

Religiousness and Spirituality in Fibromyalgia and Chronic Pain Patients

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Current Pain and Headache Reports 2008, **12**:327–332
Current Medicine Group LLC ISSN 1531-3433
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The influence of psychosocial factors on pain experience and patient response has received increasing interest and recognition. Patients with chronic pain from several sources (eg, musculoskeletal, cancer, or sickle cell) usually report that religiousness and spirituality are important in their lives. Prayer is the most used complementary therapy; religious coping is among the most common strategies used to deal with pain. Religious variables are not usually associated with pain measures, except in some studies indicating that petitionary prayer is related to higher pain levels, possibly suggesting a turning to religion due to increasing pain. The best available evidence supports a positive association between religiousness and spirituality, with higher well-being and positive affect, and a negative association with depressive and anxiety symptoms. We discuss the importance of addressing spiritual issues in clinical practice, and increasing and improving research on religiousness/spirituality in chronic pain patients.

Introduction

It is no longer thought that pain simply results from mechanical stimulation of peripheral nociceptive receptors. The importance of psychosocial factors in pain has been recognized for almost half a century, since the gate control theory of pain emerged. Basically, this theory emphasizes central nervous system regulatory mechanisms (ie, that upward pain transmission in the spinal cord is modulated by spinal cord neurons and by downward controls from the brain). Thus, a wide range of inhibitory and excitatory stimuli modulates pain transmission. The brain works “as an active system that filters, selects, and modulates inputs” [1]. As stated in a recent editorial, this theory that has changed the way we

think about pain has stood the test of time [2]. The neuro-matrix theory of pain, in which pain is understood as a multidimensional experience determined by multiple influences, further stresses the influence of psychosocial aspects. Pain is more than a sensory experience; it also involves other aspects such as meaning-making, immune, endocrine, and behavioral responses [3].

These theoretical frameworks have facilitated recognition of the influence of cognitions, expectations, values, social support, and world view in pain experience and patient response. Many of these pain-related aspects are also involved in the experience of religiousness and spirituality (R/S). R/S has been associated with several aspects of physical and mental health. Higher levels of religiousness have been linked to lower depression, substance abuse, and suicide rates, and higher life expectancy, well-being, optimism, and social support. Studies have found that the buffering effect of religiousness tends to be stronger among populations under stress, such as older adults with medical illness, those who are disabled, or those in poverty [4,5•].

Table 1 describes the most frequent mechanisms explaining how religious involvement may influence health [6]. In addition to these psychosocial mechanisms, religiousness may also influence health through psycho-neuro-immuno-endocrinologic pathways. Lower levels of interleukin-6, which denote better immune system functioning, have been correlated with greater religious involvement, and this may mediate its impact on lowering mortality, as shown in a 12-year prospective study in a community-based sample of 557 older adults [7].

Specifically regarding chronic pain (CP) patients, in a multivariate analysis of 91 women with fibromyalgia, private religiousness (eg, prayer, bible study) and intrinsic religiousness (religious commitment in one’s life) correlated with a healthy diurnal cortisol rhythm, in contrast with flatter rhythms in those with lower levels of religiousness [8].

In addition to its association with lower mortality and fewer mental and physical disorders, R/S seems to be related to greater well-being. Unfortunately, health studies often do not focus on health, but on diseases and illnesses, their pathogenesis, and ways to prevent, cure, or alleviate them. However, a recent trend has focused on

Table 1. Proposed mechanisms for religion–health relationship

Health practices: diet, lower substance use, and other good health habits	
Social support: social network, voluntary work	
Cognitive resources: self-esteem, self-efficacy, and belief structures that provide meaning	
Psycho-neuro-immuno-endocrinology: ↓ interleukin-6 levels, ↓ cortisol levels	
Religious coping	
Positive	Negative
Tried to find a lesson from God in this event	Wondered what I did for God to punish me
Did what I could and put the rest in God's hands	Believed the devil was responsible for my situation
Thought about how my life is part of a larger spiritual force	Didn't do much, just expected God to solve my problems for me
Tried to give spiritual strength to others	Pleaded with God to make things turn out okay
Focused on religion to stop worrying about my problems	Thought that some things are beyond God's control
Prayed to find a new reason to live	
Confessed my sins	

factors related to well-being, happiness, and quality of life [9•,10]. Antonovsky has called this approach “salutogenesis” (ie, seeking to understand how we can stay healthy despite stressful situations and hardships) [11•]. Depending on certain factors, people may not only be able to deal well with a traumatic event such as war or a serious disease, but may even experience positive changes called “posttraumatic growth.” Some of these positive changes may involve self-concept (feeling stronger), interpersonal relationships (able to love others more or be more compassionate), and life philosophy (review one's priorities in life and see life as precious). A recent overview of the research found that religious dimensions such as positive religious coping (RC), religious openness, religious participation, and intrinsic religiousness were associated with posttraumatic growth [12].

Based on a robust empirical base, several leading health organizations, such as the World Health Organization [13], Joint Commission on Accreditation of Health Care Organizations [14], and Royal College of Psychiatrists [15], have emphasized the importance of addressing R/S issues in clinical practice. A recent guideline of palliative care of pain, dyspnea, and depression at the end of life proposed by the American College of Physicians states that attending patients' spiritual concerns is a critical part of end-of-life care [16].

However, considering the thousands of studies investigating the relation between R/S and health [4], it is surprising that so little research involves patients with CP. This article reviews the available evidence regarding the impact of R/S in CP and fibromyalgia patients. In February 2008, we performed an online literature review to find papers in Portuguese, Spanish, and English at PubMed crossing the following MeSH terms as major topic: (pain OR fibromyalgia) AND (religio* OR spiritu*). We retrieved 124 papers. We also searched Scielo (Scientific Electronic Library Online), LILACS (Latin American and Caribbean Health Sciences), and The Cochrane Library for the keywords “pain AND (religion OR spiritual OR spirituality).” This search gen-

erated 126 additional papers. We selected some major reviews and focused on papers with original data.

Importance of R/S and the Use of RC by CP Patients

Patients describe R/S as an important aspect of how they cope with several kinds of CP: cancer [17–19], fibromyalgia [8], rheumatoid arthritis [20], sickle cell disease [21,22], and miscellaneous causes of CP [23,24].

Several studies provide evidence that a variety of RC strategies are used by CP patients, and some studies have shown that RC is among the most frequent methods in which these patients cope with their pain [20,25–27].

Studies with arthritis patients show that RC is related to but distinct from other ways of coping, indicating that RC measures provide a unique insight on patients' behavior [25,28]. As expected, the use of RC was stronger among more religious patients [28]. RC was positively correlated with active coping and not passive coping, which differs from what other investigators have found [25].

RC is usually divided into positive and negative types. Which type patients use may determine the effect that R/S has on health (Table 1). Positive RC is usually associated with better psychologic adjustment to stress and negative RC with worse psychologic adjustment and even higher mortality rates among medically ill patients [29,30].

Many studies investigating RC among CP patients have used the Coping Strategies Questionnaire (CSQ) [27]. This questionnaire, although a helpful and often used scale for coping, contains only three items related to religion, and only about a specific type of prayer (eg, “I pray to God it won't last long,” a prayer of petition). This type of prayer can be considered a form of negative RC [30,31]. Often studies with CSQ do not report these religious items separately, but merge them into a six-item “praying or hoping” subscale. Because this subscale has loaded during factor analysis with “diverting attention,” both subscales usually have been studied as a single factor called “diverting attention and prayer,” making it hard to

identify the specific impact of religious items. That factor is usually associated cross-sectionally with higher levels of pain and more functional impairment [27,32,33•]. This may be because of the impact of negative RC, and it also probably reflects a turning to religion as a resource to cope with suffering.

Negative forms of RC, besides being associated with worse health outcomes, are used by CP patients less frequently than positive RC [34,35]. In a study of elderly patients with CP, the most frequent of all coping strategies used involved collaborating with God (eg, “When considering how to manage my pain, God and I work together to think of possible solutions”), which is considered positive RC [26].

Evidence Regarding the Impact of R/S Among CP Patients

We now present an overview of the available empirical evidence regarding the impact of R/S in CP patients. Only studies designed specifically to investigate this relationship are discussed in more detail. Most of the available studies on R/S and pain were performed in the United States; we clearly identify studies conducted in other countries.

R/S can be assessed in several dimensions, each of which may have different correlations with health indicators. The use of different scales, measuring different religious dimensions, helps to explain some of the inconsistent results.

First, we present findings from studies on patients from pain clinics or with chronic musculoskeletal pain; all but two were cross-sectional studies. Cross-sectionally, R/S is usually not associated with pain levels, but with fewer psychiatric symptoms (depression, anxiety) and/or more positive affect (eg, strong, enthusiastic, and active) [23,25,33•,34]. An interesting finding in some of these studies was the association of RC with psychologic well-being but not with lower levels of emotional disorder [25,34]. Negative RC, however, was associated with higher depression scores [28].

Another study suggests the use of prayer as a coping method in hard times. Among 122 patients with chronic musculoskeletal pain (55% back pain), private religious practices (eg, prayer, reading religious materials) were inversely correlated with good physical health [24].

To our knowledge, Bush et al. [34] conducted the first study on pain and religiousness to assess RC as a multidimensional concept and as an independent coping resource. Among 61 CP patients (46% fibromyalgia and 31% arthritis), a factor analysis of 40 RC items provided a three-factor solution: one for positive RC, and two for negative RC (punishing God and absent God). Those patients used positive RC much more frequently than negative RC. After controlling for sociodemographic factors and pain level, positive RC correlated with higher levels of positive affect and better religious outcomes (growth in

spirituality, feeling closer to God and satisfied with religious life). There was no association between positive RC and negative affect (eg, feeling distressed, nervous) or the degree of pain that adversely affected their lives.

In contrast with cross-sectional studies that provide no information about how R/S and pain are related over time, prospective studies can provide insights on how R/S may influence pain levels over time. Turner and Clancy [32] randomly allocated 74 chronic low back pain patients to either an 8-week behavioral intervention or a wait list control group. Cross-sectionally, there was a positive correlation between the CSQ’s “diverting attention and prayer” factor and average pain level. However, on the longitudinal analysis, increased use of praying and hoping strategies at baseline was correlated with decreases in pain intensity over time. The authors proposed that this finding “suggests that the positive relationship between Diverting Attention and Praying factor and pain may be due to the ineffectiveness of distraction techniques, and not to the ineffectiveness of praying and hope” [32].

In another prospective study [35], 35 patients with rheumatoid arthritis kept a structured daily pain diary for 30 days. They recorded the use of RC, mood, pain, and social support. Patients indicated frequent use of RC and a high level of daily spiritual experiences such as finding strength and comfort in religion, feeling God’s presence, God’s love for them, or feeling spiritually touched by the beauty of creation. These spiritual variables and positive forms of RC were not associated with pain variables but were related to better daily mood and greater social support. Patients reporting higher salience of religion for their daily coping with pain reported much higher levels of social support. Beyond showing the impact of R/S among CP patients, this study also found that RC and spiritual experiences scores had considerable day-to-day variation within patients.

We found three relevant studies on R/S and pain in cancer patients. These studies were performed with different kinds of patients, in different countries, and using different R/S measures. Yates et al. [17] studied 71 patients with advanced cancer. Religious beliefs, being affiliated with church, considering church important, feeling close to God, and attending religious services were each negatively correlated with pain level and positively correlated with satisfaction with life. An interesting finding was that R/S was not related to presence of pain but to lower pain levels. However, among 82 patients with incurable cancer at a palliative care unit in Greece, there were no associations between any domain of the Spiritual Involvement and Beliefs Scale and pain, depression, or hopelessness [19].

In a study conducted in Croatia, 115 women with breast cancer recruited from a radiotherapy unit were investigated with a scale that assessed the prominence of faith in the patient’s life. Higher religiousness was not associated with intensity of pain but was related to lower

Table 2. Taking a spiritual history

- 1) Does the patient use religion or spirituality to help cope with illness, or is it a source of stress, and how?
- 2) Is the patient a member of a supportive spiritual community?
- 3) Does the patient have any troubling spiritual questions or concerns?
- 4) Does the patient have any spiritual beliefs that might influence medical care?

(From Moreira-Almeida et al. [5•].)

prevalence of depression. Most patients, however, were not suffering severe pain [18].

In a study of 50 African Americans with sickle cell disease [22], attending church services once or more per week was associated with fewer symptoms of depression, anxiety, and somatization. After controlling for age, gender, and disease severity, church attendance was significantly and inversely related to pain severity. However, frequency of prayer and Bible study did not correlate with measures of pain.

The impact of religious involvement was examined in a Brazilian sample of 65 workers with CP from repetitive strain. In a pain attitudes scale, the domains “emotion” (interaction between emotions and pain) and “feelings about pain control” were more favorable among people who were actively involved with their religion [36].

Spiritually Based Treatments

Patients frequently use complementary and alternative medicine interventions to cope with their pain, and many of these are embedded within a spiritual framework. In fact, prayer was the most common complementary therapy used by a community sample of 307 subjects with musculoskeletal complaints (57% arthritis; prayer was used by 44% of the total sample) [37]. In a US national survey ($n = 2055$), 35% used prayer for health concerns in the previous year, but just 11% reported it to their physicians [38]. In another US national sample ($n = 30,801$, 6079 of whom reported musculoskeletal pain for at least 1 month), prayer was the most commonly used alternative therapy. Nearly 20% of those with pain reported they used prayer, significantly more than those without pain (12%). In a multivariate analysis, prayer was most used by women, blacks, and better-educated patients [39].

A number of studies have examined spiritually based interventions. Two recent randomized controlled trials (RCTs) found that yoga therapy was effective for patients with chronic low back pain [40,41]. A neuro-functional study of a yoga master who claimed to feel no pain during meditation provided clues on how spiritual practices impact brain processing. The yoga master had a high pain threshold, and noxious laser stimulation caused absent or weak activation of brain

areas related to pain (somatosensory cortices, thalamus, insula, and cingulate cortex) during meditation but generated the expected activation when the subject was not meditating [42].

There is some debate regarding the role of spirituality and the impact of meditation on health. Among college students, compared with secular meditation and relaxation, spiritual meditation led to greater decreases in anxiety, depression, and frequency of headaches, as well as more positive mood and pain tolerance [43,44].

Spiritual healing is a more controversial therapy, but it has been tested in some trials with CP patients, mostly involving small samples without blinded outcome assessments. In Scotland, an open-label RCT ($n = 53$) found that spiritual healing (laying-on of hands and guided visualization) was associated with less pain and more improvement in neck mobility among patients with restricted neck movement [45]. A Finnish non-blind RCT with 24 CP patients found that spiritual healing did not affect pain measures but was associated with lower hopelessness and better sleep patterns [46]. In the best study available, the only double-blind RCT, spiritual healing had no effect in 104 CP patients, compared with simulated healing [47].

In addition to generating specific interventions, R/S could also affect the acceptance of pain treatments. Bosch and Baños [48] suggest that some conservative religious teachings could prevent patients from accepting adequate pharmacologic treatment for cancer pain. This possibility should be examined in future studies.

Conclusions

Despite growing evidence that R/S influences health and is highly important to CP patients, there is still relatively little research regarding the impact of R/S in CP patients. The available evidence has not found a direct association between religious variables and pain measures, except for a positive association between some kinds of prayer and pain, possibly indicating a turning to religion in stressful times. However, most studies found a positive correlation between positive RC and fewer psychiatric symptoms and greater positive affect. Those findings suggest that even if religious involvement does not affect pain levels, it could enhance CP patients' sense of well-being and social support. Improving our understanding of this relationship is an important research goal; however, studies investigating the specific ways in which R/S affects CP are still scarce [49•].

Several health organizations encourage the assessment of R/S issues as an essential part of compassionate care, especially among those suffering from CP. Table 2 provides samples of simple questions that can be used to take a spiritual history in patients with CP.

Among CP studies, religiousness was often only related to positive affect, but was not inversely related to symptoms of emotional disorder. According to Antonovsky's “salutogenic model” and to recent findings in “positive

psychology,” factors related to illness are not necessarily the same factors (or their flip side) related to wellness [9,10,11]. To improve our understanding and care of CP patients, future studies may benefit from including items related to positive health and well-being as the impact of religious experiences and beliefs is studied. Our main goal as researchers and clinicians is to help patients live longer and better, with a happier and full life.

Disclosures

No potential conflicts of interest relevant to this article were reported.

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This recent review explores six possible mechanisms by which RC may impact CP, providing a good theoretical framework to guide future studies.