positive outcomes.

The MRP is one intervention that has been shown to reduce psychological distress, as well as improve mindfulness and spiritual well-being, in a variety of patient and nonpatient groups (Bormann et al., 2014). The MRP uses portable, meditation-like techniques that emphasize three mindfulness strategies from Easwaran's (2008) Eight-Point Program. The first strategy focuses on mantram repetition (i.e., silently repeating a "mantra" or "sacred" phrase at any time or place). A *mantram* is defined as "a powerful spiritual formula, which, when repeated silently in the mind, has the capacity to transform consciousness" (Easwaran, 2008, p. 12). The mantram is prominently found in both Eastern and Western spiritual traditions and is used to tap into the "highest power that we can conceive of" (Easwaran, 2008, p. 2). In the MRP, a list of mantrams that originate from Buddhism, Christianity, Judaism, Islam, Hinduism, and Native American Indian traditions are provided to assist individuals in selecting a mantram. In addition to the mantram, the other two strategies include slowing down (i.e., intentional, thoughtful behaviors) and one-pointed attention (i.e., focusing one's full attention on the task at hand without distraction). Taken together, the goal of these three strategies is to

direct attention away from distressing thoughts by briefly focusing on the mantram, which in turn, calms the mind and initiates the relaxation response (Benson, 1993; Bormann et al., 2014).

The MRP may be particularly well-suited for HCWs as the practice can be used throughout the workday (Richards, Oman, Hedberg, Thoresen, & Bowden, 2006) and does not require equipment or specific environmental conditions (Easwaran, 2008; Oman & Driskill, 2003). Research has demonstrated that 42 Veterans Affairs (VA) employees who attended a face-to-face MRP group intervention reported significantly lower postintervention levels of perceived stress, trait-anxiety, and trait-anger, while improving quality of life, and spiritual well-being (Bormann et al., 2006a; Bormann et al., 2006b). Similarly, in a randomized controlled trial conducted among Korean nurse managers, Yong and colleagues found that those who received the MRP ($n = 24$), compared to those in a control group ($n = 27$), demonstrated significantly greater improvements in spiritual well-being, spiritual integrity, and leadership practice, as well as a significant reduction in burnout (Yong, Kim, Park, Seo, & Swinton, 2011). Thus, the current study aims to extend these findings by evaluating whether MRP improves mindfulness and spiritual well-being among HCWs using a convenient, Internet-delivered format.

Method

Participants

A convenience sample of 54 HCWs voluntarily enrolled in the online MRP, which was offered as an educational program within the VA Health Care System. Recruitment occurred prior to the start of the MRP using direct and indirect methods, including local flyers and blinded group e-mails of VA employees (i.e., using group list-serves) advertising the course. As the number of individuals on each group list-serve was unknown, we could not determine the size of the pool of potential participants. Participants received a maximum of 6 hours of continuing education credit for completing all six sessions. Institutional review board approval was obtained prior to the start of the study.

Intervention

The MRP was delivered in real-time as an educational series consisting of six 50-min classes delivered every two weeks over a 3-month period. Participants were provided with a downloadable training manual from a VA website and were sent a course textbook (*Strength in the Storm*; Easwaran, 2013) via postal mail. The structured, Internet-delivered program covered the topics listed in Table 1. Each class consisted of lecture and discussion that was facilitated synchronously using an interactive, virtual-meeting format that allowed participants to exchange information with each other and ask questions using live-meeting technology such as chat box, polling questions, and telephone conference calls.

Data Collection

Participants enrolled in the MRP were given a URL as a standardized way to access a secure website to complete the survey questionnaires. The online system provided participants anonymity by blocking identification of Internet protocol addresses, URLs, and e-mail addresses. Data from assessment measures were collected from March 2012 to September 2012 at three intervals via online surveys: (a) upon course enrollment, (b) after the last class session, and (c) 3 months after the last class session.

Measures

Demographic questions included gender, age, marital/partner status, ethnicity, race, highest educational degree, current job position, number of years working in current position, and if direct patient care was provided

Table 1
*Mantram Repetition Program Session Topics:
Health Care Worker Internet Version*

Topic
1. How to choose and use a mantram
2. Mantram repetition and the relaxation response
3. Mantram repetition and slowing down
4. Mantram repetition and one-pointed attention
5. Mantram repetition tools—Putting it all together
6. Mantram repetition program—Keeping your practice going

(yes/no). Participants were also asked to rate the importance of their spiritual/religious beliefs on a 4-point scale ranging from 0 (*not at all important*) to 3 (*very important*), and if they had practiced any other types of meditation or mindfulness (*yes/no*).

The Mindful Attention Awareness Scale (MAAS) is a 15-item, self-report measure that assesses mindfulness as an attribute, specifically, individuals' ability to attend to and be aware of the present moment (Brown & Ryan, 2003). Items such as "I find it difficult to stay focused on what's happening in the present" or "I find myself doing things without paying attention" are rated on a scale ranging from 1 (*almost always*) to 6 (*almost never*), which are then summed to yield a total score (range 15–90; higher scores indicate greater mindfulness). Convergent and discriminant validity have been demonstrated for the MAAS and internal consistency reliability has been reported as $\alpha = .82$ (Brown & Ryan, 2003). Internal consistency for the MAAS was $\alpha = .91$ in the current study.

The Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being scale (FACIT-Sp) is a 12-item, self-report instrument developed to assess spiritual aspects of quality of life in patients with chronic and/or life-threatening illnesses (Murphy et al., 2010; Peterman, Fitchett, Brady, Hernandez, & Cella, 2002). The adapted version developed for the general population was used in this study (Bredle et al., 2011). Each item is rated on how true it is, ranging from 0 (*not at all*) to 4 (*very much*), with two items that are reverse scored. Items are summed for a total score ranging from 0–48 (higher scores indicate greater spiritual well-being).

Three subscales measure peace, meaning and faith/assurance. Each subscale score ranges from 0 to 16 with higher scores indicating greater levels of the construct. The peace subscale includes items such as "I feel peaceful; I feel a sense of harmony within myself." The meaning subscale includes items such as "I have a reason for living; I feel a sense of purpose in my life." The faith/assurance subscale includes items such as "I know that whatever happens with my illness, things will be okay; I find strength in my faith or spiritual beliefs."

Validity has been demonstrated for the total score and three subscales of peace, meaning, and faith/assurance based on a review of several

studies by Peterman and colleagues (2014). Cronbach's alpha for the total score has been reported as $\alpha = .94$ (Bormann, Thorp, Wetherall, Golshan, & Lang, 2013) with subscales ranging from $\alpha = .81$ –.88 (Peterman et al., 2014). In the current study, Cronbach's alpha for the total scale was $\alpha = .88$ and for the subscales of peace, meaning, and faith/assurance, internal consistency values were $\alpha = .90$, .75, and .84, respectively.

Self-report questions assessing practice of the three MRP tools were asked at postintervention and 3-month follow-up. The questions were: "Are you using your mantram? (Yes/No)," "During this past week, including today, on how many days did you remember to repeat your mantram? (0-7 days)," "Do you practice slowing down at work? (Yes/No)," and "Do you practice one-pointed attention at work? (Yes/No)."

Data Analysis

Bivariate correlations using Pearson r were first conducted on continuous variables to explore the relationships among mindfulness, spiritual well-being, and the spiritual well-being subscales. A repeated measures analysis of variance (ANOVA) was then used for this within-subject design with three time points of data collection. However, due to missing data where only 38 (70.37%) participants had complete FACIT-Sp scale data at all three timepoints, a multilevel modeling (MLM) approach was also used for comparison (Singer & Willett, 2003). MLM was conducted because it uses all available data from all cases, even if there is only one data point for a given case. We were aware of the very small sample size for employing MLM, given the diminution of power (Raudenbush & Liu, 2000; Maas & Hox, 2004) but the MLM approach appeared to be the most optimal strategy.

As for the time variable, given that data were collected at only three time points, as opposed to modeling time as a continuous variable, time was treated as a fixed factor, entailing the creation of dummy codes for the first two time points of data collection, with the third and final time point serving as the reference category (Greene, 2002). The conditional intraclass correlation coefficient (ICC) was calculated, which in this context captured the interindividual variability in the intercepts with time as a fixed (nonrandomly varying) covariate. Parameter es-

timates for each of the outcomes (both the overall effect of time, and the dummy coded vectors) are reported as well as the pairwise comparisons using the Sidak adjustment for multiple comparisons (Toothaker, 1991). Data were analyzed using SPSS 22.0.

Results

Of the 54 participants who consented to study participation and completed the pretest survey, 42 completed the posttest survey and 46 completed the 3-month follow-up. A total of 39 participants had complete data and of these, 87% were female, 90% white, 64% married/partnered, and over half (64%) held a Master's degree (see Table 2). The average age was 51 years ($SD = 8.60$; range

27–67 years). The majority of HCWs (77%) had direct patient contact. Registered Nurses (RNs) made up the largest category (39%) of HCW roles. The average number of years participants worked in the health care profession was 21 years ($SD = 10.13$).

With respect to attitudes related to the importance of religion/spirituality measured at baseline, the majority (64%) of participants identified religion/spirituality as “very important” and 36% as “somewhat important.” Fifty-nine percent of participants practiced other types of meditation or mindfulness at baseline. Those who did not complete all surveys were significantly younger, with a mean age of 44 years ($SD = 13.22$) compared to those who completed all surveys, with a mean age of 51 years ($SD = 8.70$; $t(1,52) = 5.20$, $p < .05$).

Table 2
Demographic Data ($N = 39$)

Variable	M (SD)	Range	Frequency N (%)
Age	51.21 (8.60)	27–67	
Years			
Current position	6.54 (6.53)	1–25	
Current employer	10.67 (9.28)	1–40	
Healthcare	21.59 (10.13)	1–41	
Gender			
Female			34 (87)
Male			5 (13)
Race			
White			35 (90)
Asian			2 (5)
Other			2 (5)
Marital status			
Single			5 (13)
Married/partnered			25 (64)
Separated/divorced			9 (23)
Education			
High school/associate's degree			2 (5)
Bachelor's degree			5 (13)
Master's degree			25 (64)
Doctorate/PhD			6 (15)
Other			1 (3)
Direct patient contact			
No			9 (23)
Yes			30 (77)
Work week			
<39 hr/week			1 (3)
>40 hr/week			38 (97)
Importance of spiritual/religious			
Very important			25 (64)
Somewhat important			14 (36)
Practice other types of meditation			
No			16 (41)
Yes			23 (59)

Due to this finding, we tested each of the repeated measures outcomes with age as a time-invariant covariate and found there were no significant differences in the outcomes.

The MAAS mean scores were significant and positively correlated with the FACIT-Sp total and subscale mean scores at the baseline assessment, with Pearson r 's ranging from .56 to .34 (see Table 3). The strongest association was between the MAAS and FACIT-Sp Peace subscale; whereas the weakest association was between the MAAS and FACIT-Sp Faith/Assurance subscale.

Changes in Mindfulness and Spiritual Well-Being

An evaluation of the change in mindfulness (MAAS) and spiritual well-being (FACIT-Sp) mean scores over time was conducted using repeated measures ANOVA (see Table 4). Participants reported moderate levels of mindfulness and spiritual well-being at baseline. There were significant improvements in both the MAAS and FACIT-Sp from baseline to post-treatment and from baseline to 3-month follow-up. There were similar improvements for the meaning, peace, and faith/assurance mean subscale scores of the FACIT-Sp.

Using MLM as a comparison, for the MAAS mean total score, the ICC = .637, which indicated that 63.7% of total variability was attributable to between-individual differences on the intercepts. For the FACIT-Sp total mean score, the ICC = .647, suggesting that 64.7% of total variability was attributable to between-individual differences. For the FACIT-Sp subscale scores, the ICC for meaning was .40 (39.6%); the ICC for peace was .47 (46.9%), and the ICC for faith/assurance was .77 (77.3%), indicating

the total variability attributable to between-individual differences on the intercepts. Results of the ANOVA and MLM yielded analogous findings (see Table 5).

As for evaluating the frequency of MRP practices, 78% ($n = 42$) of participants reported they were practicing mantram repetition at postintervention, and 44% ($n = 24$) were practicing daily, as recommended. At 3-month follow-up, 72% ($n = 39$) of participants were still using their mantrams, with 20% ($n = 11$) reporting daily practice. As for slowing down at work, 68% ($n = 37$) of participants reported slowing down at postintervention and that number increased to 72% ($n = 39$) at 3-month follow-up. Similarly, 72% ($n = 39$) of participants reported practicing one-pointed attention at work both at postintervention and at 3-month follow-up. We tested mindfulness practice at the baseline assessment as a time-invariant covariate, and found that there were no substantive/statistical differences from these results. Thus, engagement in mindfulness practice at baseline did not affect change in either spiritual well-being or mindfulness outcomes.

Discussion and Implications for Clinical Practice

Few studies have explored the longer term effects of programs for enhancing the well-being of HCWs. The current study demonstrated that an Internet-delivered MRP for HCWs significantly improved spiritual well-being and mindfulness over time. These findings are consistent with previous MRP studies among HCW's, showing that MRP increased quality of life and spiritual well-being among HCWs (Bormann et al., 2006a; Bormann et al., 2006b; Yong et al., 2011). Results provide initial support for continuing the delivery

Table 3
Pearson R Correlations Among Mindfulness and Spiritual Well-Being Variables

Variable	1	2	3	4	5
1. MAAS	—	.53***	.56***	.41**	.34*
2. FACIT-Sp Total		—	.84***	.66***	.87***
3. FACIT-Sp Peace			—	.47***	.55***
4. FACIT-Sp Meaning				—	.34*
5. FACIT-Sp Faith/Assurance					—

Note. MAAS = Mindfulness Attention Awareness Scale; FACIT-Sp = Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4
Repeated Measures Analysis of Variance on Outcomes

Outcome	M	SD	F(df)	p	η_p^2
MAAS (mindfulness)					
Baseline	55.38	12.66	18.19 (2,66)	.001	.36
Posttreatment	64.79	11.10			
3-month follow-up	63.79	9.92			
FACIT-Sp Total (spiritual well-being)					
Baseline	32.11	9.23	19.97 (2,74)	.000	.35
Posttreatment	37.16	6.93			
3-month follow-up	37.89	7.18			
FACIT-Sp Peace					
Baseline	9.47	3.58	8.49 (2,74)	.001	.19
Posttreatment	11.63	2.71			
3-month follow-up	11.04	3.14			
FACIT-Sp Meaning					
Baseline	13.63	2.61	8.62 (2,74)	.001	.19
Posttreatment	15.00	1.39			
3-month follow-up	14.45	1.74			
FACIT-Sp Faith/Assurance					
Baseline	9.00	4.81	27.40 (2,74)	.001	.43
Posttreatment	10.52	4.39			
3-month follow-up	12.42	3.63			

Note. Baseline $n = 54$; posttreatment $n = 42$; follow-up $n = 46$. MAAS = Mindfulness Attention Awareness Scale (higher scores indicate greater mindfulness); FACIT-Sp = Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being Scale (higher scores indicate greater well-being); η_p^2 = partial eta-squared effect sizes (small = .01–.05; medium = .06–.14; large $\geq .15$).

of the MRP as a component of an employee wellness program.

Results also demonstrated that when participants were assessed at postintervention and

3-month follow-up, they endorsed continued usage of mantram and related techniques. Specifically, the majority (72%) of participants reported continued use of the MRP skills at the

Table 5
Fixed Effects and Variance-Component Estimates for Models of the Change in Mindfulness and Spiritual Well-Being

Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
	MAAS Total	FACIT-Sp Total	FACIT-Sp Meaning	FACIT-S Faith/Assurance	FACIT Peace
Fixed					
Intercept	63.51*** (1.68)	36.79*** (1.41)	14.42*** (0.29)	11.67*** (0.64)	10.69*** (0.49)
Time = 1	-7.43*** (1.47)	-5.19*** (0.98)	-0.57 (0.32)	-3.24*** (0.45)	-1.37** (0.50)
Time = 2	0.95 (1.57)	-0.22 (1.04)	0.65 (0.34)	-1.64** (0.48)	0.72 (0.53)
Random					
Residual	48.17*** (7.61)	22.30*** (3.43)	2.38*** (0.36)	4.63*** (0.71)	5.87*** (0.90)
Intercept	84.36*** (20.80)	40.79*** (9.91)	1.56* (0.49)	15.74*** (3.50)	5.18*** (1.53)
Means					
Time 1	56.08 (1.59)	31.60 (1.09)	13.85 (0.27)	8.43 (0.62)	9.31 (0.46)
Time 2	64.46 (1.71)	36.57 (1.16)	15.08 (0.30)	10.03 (0.65)	11.42 (0.50)
Time 3	63.51 (1.68)	36.79 (1.14)	14.42 (0.29)	11.63 (0.64)	10.70 (0.49)

Note. $N = 54$. Standard errors are in parentheses. Means are estimated. MAAS = Mindfulness Attention Awareness Scale (higher scores indicate greater mindfulness); FACIT-Sp = Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being Scale (higher scores indicate greater well-being).

* $p < .05$. ** $p < .01$. *** $p < .001$.

3-month follow-up. This finding highlights the ability and willingness of HCWs to continue MRP skills at work, which may be a reflection of the portability and practicability of the MRP.

The study has several strengths. To begin, reliable and valid measures were completed longitudinally on three occasions, allowing for change to be assessed over time. Despite a small sample size, there was power to detect change in mindfulness and spiritual well-being. It is important to note that the skills used in the intervention are convenient, portable, and can be easily implemented, even in fast-paced health care settings. Furthermore, the intervention was provided by a trained provider through an interactive, virtual meeting format, which offered convenience and greater accessibility for HCWs by allowing access to the intervention from their work setting, thus reducing time and burden associated with travel. The accessibility may have potentially contributed to the high retention rate (72%) of participants over the 6-month study period, highlighting the feasibility of the intervention.

Although this study found statistically significant results consistent with prior research studies, there are several limitations. The study design did not include a control group or randomization of participants. Therefore, changes might have resulted from other factors (e.g., natural course of time, exposure to other training or interventions), hence impacting internal validity of the study. At baseline, the participants reported high importance of spiritual well-being, and over half (59%) already were engaged in some meditation or mindfulness practices. This may have influenced the findings because participants were self-selected and those who chose to participate may have already been practicing some form of meditation making it easier to learn and implement the MRP tools. They may also have had a more favorable impression of MRP, or had greater expectations for the program than those who were not engaged in these practices. Although baseline engagement in mindfulness practice may have affected participant selection, when this factor was examined statistically in this sample, it did not appear to influence study outcomes. It should also be noted that all participants were employed in one national health care system and the nearly two thirds of participants earned at least a Master's degree, which is higher than

the national average; therefore, these findings may not be generalizable to the overall population of HCWs. Finally, a single facilitator, a known expert in MRPs, delivered the intervention. It is unclear whether instructors who are not MRP experts may produce the same results. The sample was small and because we could not determine the actual number of participants who received the e-mail invitation to participate, we cannot generalize findings to a larger population. To strengthen the ability to generalize the results, future studies are needed with a larger, more diverse population and using other facilitators to determine the relationship of MRP and mindfulness and/or spiritual well-being over time.

Study findings contribute to the current understanding of interventions that promote well-being among HCWs. This study shows the feasibility of HCW's participating in online programs in the workplace that can result in improved levels of mindfulness and spiritual well-being. The development of spiritual well-being and mindfulness in HCW's may serve to buffer the effects of stress, anxiety, and depression (Wachholtz & Rogoff, 2013). Directions for future research suggest conducting randomized controlled, longitudinal studies to explore the potential of the MRP to reduce burnout, fatigue, and distress among HCWs. Findings also suggest there may be value in studying the effects of the MRP in nonprofessional caregivers (e.g., family or friends of a person requiring care) in effort to improve their mindfulness and spiritual well-being.

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