SPIRITUALITY AS A MEDIATOR OF STRESS IN A UNIVERSITY STRESS MANAGEMENT COURSE

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ABSTRACT

The relationship between spiritual health and perceived stress was studied using a nonequivalent control group design with a Treatment Group ($n = 60$) and a Comparison Group ($n = 55$). Participants from a southwestern University were enrolled in two upper-division Stress Management courses: a spirituality-enhanced curricula (Treatment) or a traditional curricula (Comparison). The Spirituality Assessment Scale and the Lifestyle Appraisal Questionnaire (part II) tested the research hypotheses. Pearson's r-test revealed high levels of spiritual health significantly correlated with low levels of perceived stress ($r = -.355$, $p < .01$). While participants in the Treatment group exhibited no significant difference in perceived stress scores at post-test from those in the Comparison group, participants in both groups demonstrated significantly lower perceived stress scores from pre- to post-test ($t = 4.396$, $df = 39$, $p < .01$; $t = 3.467$, $df = 44$, $p < .01$). Findings suggest that a traditional stress management curriculum may be equally effective in reducing levels of stress as one aimed at fostering spiritual health.

INTRODUCTION

In 1958, the World Health Organization (WHO) redefined health as "a state of complete mental physical, mental, and social well-being, not merely the absence

of disease or infirmity,"—a movement that initiated a paradigm shift in the traditional Western medical model of health. This movement, sometimes referred to as the *holistic health movement,* offered a concept of positive wellness to replace and exceed the existing notion of health. No longer was the mere absence of physical illness symptoms deemed as defining a suitable state of health. Rather, the goal was to achieve optimal levels of well-being in all dimensions of health—the physical, the mental or emotional, and the social.

One facet of health that is noticeably absent from the WHO definition of health is spiritual health. Nonetheless, this has not prevented researchers and clinicians from including it in their own definitions of health. In the 1970s, spirituality assumed the central role of the *holistic health movement.* This movement emerged from the initiative of church leaders; however, it was quickly adopted and supported by professionals in the health and medical fields and was further facilitated by Osman and Russell's (1979) call to accept the spiritual component as an integral aspect of well-being. However, little is known as to the role spirituality plays in mediating other aspects of health.

BACKGROUND

A central tenet of the spiritual health movement is the belief that spiritual health plays a critical role in the individual's active pursuit of their personal healing process. As a result, various health and wellness models have been developed that not only include spiritual health as a component of wellness, but also position it as a fundamental element contributing to all other areas of health. Such models include the Holistic Wellness Model, the Spirit-Focused Conceptual Model of Nursing, the Wheel of Wellness and Prevention Model, and the "Cube" Model of Health (Chandler, Holden, & Kolander, 1992; Eberst, 1984; Swanson, 1995; Sweeney & Witmer, 1991).

The movement had become so strong by the early 1980s, that a survey found that a majority of health educators claimed to believe in a spiritual dimension of health (Banks, 1980; Banks, Poehler, & Russell, 1984). Yet, despite such an enthusiastic reception by members of the health and medical fields, to date relatively little has been done to determine the actual impact of spiritual well-being upon overall health status. A recent study conducted by Adams, Bezner, Drabbs, Zambarano, and Steinhardt (2000) examined the relationship between spirituality and perceived wellness among college students and found the indices of life purpose, optimism, and sense of coherence positively correlated to *perceived* overall wellness. What remains unanswered is the impact of spiritual health upon indices of wellness.

One area of health generally perceived to be benefited by spiritual health is mental health—specifically with regard to stress (Aldridge, 1993; Koenig, 1993; Simon, 1989). Based on results of various surveys and studies conducted all over the world, WHO has now labeled stress a global epidemic (Seaward, 1997).

Advanced technology, a faster pace of life, and increases in competition, demand, and materialism contribute to stress in North Americans' lives. Consequences of dangerously high stress levels are evident in the rising rates of violence, substance abuse and suicides that plague our communities (Klerman & Weissman, 1989; Koenig, 1993).

There is a fundamental problem that arises when considering spiritual health as a potential remedy for high levels of perceived stress—the extent to which spiritual health contributes to lowering stress levels is relatively unknown. While researchers have found encouraging links between spiritual health and indicators of stress such as anxiety and depression, until recently there has been a dearth of empirical literature documenting research conducted on the nature of this relationship (Fehring, Brennan, & Keller, 1987; Kaczorowski, 1989). A recent study of study of the relationship between religiosity/spirituality and personal distress among college students reported those students with a clear sense of meaning and direction stated lower personal distress (Schafer, 1997). An earlier report found that levels of spiritual health can be increased through spiritually-enhanced curricula (McGee, Nagel, & Moore, 2003). This report extends that examination by exploring whether spiritual health is inversely related to perceived stress and whether a spiritual health intervention can significantly decrease perceived stress levels among students enrolled in Stress Management courses at a southwestern research university.

METHODS

Design

A quasi-experimental design using pre- and post-tests was used to explore the following hypotheses: 1) high levels of spiritual health will be correlated with low levels of perceived stress; and 2) university students who receive a spiritual health intervention will exhibit lower scores on a perceived stress scale than those who do not receive the intervention. Two study groups were utilized for comparison: a Treatment Group, consisting of students enrolled in an upper-division Stress Management course infused with a spiritual component; and a Comparison Group consisting of students enrolled in a different section of the same upper-division course, but without the spirituality component. The variables of interest were: 1) study group assignment; 2) measures of spiritual health; and 3) measures of perceived stress.

Sample

Study participants were drawn from two upper-division, undergraduate Stress Management courses at a large southwestern university. A total of 115 students were enrolled in these courses (60 Treatment, 55 Comparison). At the end of the

semester, 170 completed and matched pre- and post-test questionnaires were collected and analyzed, resulting in a final study sample of 85 students (73.9% participation rate)—40 Treatment participants (66.7%), 45 Comparison partici- pants (81.8%). Twenty-nine questionnaires were excluded from analysis because they lacked a matching pre- or post-test.

Measures

Two instruments were used to test the research hypotheses: the Spirituality Assessment Scale (SAS) and part II of the Lifestyle Appraisal Questionnaire (LAQ, part II) (Craig, Hancock, & Craig, 1996; Howden, 1992). The purpose of the SAS is to estimate individuals' levels of spirituality and/or spiritual health (Howden, 1992). This 28-item instrument is composed of four subscales: purpose and meaning in life; innerness or inner resources; unifying interconnectedness; and transcendence. It consists of a summated rating scale utilizing a 6-point Likert scale ranging from Strongly Disagree to Strongly Agree and is scored by summing the responses to all items to produce an overall SAS score. Total SAS scores can range from 28 to 168. Score ranges represent spirituality as follows: 1) 140-160 represents strong, positive spirituality; 2) 84-112 represents fair, or mixed positive and negative spirituality; and 3) 28-56 represents weak or negative spirituality.

Six experts in the area of spirituality and spiritual health evaluated the content validity of the SAS scale. In addition, it was subjected to a pilot test to assess readability, reliability, and validity. After revisions following the pilot test, 189 participants were tested, and the SAS was found to have high internal consistency (alpha 0.9164). Each subscale was also found to have persuasively high internal consistency: 1) purpose and meaning in life (4 items), alpha = 0.9117; 2) innerness or inner resources (9 items), alpha = 0.7944; 3) unifying interconnectedness (9 items), alpha = 0. 8017; and 4) transcendence (6 items), alpha = 0.7091.

The LAQ is designed to assess lifestyle by measuring cumulative risks and perceived stress. Part I of the LAQ assesses risk factors thought to enhance risks of developing lifestyle diseases. Part II contains 27 questions that assess stress levels by measuring cognitive appraisal of pressures and demands. Each item provides a 4-point Likert scale ranging from Almost Never (0) to Almost Always (3). Items are summed to produce a measure of perceived level of stress where higher scores indicate a higher level of stress. The highest possible score is 75. Since the present study was only interested in looking at perceived stress levels, and the two parts of the LAQ are not interrelated, only part II of the LAQ was utilized.

Construct validity, test-retest reliability, and internal reliability were all found to be satisfactory. To determine construct validity, LAQ-part II was compared to the State-Trait Anxiety scale, a scale that attempts to assess a dimension of stress. LAQ was found to be significantly correlated to trait anxiety ($r = .77$). Test-retest

reliability was verified by the lack of significant change in LAQ-part II scores for 41 participants over a three-month time period. Internal reliability using Cronbach's alpha was 0.89.

The LAQ instrument is designed to measure cumulative risks and perceived stress present during the past eight weeks. However, for the purpose of the present study, the participants were asked to assess their perceived stress levels over the past four weeks. This period was selected due to the relatively short duration of the intervention (four months).

Age, gender, and ethnicity were determined with a questionnaire given to all participants. The post-test questionnaire included an additional question asking participants to estimate the number of missed class sessions to assess the amount of intervention exposure received by each subject in the Treatment Group.

Intervention

After Institutional Review Board approval was granted, the Stress Management class randomly selected as the Treatment Group was exposed to a stress management curriculum that entailed a semester-long component focused on spiritual health. Exposure to spiritual health issues took place through writing assignments, mini-projects, and journaling designed to increase awareness of personal spirituality and spiritual health, and thought to be beneficial to spiritual health enhancement (McGee, Nagel, & Moore, 2003). Aside from this component, the stress management curricula and instructor for the Treatment and Comparison groups were the same.

At the beginning of the semester, all participants were provided a brief explanation of the research study and their rights as participants, and were administered a pre-test questionnaire to assess levels of spiritual health and perceived stress. To ensure confidentiality, students who chose to participate were instructed to code their questionnaires for tracking (pre-test to post-test) purposes and those who chose not to participate were instructed to leave the questionnaires blank and return them with the entire class. Post-test administration of this questionnaire was then repeated at the end of the semester. Coding and collection procedures during the post-test were the same as the pre-test procedures. Immediately after pre- and post-administration, all questionnaires were placed in sealed in boxes until after the semester had ended and grades had been posted.

Analysis

Once the boxes of data were opened, pre-test questionnaires were matched with corresponding post-tests. Only matched questionnaires were included in the final study sample and provided the unit of analysis. Data were then processed and analyzed using the SPSS statistical package program–student's version. Descriptive statistical procedures included obtaining mean scores and standard deviations for spiritual health and stress levels both pre- and post-intervention, and

calculating the mean age of the participants in each subgroup, the number and percentage of males and females participating in the study, the number and percentage of representatives from each ethnic group, and the average number of class sessions missed due to absenteeism. Inferential statistical analyses (Pearson's *r* correlational test, two-sample *t*-tests, Mann-Whitney U non-parametric tests, and Levene's test for equality of variances) were utilized to examine the outcome of the research hypotheses.

DISCUSSION

The sample was primarily women (72.9%) between the ages of 19 to 58 years, with the majority of participants in the 21-30 age bracket (71.8%), with a mean age of 25.5 years. Fifty-one percent reported Caucasian as their ethnic background and Hispanics accounted for 24% of the sample. African Americans, Native Americans, and Asian Americans were represented, accounting for 1%, 3%, and 5% of the sample, respectively. The ethnic mix of the study's sample was representative of this southwestern university's enrollment.

The final item (included only in the post-test questionnaire) asked participants to estimate the number of class sessions they had missed in their present class throughout the semester. The majority (73%) of estimated missed class sessions ranged between 0 and 3, with the average being 2.0. The highest number of missed class sessions was 10 ($n = 1$). This subject was retained for analysis procedures despite less fidelity in exposure to the treatment intervention. Altogether, the two study groups were found to be relatively comparable with regard to demographics.

An earlier analysis of this study reported by McGee, Nagel, and Moore (2003) indicated the spiritual health scores in the Treatment Group were significantly higher at post-test than scores in the Comparison Group. The primary purpose of this study was to determine whether spiritual health is inversely related to perceived stress and whether perceived stress is significantly decreased by exposure to a stress management course infused with spiritual health curriculum. Hypothesis #1 stated that high levels of spiritual health would be correlated with low levels of perceived stress. To test this hypothesis, Pearson's *r* bivariate correlation was used to assess any existing relationship between the SAS data and the LAQ, part II data (pre- and post-tests combined). Results from this analysis (Table 1) indicate a statistically significant inverse relationship between spiritual health and levels of perceived stress ($r = -.355$, $p < .01$). As predicted in the hypothesis, the relationship was found to be negatively (inversely) correlated, meaning that high levels of spiritual health are linked with low levels of perceived stress.

Hypothesis #2 stated that university students who received the spiritual health intervention would exhibit lower scores on the LAQ, part II post-test than those who did not receive the intervention. Levene's test for equality of variances and a *t*-test for equality of means were run to determine whether any statistically significant differences existed between the study groups either prior to or following the intervention. Results from these analyses are summarized in Table 2.

Table 1. Pearson's *R* Correlation Coefficient Matrix for Spirituality Assessment Scale and Lifestyle Appraisal Questionnaire Data (Pre- and Post-Test)

		SAS score overall	LAQ score overall
SAS score overall	Pearson correlation		
	Sig. (2-tailed)		
	N		
LAQ score overall	Pearson correlation	−.355*	
	Sig. (2-tailed)		.000
	N	.162**	

*Correlation is significant at the 0.01 level (2-tailed).
**Questionnaires with missing values were excluded from the analysis.

No statistically significant differences were found in LAQ scores between the two study groups either at pre- or post-intervention. Thus, the researchers concluded that a spiritual health intervention did not have a significant impact upon levels of perceived stress among students in the Treatment Group during this study. However, analyses comparing mean pre- and post-test scores revealed that both groups exhibited significantly lower LAQ scores at post-test regardless of treatment intervention (see Table 3).

Not surprisingly, this finding supports that enrollment in a stress management course may have an effect of lowering perceived stress levels among college students. Furthermore, females seemed to experience greater beneficial effects from the course than their male classmates. Table 4 shows that female students enrolled in a stress management course experienced a significant decrease in perceived stress levels at post-test. While male students also showed a decrease in LAQ scores at post-test, the change was not statistically significant. An additional test was conducted to compare LAQ scores between male and female students in the two study groups (Table 5). Results found that while men in the Treatment Group demonstrated a slightly greater decrease in perceived stress levels than their Comparison Group counterparts, the difference was not statistically significant. Women, on the other hand, exhibited statistically significant decreases in perceived stress levels regardless of study group assignment.

CONCLUSIONS

Results of a Pearson correlation coefficient between total SAS scores (measuring spiritual health) and total LAQ, part II scores (measuring perceived stress) demonstrated a significant inverse relationship between the variables. This finding

Table 2. Comparison of Pre- and Post-Test Lifestyle Appraisal Questionnaire (LAQ) Part II Scores

Group statistics

	Group variable	N	Mean	Std. deviation	Std. error mean
Laq Score (pre-test)	Treatment	40	28.03	13.379	2.115
	Comparison	45	29.84	11.010	1.641
LAQ score (post-test)	Treatment	40	20.78	10.027	1.585
	Comparison	45	23.42	12.161	1.813

Independent samples test

	Levene's Test for equality of variances		t-Test for equality of means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference
LAQ score (pre-test)							
Equal variances assumed	1.696	.196	−.687	83	.494	−1.82	2.647
Equal variances not assumed			−.680	75.755	.499	−1.82	2.677
LAQ score (post-test)							
Equal variances assumed	2.677	.106	−1.087	83	.280	−2.65	2.436
Equal variances not assumed			−1.099	82.558	.275	−2.65	2.408

supports the researchers' hypothesis that higher levels of spiritual health are closely tied to lower levels of perceived stress. It is also similar to findings of past studies that have explored the relationship between spiritual health and various facets of psychological health.

Scholars propose that spiritual health has a direct and beneficial impact upon the total health status of individuals, and numerous theories and models situate spiritual health at the core of human health status. In an earlier report, McGee, Nagel, and Moore (2003) described that spiritual health scores in a study group (Treatment) enrolled in a stress management course infused with a spiritual health curriculum reported significantly higher levels of spiritual health at post-test than a comparison group (Comparison) that did not have the spiritual health curriculmn as part of their course. Given the inverse relationship between spiritual health and perceived stress, and guided by the works of various scholars that position spiritual health as an influential mediator of human health, this finding led the researchers to hypothesize that participants in the Treatment group would also have significantly lower levels of perceived stress than the Comparison group. When tested, results rejected this hypothesis. Rather, analyses revealed that participants in *both* groups reported significantly lower levels of perceived stress after completion of a semester-long course in stress management, and that healthy benefits of the course were especially impactful upon stress levels of female students.

This finding seems to indicate that a traditional stress management curriculum may be equally effective in reducing levels of stress as a stress management curriculum that incorporates a spiritual health component. However, it is important to interpret this finding cautiously since the beneficial impact of spiritual health may not be immediately discernable. It would be beneficial to re-examine these two study groups one year later to determine whether they were able to equally maintain their reduced levels of stress. Results should also be considered with caution due to the following reasons: 1) participants self-selected to enroll in the two stress management courses; 2) response rate of 73.9; 3) lack of random assignment of participants to study groups; 4) absence of validity testing of the relatively new SAS; and 5) potential confounding variable of instructor impact upon outcomes. Overall, however, the results of this study may provide some valuable implications for the health field.

Results of this study indicate that spiritual health is inversely correlated with perceived stress, and thus appear to validate the inclusion of a spiritual health component when working with populations to improve psychological well-being. In this report, a spiritual health component was included in a stress management curriculum. Other curricula focused on psychological health that might benefit from a spiritual health component include self-esteem enhancement, emotional health enhancement (i.e., fear and anger expression and management), and allevia-tion of depression. With regard to programming outside of the classroom, if indeed spiritual health has positive associations with all dimensions of health (physical,

Table 3. Comparison of Means between Pre- and Post-Test Lifestyle Appraisal Questionnaire (LAQ) Part II Scores

Treatment group paired samples statistics

	Mean	N	Std. deviation	Std. error mean
LAQ score (pre-test)	28.03	40	13.379	2.115
LAQ score (post-test)	20.78	40	10.027	1.585

Treatment group paired samples test

Paired differences

	Mean	Std. deviation	Std. error mean	95% confidence interval of the difference		t	df	Sig. (2-tailed)
				Lower	Upper			
LAQ score (pre-test)– LAQ score (post-test)	7.25	10.431	1.649	3.91	10.59	4.396	39	.000

Comparison group paired samples statistics

	Mean	N	Std. deviation	Std. error mean
LAQ score (pre-test)	29.84	45	11.010	1.641
LAQ score (post-test)	23.42	45	12.161	1.813

Comparison group paired samples test

| | Paired differences | | | | | | | |
| | | | | 95% confidence interval of the difference | | | | |
	Mean	Std. deviation	Std. error mean	Lower	Upper	t	df	Sig. (2-tailed)
LAQ score (pre-test)– LAQ score (post-test)	6.42	12.427	1.853	2.69	10.16	3.467	44	.001

Table 4. Comparison of Mean Pre- and Post-Test Lifestyle Appraisal Questionnaire (LAQ) Part II Scores by Gender

Group statistics

	Gender	N	Mean	Std. deviation	Std. error mean
LAQ score (pre-test)	Female	62	30.63	11.158	1.417
	Male	23	24.57	13.774	2.872
LAQ score (post-test)	Female	62	22.47	10.712	1.360
	Male	23	21.39	12.716	2.652

Female participants paired samples test

	Paired differences							
				95% confidence interval of the difference				
	Mean	Std. deviation	Std. error mean	Lower	Upper	t	df	Sig. (2-tailed)
LAQ score (pre-test)– LAQ score (post-test)	8.16	11.881	1.509	5.14	11.18	5.409	61	.000

Male participants paired samples test

	Paired differences							
				95% confidence interval of the difference				
	Mean	Std. deviation	Std. error mean	Lower	Upper	t	df	Sig. (2-tailed)
LAQ score (pre-test)– LAQ score (post-test)	3.17	9.595	2.001	–.98	7.32	1.586	22	.127

Table 5. Comparison of Pre- and Post-Test Lifestyle Appraisal Questionnaire (LAQ) Part II Scores by Gender and Treatment Group

Female group statistics

	Group variable	N	Mean	Std. deviation	Std. error mean
Laq Score (pre-test)	Treatment	27	30.96	12.458	2.397
	Comparison	35	30.37	10.224	1.728
LAQ score (post-test)	Treatment	27	22.19	9.161	1.763
	Comparison	35	22.69	11.899	2.011

Independent samples test

	Levene's Test for equality of variances		t-Test for equality of means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference
LAQ score (pre-test)							
Equal variances assumed	1.021	.316	.205	60	.838	.59	2.881
Equal variances not assumed			.200	49.765	.842	.59	2.955
LAQ score (post-test)							
Equal variances assumed	3.446	.068	−.181	60	.857	−.50	2.766
Equal variances not assumed			−.187	60.000	.852	−.50	2.675

Male group statistics

	Group variable	N	Mean	Std. deviation	Std. error mean
Laq Score (pre-test)	Treatment	13	21.092	13.629	3.780
	Comparison	10	28.00	13.888	4.392
LAQ score (post-test)	Treatment	13	17.85	11.452	3.176
	Comparison	10	26.00	13.367	4.227

Independent samples test

	Levene's Test for equality of variances		t-Test for equality of means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference
LAQ score (pre-test)							
Equal variances assumed	.001	.970	−1.051	21	.305	−6.08	5.780
Equal variances not assumed			−1.049	19.321	.307	−6.08	5.795
LAQ score (post-test)							
Equal variances assumed	.791	.384	−1.575	21	.130	−8.15	5.177
Equal variances not assumed			−1.542	17.781	.141	−8.15	5.287

emotional, intellectual, and social) as touted by several scholars and theoretical models, then applications for conscious spiritual health enhancement could logically become an integral component of therapy and treatment, child development, disease prevention programs, substance abuse intervention, and more. Additionally, it would support the utilization of a promising new instrument—the Spirituality Assessment Scale—designed to comprehensively assess individuals' levels of spiritual health.

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