

CHANGES IN SPIRITUALITY AND WELL-BEING IN A RETREAT PROGRAM FOR CARDIAC PATIENTS

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ABSTRACT

Context: Many epidemiological studies indicate that spirituality or religion are positively correlated with health measures, but research is needed on interventions that change spirituality to verify that it actually affects health and to justify suggestions that changes in spiritual practices or beliefs may have health benefits. However, it is not clear that health interventions can influence spirituality or which techniques are effective.

Objective: To evaluate whether participation in a retreat program for cardiac patients and their partners resulted in changes in spirituality, and whether changes in spirituality were related to changes in well-being, meaning in life, anger, and confidence in handling problems.

Design: Participants filled out questionnaires before and after participating in the retreat.

Setting: Retreats were sponsored by the Health Promotion and Wellness Program, University of Wisconsin-Stevens Point and were held in a remote location.

Participants: Notices were sent to cardiac rehabilitation program and directly to heart patients, resulting in the enrollment of 72 first-time participants.

Intervention: The 2.5 day educational retreats included discussion and opportunities to experience healthy life-style options. Exercise, nutrition, stress management techniques, communication skills that enhance social support, and spiritual principles of healing were incorporated. Experiential practices included yoga, meditation, visualization, and prayer.

Results: Of the participants, 78% reported increased spirituality after the retreat. Changes in spirituality were positively associated with increased well-being, meaning in life, and confidence in handling problems, and with decreased tendency to become angry.

Conclusions: Programs that explore spirituality in a health context can result in increased spirituality that is associated with increased well-being and related measures. Many patients and their families want to integrate the spiritual and health dimensions of their lives. Further work is needed to develop health care settings that can support this integration.

Many studies indicate that religious or spiritual faith is correlated with better physical and mental health. Recent reviews report that these correlations include lower rates of mortality from all causes, less cardiovascular disease, less hypertension, less substance abuse, less depression, and better coping with and recovery from illness.^{1,2}

Several reviews have pointed out the need to move beyond correlational studies and begin investigating interventions that influence spirituality.³⁻⁸ Correlational studies can at best provide only weak evidence that spirituality actually causes better health. The classic warning that correlation does not prove causation applies here. Further, the optimum scientific approach is to study directly those specific interventions that are proposed to improve health. Research is needed on changes in spirituality to justify suggestions by health professionals that these changes may have health benefits.

However, available research provides little evidence that health interventions can affect spirituality. A variety of research indicates that parents are the greatest influence on religious beliefs and practices.⁹ Traditionally, parental influence was assumed to occur through socialization during childhood. Recent studies of twins, however, indicate that genetics may account for approximately 30% to 50% of the variation in factors such as interest in religion,¹⁰ intrinsic religiosity,¹¹ personal devotion,¹² and self-transcendence.¹³ Whatever the exact causal mechanisms, research on religious development offers limited insight or support for developing health interventions that affect spirituality in adults. The correlations between spirituality and health could reflect genetic or childhood factors that are not subject to modification in adulthood.

Few studies have investigated whether health programs that encourage changes in spirituality actually influence spirituality. The little available research is retrospective and therefore one cannot determine whether the changes in spirituality occurred in those who were already motivated by spirituality or whether the changes reflect more basic alterations in the values of people with little previous interest in spirituality.

Alcoholics Anonymous (AA) is probably the oldest and best known program that actively attempts to change a person's spirituality to improve physical and mental health. According to AA writings, change in spirituality is the core element of the AA "12 steps."¹⁴ Participants are asked to be open to the possibility that a higher power will cause changes in their lives. No strong conviction is needed, just a willingness to believe in the possibility of a power greater than oneself. One of the steps includes prayer or meditation as an attempt by the participant to try to become more aware of his or her purpose in life or the will of the higher power. According to AA, the simple belief in the possibility of the higher power, combined with the other steps, begins a spiritual evolution that culminates in a transformation sufficient to bring about recovery from alcoholism. Studies have found that frequency of prayer or meditation by AA participants was associated with a greater sense of purpose in life and length of sobriety,¹⁵ and that participants reported a higher degree of spirituality after participation.¹⁶ The AA approach unquestionably has helped many addicts, but it may not be the optimal strategy for all who suffer addictive behaviors.¹⁷

The Mind/Body Medical Institute founded by Herbert Benson, at Harvard Medical School, also encourages spiritual exploration as part of health improvement. Benson reports in a popular book that about 80% of the participants at his institute choose a meditation or "relaxation response" technique that focuses on a spiritually meaningful phrase or image, and about 25% report increased spirituality from these practices.¹⁸ He also notes that meditation can

increase spirituality in some people even when they do not approach it as a spiritual practice. However, he has not presented the methodology or data underlying these estimates.

Dean Ornish's well known program for reversing heart disease also gently encourages changes in spirituality. His book *Reversing Heart Disease*¹⁹ includes a chapter on "Opening your Heart to a Higher Self" that describes the benefits of spiritual beliefs. He also describes the value of yoga and meditation for stress management and for other more profound transformations. Although he clearly believes spirituality is important, he states that he does not want to "say what your experience of a higher force should be -- or even if you should have one"¹⁹⁽²²⁹⁾ and further clarifies "please adopt whatever is useful and leave the rest."¹⁹⁽²³⁴⁾ Ornish has provided strong evidence that his overall program, which includes diet, exercise, stress management, and social support, can reduce or reverse heart disease progression.²⁰⁻²² He did not evaluate the occurrence of spiritual changes and their role in reversing heart disease, but a study of 14 patients who participated in the Ornish program found that the 8 patients in the treatment group had higher levels of spirituality than the 6 in the control group, and that higher levels of spirituality were correlated with improvement of heart disease.²³

The present study was motivated by our experience with the importance of spirituality for cardiac patients. The second author (R. A. A.) began leading weekend retreats for cardiac patients as a low-cost means to promote and maintain long-term lifestyle changes to compliment standard cardiac rehabilitation programs. The retreats included discussions about healthy lifestyle interventions of diet, exercise and stress management. Experiential exercises were used to enhance social support and improve communication skills. Yoga and meditation were initially offered as exercise alternatives and stress management techniques, respectively. A substantial part of each retreat was devoted to topics requested by the participants.

During the initial retreats, it became apparent that the participants were quite interested in spiritual topics. In addition, we observed that the participants who had the most favorable reaction to the program appeared to have changes in self-worth, purpose in life, connection to others, well-being, and interest in personal growth that were best described in spiritual terms. As the retreats continued, spirituality emerged as a core component.

The primary purpose of the present study was to determine whether participants experienced changes in spirituality as a result of these educational health retreats. We were particularly interested in knowing whether participants who initially were not highly spiritual would report increased spirituality. In addition, if changes in spirituality are beneficial for health, we expected that increased spirituality would be associated with increased well-being and with increased meaning and purpose in life. Questions on anger were also included because anger and hostility are recognized risk factors for heart disease,^{24,25} though the relationship between hostility and spirituality has not yet been investigated.

Margolin²⁶ discussed the need for this type of "foundational" research developing, intervention methods before conducting randomized clinical trials on alternative therapies. He noted that this research strategy is both cost effective and important for interpreting negative results of randomized trials. A similar approach is well established within the conceptual framework of pharmacological research. Phase II research focuses on developing intervention methods that are more fully investigated in later phase III randomized trials.

METHODS

Retreat Description

“Choice to Renew” is a 2.5 day annual retreat sponsored by the University of Wisconsin-Stevens Point Health Promotion and Wellness Program for heart patients and their spouse, partner, or other support person. The program consists of open discussions with healthcare professionals on topics selected by the participants and an experiential learning format²⁷ that includes practice, reflection and discussion of certain activities. The activities include stress-reduction techniques, incorporating progressive relaxation, yoga, breathing exercises, visualization, and imagery; exercise options; nutritional counseling and eating vegetarian foods; experiential group exercises that encourage self-efficacy in personal choices, enhance social support, build self-esteem and improve communication skills; and spiritual principles and techniques for healing, including meditation, prayer, forgiveness, and accepting what is outside a person’s control.

The concept of spirituality used in these retreats is well described by a definition of spiritual wellness in health-promotion literature: “A high level of faith, hope, and commitment in relation to a well-defined worldview or belief system that provides a sense of meaning and purpose to existence in general and that offers an ethical path to personal connectedness with self, others, and a higher power or larger reality”.^{7,28}

Based on the premise that spiritual wellness may affect behavior, participants are challenged to find the meaning and purpose of their illness. Another basic premise is that participants are accountable for their choices and will find their own way. The general approach used during the retreats is to offer a variety of experiences, with participants and facilitators sharing in mutual discovery. The retreats are considered an educational program, not a therapy or treatment program. Enrollment brochures are sent to cardiac rehabilitation programs, heart clubs, support groups, and directly to heart patients throughout the Stevens Point region. Participants pay a fee to offset expenses and cardiac-health professionals volunteer their time as facilitators.

Participants and Procedure

Participants included 51 patients and 21 healthy partners. Patients had a history of heart attack, cardiac surgery, coronary angioplasty, or 3 major risk factors for coronary disease. In some cases, both members of a couple were classified as patients. Two of the patients had cancer rather than heart disease.

The data reported here are from 72 first-time participants who attended 4 different retreats. Approximately 10% of the participants repeated the program, but their data were eliminated to provide a consistent baseline. Data from 12 participants (4 patients and 8 partners) who did not return the post-retreat questionnaire were excluded. Of the 72 participants, 56% were female, 96% were white, 71% were currently married, and 47% had graduated from college. The average age was 56 (range 34 to 75).

Preretreat questionnaires were completed before arriving for the retreat or at on-site registration. Postretreat questionnaires were filled out at the conclusion of the retreat. Four to 6 months after the retreat, participants received a follow-up questionnaire to complete and return. The follow-up questionnaire was the same as the postretreat questionnaire.

Questionnaires

The 3 questionnaires were short, with minimal inconvenience and intrusion. Following the strategy used in the Medical Outcomes Study, the scores for each preretreat scale were linearly adjusted so that zero was the lowest possible value and 100 the highest.

Preretreat Questionnaire. For the preretreat questionnaire, well-being was measured with 12 items used with permission from the Medical Outcomes Study. Four items measured positive affect (happiness), 4 measured depression, and 4 measured anxiety. The items asked often during the past month the participant had experienced specific feelings. The 6 response options ranged from “all the time” to “none of the time.” The well-being score gave equal weight to the mean of the 4 positive affect items and the mean of the 8 negative affect items, reverse scored. The validity and reliability of these items have been well established.²⁹ The reliability for the data in this study was .92.

Spirituality was measured as the mean of 3 items. Each item had 9 response options with anchors at each end. The first question was “How important to you are religious or spiritual beliefs?” with anchors of “Not at all important; many other things are more important” and “Extremely important, my religious or spiritual beliefs are the center of my entire life.” This question was based on key items in the Allport/Ross Intrinsic/Extrinsic Scales, the most widely used measure in research on the psychology of religion.^{30,31} The second question was “How much do religious or spiritual beliefs help you to manage or cope with stress in your life?” with anchors of “Not at all; I rely on other coping mechanisms” and “Extremely important; my religious or spiritual beliefs are my primary means of coping.” This question was included because coping has been an important factor in research on religion and health.^{1,32} The third question was “Do you believe your life is watched over or guided by a higher power or divine being?” with anchors of “No; I’m certain it is not” and “Yes, I’m certain it is.” This question relates to a spiritual concept of a higher power that is central to 12-step addiction programs as well as to spirituality in general. The reliability for the data in this study was .87.

Meaning and purpose in life was measured with a single item that asked “To what extent have you found meaning and purpose in your life?” The response options were 1 through 9 with anchors of “Not at all; my life has no meaning or purpose” and “Completely: I have an extremely strong sense of meaning and purpose.”

Tendency to become angry was measured with 4 items that asked “How often during the past month did you ... get into an argument; become annoyed or irritated; get angry, but hide or suppress your anger; become angry or lose your temper. The 6 response options ranged from “Never” to “Several times per day.” These questions are similar to items in other anger scales, but were adapted to the Medical Outcomes Study format. The reliability was .84 for the data in this study.

Postretreat Questionnaire. The postretreat questionnaire asked participants to indicate changes in certain feelings and beliefs resulting from their experiences in the program. Each item had 7 response options ranging from “strong decrease” (scored as -3) to “strong increase” (scored as +3). Items were adapted from the entry questionnaire, with 6 items for well-being (2 each for positive affect, depression, and anxiety; reliability .81), 2 spirituality items (reliability .74), 2 anger items (reliability .58), and 1 item for meaning and purpose in life item. In addition,

participants rated changes in “sense of connection to others,” “awareness of an inner source of strength and guidance,” “desire to achieve a higher consciousness,” and “confidence that I can handle my problems.”

Participants were asked to rate how they had changed because the preretreat questionnaires derived from the Medical Outcomes Studies applied to the previous 30 days and readministering it would not have been appropriate for the conclusion of a 2.5 day program. Also, based on previous, unpublished studies using spirituality questionnaires, we expected that a significant proportion of the participants would have the highest possible preretreat spirituality score on this or any other spirituality questionnaire. Therefore readministering the preretreat questionnaire would not be an effective way to measure increases in spirituality.

RESULTS

Preretreat Characteristics

For the preretreat data, the correlation between well-being and spirituality was .12, which is typical for cross-sectional data,³³ but is not significant in this sample size of 72 participants. As shown in Table 1, well-being was positively associated with meaning and purpose in life, which is a well established relationship.³⁴ Tendency to become angry was higher for males and was negatively correlated with age and well-being. Patients and healthy partners did not differ significantly on preretreat measures of spirituality, well-being, meaning in life, or anger.

TABLE 1. Preretreat values and correlations

| Measurement | Spirituality | Well-Being | Meaning | Anger |
|---------------------|--------------|------------|---------|--------|
| Mean | 77.6 | 67.4 | 74.5 | 25.6 |
| Standard deviation | 22.8 | 15.6 | 16.4 | 15.9 |
| Number of subjects | 70 | 71 | 70 | 70 |
| Correlations | | | | |
| Well-Being | .12 | | | |
| Meaning | .07 | .56*** | | |
| Anger | -.20 | -.45*** | -.26* | |
| Age ^a | .01 | .18 | .25* | -.40** |
| Gender ^b | -.19 | -.01 | -.17 | .29* |

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

^a N=67 (some respondents did not list their age).

^b 1=women, 2=men.

Postretreat Data

As shown in Table 2, 56 (78%) of the 72 participants reported increased spirituality in the postretreat questionnaire and none reported decreased spirituality. Increased well-being was reported by 66 (91%), increased meaning in life by 63 (87%), decreased anger by 71%, increased connection to others by 97%, increased awareness of inner strength and guidance by 79%, and

increased confidence in handling problems by 87%. These percentages were similar for the 51 patients and the 21 partners.

TABLE 2. Summary of changes at the conclusion of the retreat

* Values ranged from -3 (strong decrease) to +3 (strong increase); zero represented no change.

| /Characteristic | Mean * | Standard deviation * | Decrease n (%) | No Change n (%) | Increase n (%) |
|--|--------|----------------------|-------------------|--------------------|-------------------|
| Spirituality | 1.40 | 1.10 | 0 (0%) | 16 (22%) | 56 (78%) |
| Well-Being | 1.35 | .84 | 2 (3%) | 4 (6%) | 66 (91%) |
| Meaning in Life | 1.78 | .95 | 0 (0%) | 9 (13%) | 63 (87%) |
| Anger | -1.08 | 1.06 | 51 (71%) | 17 (24%) | 4 (6%) |
| Connection to Others | 2.07 | .80 | 0 (0%) | 2 (3%) | 69 (97%) |
| Inner source of strength and guidance | 1.48 | 1.05 | 0 (0%) | 15 (21%) | 56 (79%) |
| Confidence that I can handle my problems | 1.35 | 1.04 | 2 (3%) | 15 (21%) | 55 (76%) |
| Desire to achieve a higher consciousness | 1.75 | 1.01 | 0 (0%) | 9 (13%) | 62 (87%) |

Participants who reported higher spirituality before the retreat tended to report greater changes in spirituality ($r=.43$, $P<.001$, $n=70$). When the preretreat spirituality scores were divided into approximate thirds, 16 of 25 (64%) participants in the group with lowest pretreatment spirituality scores reported increased spirituality, 19 of 22 (86%) in the middle group reported increased spirituality, and 21 of 25 (84%) in the group with the highest pretreatment scores reported increased spirituality. The changes in spirituality were statistically significant ($P<.0001$) for all 3 groups. We used the binomial distribution to test the null hypothesis that approximately equal numbers of participants would be expected to report increased and decreased spirituality if the retreat had no affect. Of the 12 participants (17%) who had the highest possible pre-retreat spirituality score, 11 (92%) reported increased spirituality.

Increased spirituality was associated with increased well-being ($r=.41$), increased meaning in life ($r=.49$), decreased tendency to get angry ($r=-.54$), and increased confidence in handling problems ($r=.48$). As shown in Table 3, all change measures of change on the postretreat questionnaire were significantly intercorrelated with the exception of sense of connection to others.

TABLE 3. Correlations among changes at the conclusion of the retreat (N=71 or 72 for all values)

| Characteristic | Spirituality | Well-Being | Meaning | Anger | Connection | Inner Strength | Confidence |
|--|--------------------|---------------------|--------------------|---------------------|-------------------|--------------------|--------------------|
| Well-Being | .41 ^{***} | | | | | | |
| Meaning | .49 ^{***} | .46 ^{***} | | | | | |
| Anger | -.33 ^{**} | -.54 ^{***} | -.30 ^{**} | | | | |
| Connection to Others | .14 | .49 ^{***} | .17 | -.15 | | | |
| Inner strength/guidance | .54 ^{***} | .40 ^{***} | .35 ^{**} | -.27 [*] | .30 [*] | | |
| Confidence | .48 ^{***} | .57 ^{***} | .32 ^{**} | -.47 ^{***} | .37 ^{**} | .44 ^{***} | |
| Desire to achieve higher consciousness | .63 ^{***} | .41 ^{***} | .29 [*] | -.40 ^{***} | .23 | .58 ^{***} | .39 ^{***} |

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

Follow-up Data

Follow-up questionnaires were sent 4 to 6 months after the retreat and were returned by 34 (47%) of the participants. As shown in Table 4, the reported effects of the retreat were generally similar to the results at the end of the retreat. Those who did not return the follow-up questionnaires did not differ significantly from those who did on key variables from preretreat or first postretreat questionnaires. Likewise, for those who did return the follow-up questionnaires, the follow-up results did not differ significantly from the first postretreat results for any variable. Although we cannot be sure that those who did not return the follow-up questionnaire have similar feelings and attitudes as those who did, these results do indicate that a substantial number of participants perceived the retreat as being beneficial several months later.

TABLE 4. Summary of changes from the retreat 4 to 6 months later (N=34)

* Values ranged from -3 (strong decrease) to +3 (strong increase); zero represented no change.

| Characteristic | Mean [*] | Standard deviation [*] | Decrease n (%) | No Change n (%) | Increase n (%) |
|--|-------------------|---------------------------------|-------------------|--------------------|-------------------|
| Spirituality | 1.15 | 1.08 | 0 (0%) | 11 (32%) | 23 (68%) |
| Well-Being | 1.05 | .69 | 0 (0%) | 1 (3%) | 33 (97%) |
| Meaning in Life | 1.27 | .96 | 1 (3%) | 6 (18%) | 27 (79%) |
| Anger | -1.02 | .97 | 25 (73%) | 6 (18%) | 3 (9%) |
| Connection to Others | 1.41 | .96 | 0 (0%) | 6 (18%) | 28 (82%) |
| Inner source of strength and guidance | 1.21 | .95 | 0 (0%) | 10 (29%) | 24 (71%) |
| Confidence that I can handle my problems | 1.00 | .95 | 0 (0%) | 12 (35%) | 22 (65%) |
| Desire to achieve a higher consciousness | 1.41 | 1.05 | 0 (0%) | 7 (21%) | 27 (79%) |

COMMENT

The available data suggest that participants in an educational health retreat can experience changes in spirituality. In this study, 56 (78%) of the participants in the cardiac retreats reported increased spirituality. Although participants with greater interest in spirituality before the retreat reported more changes in spirituality, 16 of 25 (64%) of the participants in the lowest third of preretreat spirituality scores reported increased spirituality.

As would be expected if increased spirituality has health benefits, increased spirituality was associated with increased well-being, increased meaning in life, decreased anger, and increased confidence in handling problems. Increased well-being and coherence (which includes a sense of meaning in life), as well as decreased hostility, also have been reported for participants in Dean Ornish's program for reversing heart disease.³⁵ Retrospective evaluation of 14 participants from Ornish's studies is consistent with increased spirituality from that program. However the partial and retrospective nature of the spirituality data make conclusions tenuous regarding spirituality in Ornish's patients.

Spirituality may be particularly valuable in making lifestyle changes to improve health. Most efforts by physicians to encourage or order patients to make lifestyle changes are not successful.³⁶ Our experience is consistent with the suggestions from Ornish¹⁹ and AA¹⁴ that successful lifestyle changes may occur as part of personal transformations that are described as spiritual.

The present data bring into focus some challenges in measuring changes in spirituality. Spiritual growth is a continuous, life long process for some people. For the 12 (17%) of the participants who had the highest possible preretreat spirituality scores, 11 (92%) reported increased spirituality from the retreat. We expect that these highly spiritual people would attain the highest rating on virtually any relevant spirituality questionnaire. Therefore, the usual strategy of administering the same tests before and after intervention would not accurately measure spiritual changes for these people. The strategy of directly asking about changes in spirituality, as was done in this study, may be the best way to measure the full range of changes. In addition, a medical strategy of supporting a patient's spirituality without changing it does not apply for these people because spiritual growth is their common and preferred response to events in their lives.

The striking difference in the correlations between spirituality and well-being for the preretreat data ($r=.12$) and postretreat changes ($r=.41$) merits further thought and may indicate that cross-sectional studies do not capture the full role of spirituality. The low preretreat correlation is consistent with cross-sectional results from other studies, and the much larger correlation for changes is consistent with results from other studies measuring changes.³⁷ Two factors in particular need to be considered.

One factor that dilutes cross-sectional correlations between spirituality and well-being is that, for at least some people, spirituality can be enhanced by events that decrease well-being. For example, events such as cancer,^{38,39} loss of a loved one,^{40,41} and even sexual assault can cause an increase in spirituality. For these negative events, increased spirituality may have an important role in recovering from the events (restoring well-being to pre-event levels) that is seriously underestimated by cross-sectional correlations of spirituality and well-being.

Although conclusions from these studies are limited because the studies were retrospective, and in most studies only a minority of respondents reported increased spirituality, the results do imply somewhat misleading attenuation of the correlations between spirituality and well-being.

A second factor diluting cross-sectional correlations is that well-being is a combination of both stable dispositions and short-term reactions to recent events,^{42,43} whereas spirituality generally is thought to be more stable. Thus, for most people, more events may affect well-being than affect spirituality. The present data are consistent with the concept that an event that increases spirituality also increases well-being, but over time the link is diluted by other events that have positive or negative effects on well-being. Studies of spiritual and related experiences also provide evidence that events that affect spirituality also affect well-being.⁴⁴⁻⁴⁶ In general, the combination of stable and transient components of well-being is an important complicating factor in understanding causal relationships for well-being.^{42, 47}

Sloan et al⁴⁸ have argued that, for ethical reasons, healthcare providers should have minimal involvement with spiritual support for their patients. However, they provided no data or research references to support their opinions. Therefore, their ethical concerns can be viewed as speculations or hypotheses that need empirical investigation. The primary ethical aspect is deciding the best course of action before having data to evaluate the speculations.

The opinion of Sloan et al that spirituality, like financial status, is outside the domain of medical intervention is inconsistent with our experience that many patients want to integrate spirituality and healthcare. Healthcare professionals who can support this integration may offer greater benefits to their patients and may have a competitive advantage.

Likewise, our experience does not support speculation of Sloan et al that linking faith and health may cause harm for some people by burdening them with guilt that illness is due to their own moral or spiritual failure. Our observation has been that the approach of spiritual wellness in these retreats appears to reduce rather than increase guilt.

The concern that many health care professionals may not have the expertise to address the spiritual wellness of their patients is a valid point in our experience. Knowledge and skills are needed to address the diverse range of religious and spiritual beliefs and practices, particularly in a group setting. Further, involvement in a patient's spirituality may not be appropriate for those who approach patient care in a "paternalistic" manner,⁴⁹ which is characterized by a dominant healthcare provider issuing orders to relatively passive patients. However, addressing spirituality may be appropriate for a medical approach that is based on "mutuality," a collaboration between the patient and medical personnel in exploring the patient's health, with shared ("participatory"⁵⁰) decision making.

This study compliments and supports epidemiological studies that show a relationship between spirituality and health. Epidemiological studies typically provide strong evidence about relationships in broad populations but limited evidence about the causes of the relationships. On the other hand, clinical intervention studies provide stronger evidence about the cause and effect mechanisms but usually study a narrower population. The strongest conclusions come from converging evidence from both approaches.

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Objective: To evaluate whether participation in a retreat program for cardiac patients and their partners resulted in changes in spirituality, and whether changes in spirituality were related to changes in well-being, meaning in life, anger, and confidence in handling problems.

Design: Participants filled out questionnaires before and after participating in the retreat. Setting: Retreats were sponsored by the Health Promotion and Wellness Program, University of Wisconsin-Stevens Point and were held in a remote location. Participants: Notices were sent to cardiac rehabilitation program and dire Changes in spirituality were positively associated with increased well-being meaning in life, increased confidence in handling problems and decreased tendency to become angry. In a similar study, Jorna et al.,[25] evaluated 19 women that completed an 8-week intervention program and compared their results with those of another 30 women that participated in a non-health related 8-week program. Physical activity was higher in the inter-vention group, and spiritual health also significantly improved among intervention participants.Â 24. Kennedy JE, Abbott RA, Rosenberg BS. Changes in spiri-tuality and well-being in a retreat program for cardiac patients. *Altern Ther Health Med* 2002;8:64-6, 68-70, 72-3.