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**Examining the relationship between physical fitness and spiritual fitness in cancer patients: A pilot study**

**Wonders K *et al*.** Spiritual and physical fitness

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**Abstract**

**AIM:** To examine the relationship between spiritual fitness and overall physical fitness, and their resulting impact on feelings of depression and anxiety in individuals being treated for cancer.

**METHODS:** Thirty patients completed the McGill Quality of Life questionnaire and the Spiritual Fitness Assessment survey, and were asked to classify themselves as “Religious” or “Non-Religious”. After the questionnaires were completed, each patient underwent a comprehensive fitness assessment, which included assessments for VO2max, muscular strength and endurance, flexibility, and body composition, as well as height, weight, and resting heart rate and blood pressure. The data collected were averaged and analyzed using a one-way ANOVA test at the 0.05 level of significance.

**RESULTS:** Of the 30 participants, 17 classified themselves as “religious” (*R*) and 13 classified themselves as “non-religious” (*NR*). The *R* group had a higher body fat percentage and a lower VO2max than the *NR* group. However, these results were not significant. It was also determined that the *R* group scored themselves significantly higher than the *NR* group on the Spiritual Fitness questionnaire, but reported significantly higher levels of depression and anxiety than their non-religious counterparts.

**CONCLUSION:** Health beliefs did not necessarily back up health practice; specifically, those respondents who classified themselves as “religious” reported that their beliefs positively influenced their health behaviors, yet physiological and psychological data did not support this claim.

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**Key words:** Cancer; Exercise; Spirituality; Health practice; Health beliefs; Fitness; Anxiety

**Core tip:** The purpose of this study was to examine the relationship between spiritual fitness and overall physical fitness, and their resulting impact on feelings of depression and anxiety in individuals being treated for cancer. Thirty participants completed a quality of life and a spiritual fitness survey, and performed a comprehensive fitness evaluation. It was determined that health beliefs did not necessarily back up health practice; specifically, those respondents who classified themselves as “religious” reported that their beliefs positively influenced their health behaviors, yet physiological and psychological data did not support this claim.

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**INTRODUCTION**

A cancer diagnosis can affect an individual’s core assumptions regarding life trajectory, beliefs about the self, control, self-worth, and the existential. Oftentimes such a diagnosis leads an individual to a process of spiritual and emotional transformation[1].It is estimated that around 58% of cancer patients experience depression[2] and approximately 23% suffer from anxiety[3]. However, a positive correlation has been found between spirituality and emotional adjustment to cancer[4,5], indicatingthat spirituality plays a significant role in helping patients deal with their thoughts of mortality[4].

Similarly, research documents several positive physiological and psychological changes for cancer survivors who participate in structured exercise programs. These include improvements in VO2max [6], muscular strength and endurance[7], and reduced levels of fatigue[8-12], anxiety[13,14], and depression[13-15]. As such, the American Cancer Society recommends that exercise serve as an important part of an individual’s cancer care plan, asserting that exercise will improve an individual’s feelings of control and hope[16]. However, published reports indicate that most (85%) of the cancer population are not currently meeting these recommendations for exercise[17].

Along with the beneficial effects of habitual physical activity, research studies have shown religious involvement to positively impact mortality risk[18], health status, mental and physical well-being[19], and a sense of self-efficacy[20]. The positive impact appears to extend to all genders, races, and socioeconomic categories[21,22]. However, recent studies show that people who would classify themselves as religious individuals are more likely to be obese than their non-religious counterparts[22,23].

Now more than ever, healthy behavior choices and emotional support are being promoted in attempt to limit cancer. Traditionally, research examining the relationship between spiritual and physical fitness has focused mostly on the healthy adult population. However, in light of the physiological stress experienced by many cancer survivors, it is critical that their psychosocial needs be addressed, as well. Therefore, the purpose of this study was to examine the relationship between spiritual fitness and overall physical fitness, and their resulting impact on feelings of depression and anxiety in individuals being treated for cancer.

**MATERIALS AND METHODS**

***Subjects***

Thirty patients were recruited for participation in this investigation. The eligibility criteria included individuals who are currently undergoing cancer treatment and are able to read and write in English. Patients were recruited from local oncology offices and hospitals. All procedures were approved by the Wright State University Institutional Review Board prior to data collection.

***Data collection***

The 30 patients who met the eligibility criteria and agreed to participate filled out the McGill Quality of Life questionnaire and the Spiritual Fitness Assessment survey (Fletcher, D), where they were asked to classify themselves as “Religious” or “Non-Religious”. Religious was defined as “having or showing belief in and reverence for God; implies both belief and practice”(The Free Dictionary). After the questionnaires were completed, each patient underwent a comprehensive fitness assessment. The fitness evaluation included assessments for VO2max, muscular strength and endurance, flexibility, and body composition, as well as height, weight, and resting heart rate and blood pressure measurements.

***Statistical analysis***

The data collected from the psychological questionnaires and the fitness assessments were averaged and analyzed using a one-way ANOVA test. All data was analyzed at the 0.05 level of significance

**RESULTS**

***Subjects***

A total of 30 individuals (*n*, male = 11, female = 19) participated in this investigation. Of these 30 individuals, a total of 17 classified themselves as “religious” (*R*) and 13 classified themselves as “non-religious” (*NR*). Table 1 illustrates the subject characteristics, along with type of cancer and current course of treatment.

***Fitness assessment data***

Figure 1 presents VO2max and body composition results. Although the results show a trend where the Religious group had a higher body fat percentage (*R* = 35.13% ± 2.4%, *NR* = 32.33% ± 3.4%, Figure 1), and a lower VO2max (in mL/kg/min, *R* = 17.25 ± 1.7, *NR* = 22.24 ± 1.8, Figure 1), these results were not significant.

***Physiological and spiritual questionnaires***

Two questions from the Spiritual Fitness Assessment were selected from the questionnaire to compare with the biometric data. The analyzed questions from the Spiritual Fitness Assessment were: “I engage in healthy behaviors to care for my body as God’s temple”, which received an overall mean of 2.88 + 0.3, on a 7-point scale, from respondents; and “I draw special strength/power from God’s Spirit to make health-related behavior choices and changes in my life”, which scored an overall mean of 2.78 ± 0.34 on a 7-point scale. When examined according to their respective *R*, *NR* groups, it was determined that the *R* group scored themselves significantly higher than the *NR* group on both questions (*R* = 3.77 ± 0.7, *NR* = 2 ± 0.3, *P* = 0.001; *R* = 3.44 ± 0.6, *NR* = 2 ± 0.2, *P* = 0.001, respectively).

Two questions on the McGill Quality of Life questionnaire were also analyzed. Patients were asked to indicate on a scale of 1-10 the level of depression and anxiety they have experienced over the last two days. Figure 3 presents the results from these surveys. It was determined that individuals in the Religious group experienced significantly higher levels of depression (*R* = 5.25 ± 0.3, *NR* = 3 ± 0.4; *P* = 0.05) and anxiety (*R* = 5 ± 0.25, *NR* = 3 ± 0.6; *P* = 0.03) than their Non-Religious counterparts.

**DISCUSSION**

The purpose of this study was to examine the impact of spiritual fitness on overall physical fitness and feelings of depression and anxiety in individuals being treated for cancer. A major finding of this investigation was that health beliefs did not necessarily back up health practice. Although those who classified themselves as “religious” reported that their beliefs positively influenced their health behaviors, physiological and psychological data did not support this claim.

***Physical fitness and religion***

In the present investigation, religious individuals reported that their belief in God enabled them to make health-related behavior choices and changes in their life. However, when compared to the *NR* group, they had a higher percentage of body fat and a lower VO2max. This finding is consistent with previous investigations, which report an inverse relationship between religious involvement and fat intake[24] and activity levels[25]. Because of their unique role in spiritual guidance, communication, and social support, churches can play an important part in health promotion efforts. Whitt-Glover *et al*[26] found that a faith-based physical activity intervention was successful at increasing physical activity among sedentary adults. Exercise programs that incorporate faith-based practices may appeal to religious individuals (*i.e.*, modest clothing, noncompetitive atmosphere), and provide an alternative strategy for increasing physical activity[27].

***Coping***

The present study found that religious individuals treated for cancer had higher rates of anxiety and depression than their non-religious counterparts. This finding is not in agreement with a considerable body of literature about the role of religion and coping with morbidity and mortality. Traditionally, research has showed that religious involvement is associated with a decrease in anxiety in both healthy populations[28], and in those battling cancer[29-33].

Appropriate coping techniques are important in combatting the anxiety associated with cancer. Treatment for anxiety typically begins with giving the patient adequate information and support, then developing coping strategies that suit the needs of each patient. Research on the role of religion in helping patient cope has traditionally focused on the behavioral variables of the individual, including church affiliation and attendance[34]. However, an investigation by Bowie *et al*[35] reported that it was the combination of attending church and accepting its teachings that led to lower levels of anxiety than simply church attendance alone. In other words, patients who fully accept their churches teachings on divine healing tend to report less anxiety than those who merely attended a church. Along those lines, a recent report indicated that individuals who claim to be “spiritual” but lack an allegiance to a specific religion may actually be more likely to experience mental health problems[36]. Thus, certain forms of religious coping affect anxiety differently in cancer patients.

Three different ways religion is involved in coping with major life stressors have been identified: (1) “self directing” coping: where it is assumed that God has provided individuals with the skills and resources to handle their problems; (2) “deferring” coping: which involves the delegation of the responsibility to God, while individuals wait passively on the outcome; and (3) “collaborative” coping: whereby God is defined as a partner who shares in the responsibility with individuals for problem solving[37]. Research indicates that respondents who indicate that they adhere to a deferral-oriented coping style tend to be less anxious than those who cope using self-directing and collaborative means[37].

***Practical applications***

These findings point to a wide gulf that presently exists between the ideal cancer care and that which is received by most Americans[38], and support a 2005 report from the Institute of Medicine, which highlighted a need to allocate more health care resources for these patients’ unique needs[39]. It is imperative that resources be made available to address palliative care, addressing the role of lifestyle and behavior change in improving the health and function of cancer survivors[40,41]. Research suggests that physical activity, nutrition, and emotional support are associated with decreases in feelings of depression, symptoms of late effects of treatment, and cancer relapse, as well as increased remission rates[40,41]. Therefore, efforts must be made to reach out to this unique group of individuals.

**COMMENTS**

***Background***

A cancer diagnosis can affect an individual’s core assumptions regarding life trajectory, beliefs about the self, control, self-worth, and the existential. Oftentimes such a diagnosis leads an individual to a process of spiritual and emotional transformation.It is estimated that around 58% of cancer patients experience depression and approximately 23% suffer from anxiety. However, a positive correlation has been found between spirituality and emotional adjustment to cancer, indicatingthat spirituality plays a significant role in helping patients deal with their thoughts of mortality. Thus, the purpose of this study was to examine the relationship between spiritual fitness and overall physical fitness, and their resulting impact on feelings of depression and anxiety in individuals being treated for cancer.

***Research frontiers***

The important areas in the research field related to this article are any areas that would analyze the quality of life of an individual undergoing cancer treatment. A host of disciplines would be interested to read about how exercise and spirituality can impact anxiety and depression.

***Innovations and breakthroughs***

A major finding of this investigation was that health beliefs did not necessarily back up health practice. Although those who classified themselves as “religious” reported that their beliefs positively influenced their health behaviors, physiological and psychological data did not support this claim.

***Applications***

These findings point to a wide gulf that presently exists between the ideal cancer care and that which is received by most Americans, and support a 2005 report from the Institute of Medicine, which highlighted a need to allocate more health care resources for these patients’ unique needs. It is imperative that resources be made available to address palliative care, addressing the role of lifestyle and behavior change in improving the health and function of cancer survivors. Research suggests that physical activity, nutrition, and emotional support are associated with decreases in feelings of depression, symptoms of late effects of treatment, and cancer relapse, as well as increased remission rates. Therefore, efforts must be made to reach out to this unique group of individuals

***Terminology***

Religious: having or showing belief in and reverence for God; implies both belief and practice. Physical Fitness: good physical condition; being in shape or in condition; the state of good health. Anxiety: a feeling of worry, nervousness, or unease, typically about an imminent event or something with an uncertain outcome. Depression: severe despondency and dejection, accompanied by feelings of hopelessness and inadequacy.

***Peer review***

I read with great interest the manuscript, this manuscript is interesting and adds valuable information to this field.

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A

Body Fat (%)

VO2max (ml \* kg \* min-1)

B

**Figure 1 VO2max and body composition results.** A: Body fat percent; B: VO2max. Values are mean ± SE.

**Figure 2 Depression and anxiety scores.** Values are mean ± SE, on a 10-point scale.

|  |  |  |
| --- | --- | --- |
| **Characteristics** |  | ***n*** |
| Age (yr) | 40.6 ± 2.6 |  |
| Gender | Male | 11 |
|  | Females | 19 |
| Type of cancer | Prostate | 5 |
|  | Colon | 8 |
|  | Chemotherapy | 20 |
|  | Breast | 17 |
| Current course of treatment | Radiation | 7 |
|  | Surgery | 3 |

**Table 1 Subject characteristics.**