Chronic pain and fatigue: Associations with religion and spirituality

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BACKGROUND: Conditions with chronic, non-life-threatening pain and fatigue remain a challenge to treat, and are associated with high health care use. Understanding psychological and psychosocial contributing and coping factors, and working with patients to modify them, is one goal of management. An individual’s spirituality and/or religion may be one such factor that can influence the experience of chronic pain or fatigue.

METHODS: The Canadian Community Health Survey (2002) obtained data from 37,000 individuals 15 years of age or older. From these data, four conditions with chronic pain and fatigue were analyzed together – fibromyalgia, back pain, migraine headaches and chronic fatigue syndrome. Additional data from the survey were used to determine how religion and spirituality affect psychological well-being, as well as the use of various coping methods.

RESULTS: Religious persons were less likely to have chronic pain and fatigue, while those who were spiritual but not affiliated with regular worship attendance were more likely to have those conditions. Individuals with chronic pain and fatigue were more likely to use prayer and seek spiritual support as a coping method than the general population. Furthermore, chronic pain and fatigue sufferers who were both religious and spiritual were more likely to have better psychological well-being and use positive coping strategies.

INTERPRETATION: Consideration of an individual’s spirituality and/or religion, and how it may be used in coping may be an additional component to the overall management of chronic pain and fatigue.

Key Words: Chronic pain; Coping; Psychophysiological; Psychosomatic; Religion; Spirituality

Chronic pain and fatigue conditions are a challenge for the biomedical model because of the psychological factors associated with their etiology and maintenance, including depression, anxiety and somatization (10). In a historical review, Shorter (11) attributes vulnerability to pain and fatigue without obvious physical cause to a loss of faith in medical reassurance, reliance on the media for health knowledge and an increase in loneliness due to postmodern loss of relationships. More recent research in chronic, non-life-threatening pain and fatigue has been directed toward understanding stress vulnerability, coping, and factors that exacerbate or ameliorate these illnesses (8,12,13). New evidence suggests that a common thread of psychological stress, muscle tension and fear-based avoidance of activity exacerbates the suffering (14).
Religious and spiritual beliefs and practices are factors that may play a role in stress vulnerability and coping with illness (15), and may affect the range and quality of social relationships (11). Oman and Thoresen (16) suggested several pathways through which religion can positively influence health, including enhanced social support, better health behaviours and positive psychological states, which may in turn affect psychoneuroimmunological pathways. Religion and spirituality are related but separate concepts. Spirituality may be practiced within an organized religion, and for some individuals, it may lack a social context. Whether purported benefits of religion and spirituality are the same for an individual who identifies himself or herself as spiritual, but does not participate in a community of like-minded believers (ie, not religious), is not clear.

Individuals may turn to religion or spirituality when dealing with chronic pain and fatigue conditions (17-19). Spiritual beliefs and practices may influence pain perception and tolerance because psychological states are potential modulators of the pain experience (20). Negative affect, represented by depressive symptoms, is associated with an increased experience of pain in chronic conditions (21). Studies have also reported an association between higher religiousness and lower levels of depressive symptoms (22,23), demonstrating that religion or spirituality may play a role in attenuating negative affect, decreasing stress, or enhancing relaxation or distraction. Consequently, this could impact the experience of pain. Prayer may also play a role, but findings on the relationship of prayer and chronic pain are mixed (15,18), depending on whether prayer is used in an active or passive manner (24). The need for multimodal approaches to chronic pain and fatigue management, and recent research examining the role of religion and spirituality in chronic conditions inspired the present research to address two questions using the Canadian Community Health Survey, cycle 1.2, Mental Health and Well-being database:

1. Is being religious or spiritual associated with chronic pain or fatigue?

2. Is being religious or spiritual associated with any differences in psychological well-being or coping strategies for those individuals with chronic pain and fatigue?

METHODS

Data collection

The Canadian Community Health Survey, cycle 1.2, is a cross-sectional survey that collected information related to mental health and well-being in the Canadian population 15 years of age or older, and living in private dwellings, in 2002 (25). The public-use microdata file used for these analyses contains responses from approximately 37,000 individuals (26).

Study measures

Chronic pain and fatigue: The diagnosis of a ‘chronic condition’ was determined by self-report in response to a question about “long-term conditions which are expected to last or have already lasted 6 months or more and that have been diagnosed by a health professional”. No attempts were made to corroborate self-reports of medical illness. Conditions characterized by chronic pain or fatigue were extracted for this analysis and combined: “Do you have fibromyalgia?” (yes = 541, 1.5%), “Do you have back problems excluding fibromyalgia and rheumatism?” (yes = 7713, 20.9%), “Do you have migraine headaches?” (yes = 3966, 10.7%) and “Do you have Chronic Fatigue Syndrome?” (yes = 439, 1.2%). Positive responses for the combined chronic pain and fatigue classification totalled 10,479 (28.4%). Other pain and fatigue conditions with more defined etiologies (eg, Crohn’s disease, osteoarthritis, cancer) were not included.

Religion and spirituality variables: The frequency of worship attendance ranged from 1 (never) to 5 (once per week or more), and was dichotomized into frequencies of monthly or more (37%) and less than monthly (63%) to reflect consistent religious service attendance. This single question on attendance frequency is considered a valid measure of organizational religion (27). Spirituality was also assessed by a single question: “Do spiritual values play an important role in your life?” (no = 37%, yes = 63%). Three categories were developed by cross-tabulation: ‘religious’ (n=10,793, 35.7%), for those who attended worship services at least monthly and believed spiritual values are important; ‘spiritual’ (n=10,753, 35.5%), for those who endorsed spiritual values as important but did not attend worship services at least monthly; and ‘nonreligious/nonspiritual’ (n=8704, 28.8%), for those who did not endorse spiritual values as important or attend religious services at least monthly. Two per cent of respondents (n=609) were religious, but not spiritual (mean age approximately 36 years of age, 62% men). There were missing data on 6125 respondents, bringing the total population used in the analysis to 30,859. The analysis did not change regardless of whether this group was included as part of the ‘religious’ group; therefore, it was excluded to keep definitions consistent. The first group is therefore referred to as ‘religious’ for ease of convention, although both religion and spirituality were important in this group.

Coping strategies: Thirteen ways of coping were derived and modified in wording from several coping scales, including Ways of Coping Revisited (28), the Coping Strategy Indicator (29) and the COPE scale (30). The questions started with “When dealing with stress, how often do you...” followed by the 13 coping methods, each rated on a four-point scale – never, rarely, sometimes and often.

Covariates: Age was recorded in 14 groups of five-year blocks. The first block was from 15 to 19 years of age, and the last block was from age 80 years and older (mean age ±SD 42±3.5 years). Fifty-one per cent were women (n=18,806), 62% were married or common law (n=22,801), and 38% were single, separated, widowed or divorced (n=14,132). Social support (Medical Outcome Study Social Support Survey) (31) was measured by 19 functional support items, each rated on a five-point scale (range 0 to 76, mean 64.8±13.3). The Psychological Well-being Manifestation Scale (32) measures well-being over the previous month with 25 questions on a five-point scale (0 to 4). Higher scores indicate better well-being (range 0 to 100, mean 81.5±14.2). ‘Trouble sleeping’ was measured on a four-point scale, and was dichotomized into 1 = none or a little of the time (n=24,136, 65%), and 2 = some, most or all of the time (n=12,843, 35%). Major depression was diagnosed using the Diagnostic and Statistical Manual of Mental Disorders, Fourth Revision, based on the World Health Organization Composite International Diagnostic Interview (33), with 12.2% (n=4494) reporting suffering from at least one lifetime major depressive episode.
Statistical analysis
To reduce the number of coping variables, a principal component analysis was conducted with varimax rotation of 12 of the 13 coping items. Because ‘prayer and seeking spiritual help’ were of interest as separate items, this item was not included in the factor analysis. Two main factors emerged, and were labelled negative and positive coping, in addition to a third factor, which included using alcohol, or ‘drugs or medication’ to cope (Table 1). Combined, these three factors accounted for 41% of the variance. Within the positive coping factor, ‘jogging or other exercise’ had the lowest association with the other items, and removing this item increased the Cronbach’s alpha of the positive coping scale to 0.502. Because ‘jogging or other exercise’ may be an important treatment adjunct in chronic pain and fatigue, it was analyzed separately from the remaining cognitive positive coping methods. The Cronbach’s alpha for negative coping was 0.592. The positive, negative, exercise, and alcohol, drug and medication coping items were used as dependent variables in the regression models below.

Multiple analysis of covariance was used, with age, sex, marital status and social support as covariates to determine differences between the group with chronic pain and fatigue and the rest of the population. Among those with chronic pain and fatigue, separate linear regression models were used to predict the continuous outcome variables – psychological well-being, positive coping, negative coping, exercise coping, and alcohol, drug or medication coping – using religious or spiritual group membership dummy-coded as the independent variable, with the nonreligious and nonspiritual group as the reference category. The Bonferroni correction for multiple tests was applied, with $P<0.01$ as the level of significance. All estimates were weighted. Statistical analysis was performed with SPSS for Windows, Release 15.0.0, 2006 (SPSS Inc, USA).

RESULTS
Descriptive statistics and associations with chronic pain and fatigue
Significant differences were determined in the demographic characteristics between those with chronic pain and fatigue and the general population. The population with chronic pain and fatigue was more likely to be older (mean age 44 years, 95% CI 44 to 45, versus mean 41 years, 95% CI 41 to 42), female (58% versus 48%), living with a partner (65% versus 59%), and with lower social support (range 0 to 76, mean 63.7, 95% CI 63.5 to 64.0, versus mean 65.3, 95% CI 65.1 to 65.4).

After controlling for these baseline characteristics, including social support (Table 2), it was determined that the population with chronic pain and fatigue was less likely to use positive coping strategies and exercise, and more likely to use negative coping strategies, prayer or seeking spiritual help, and alcohol, drugs or medication. Chronic pain and fatigue sufferers were more likely to report trouble sleeping and had a significantly higher likelihood of a major depression episode. The chronic pain and fatigue population are significantly more spiritual, but are less religious. Numbers of nonreligious and nonspiritual individuals did not differ between chronic pain and fatigue sufferers and the general population.

Religion, spirituality and mental health in chronic pain and fatigue
Adjusted associations with psychological well-being and ways of coping with stress in the chronic pain and fatigue population are presented in Table 3. Being spiritual was associated with the use of positive, negative and exercise coping methods. Being religious was significantly associated with better psychological well-being, positive coping, exercise and less use of alcohol, drugs or medication to cope.

DISCUSSION
The population with chronic pain and fatigue contains more individuals who are spiritual without being religious, and who, as a group, use prayer to cope more than the general population. The finding is consistent with a tendency to seek spiritual support during time of illness (17,34) and to pray for health-related concerns (35) (Table 2). The tendency to turn to spiritual resources has also been shown in depression and anxiety disorders, both of which may be chronic (36). We also found those with chronic pain and fatigue reported more depression. In contrast, those who were religious were less likely to have chronic pain and fatigue. One explanation is that individuals with chronic pain and fatigue do not attend worship services frequently, possibly because of their physical and psychological difficulties. Alternatively, frequent worship attendance may be somehow protective of chronic pain and fatigue. The latter interpretation could be consistent with Shorter’s hypothesis (11) of a lack of social connection as a contributing factor to psychosomatic illness. Frequent worship attendance (religion) is also linked to lower self-reports of pain intensity among individuals with sickle cell disease (37). Positive religious coping techniques are related to significantly better mental health in general (17). The cross-sectional nature of the data precludes definite causal conclusions.

Among those individuals with chronic pain and fatigue (Table 3), being religious (but not just spiritual) was associated with better psychological well-being. Spiritual transcendence, or the capacity to view life from a more detached perspective, was associated with better well-being in individuals with rheumatoid arthritis (38). Acceptance of illness was associated with better psychological well-being in chronic fatigue syndrome and chronic pain (39). Acceptance may be enhanced by religious or spiritual strength and reframing of the chronic illness (40).
Both the religious and spiritual groups were significantly more likely to use positive coping mechanisms than the non-religious and nonspiritual group (Table 3). The positive coping mechanisms included attitudinal and active strategies, such as looking on the bright side, doing something enjoyable or talking to others. Religion and spirituality increase feelings of control and self-efficacy, which appear to be related to increasing pain tolerance and encouraging more active coping techniques (41). Both groups were also more likely to use exercise to cope than the nonreligious and nonspiritual groups. This finding may reflect a larger available support network or more opportunities for activities that accompany religious observance, or the possibility that the religious group is less disabled in general, which was not addressed in these data.

The spiritual group was more likely to use negative coping strategies. This may reflect more general disability or indicate a subset of individuals who use more negative forms of spiritual coping (ie, feeling that God is punishing them), and tend to have negative psychological and physical reactions as well (42). It is possible that pain and fatigue may not only physically discourage worship attendance, but may create anger at God or initiate other spiritual struggles. If these struggles are not worked through, they may be linked to a worse outcome (43) or lead to other forms of negative coping, such as addictive behaviours (44) and other psychopathologies (45). In a survey of pain-triggering events, emotional distress was identified as the most significant factor; thus, consideration of all sources of stress is important (1). In contrast, the religious group was less likely to use alcohol, drugs or medication to cope. Usual religious prescriptions regarding excess use of drugs and alcohol may have reduced this form of negative coping (46).

Recent studies confirm the known associations of chronic pain and fatigue with decreased positive well-being, increased use of alcohol and drugs, decreased exercise, increased trouble sleeping and increased lifetime depression (5,13). In addition, we found that chronic pain and fatigue were associated with less positive coping, more negative coping and less likelihood of being religious, but increased likelihood of being spiritual and turning to prayer to cope.

Limitations of the present study include the cross-sectional nature of the data, which restricted inferences regarding causality. The measure of organizational religion was well established, but was limited to one question about worship frequency (27). The measure of importance of spiritual values was likewise limited to one question. No measure of pain severity or level of disability relevant to the present study was available. Ultimately, replication and longitudinal studies with more sensitive measures need to be conducted, with the aim of further examining these findings. Advantages of the present study include a nationally representative population, use of well-established sampling procedures, and no apparent bias or emphasis regarding the association of religion and spirituality with chronic pain and fatigue.

TABLE 2
Multiple analysis of covariance of coping and well-being with chronic pain and fatigue (CPF) and the general population (weighted)

<table>
<thead>
<tr>
<th></th>
<th>No CPF n=26,476 (72%)</th>
<th>CPF n=10,479 (28%)</th>
<th>Df</th>
<th>Sum of squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>PWB, range 3–100</td>
<td>82.9 (82.7–83.0)</td>
<td>79.8 (79.5–80.1)</td>
<td>1</td>
<td>51355.022</td>
<td>419.91</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Positive cope, range 1–4</td>
<td>3.46 (3.46–3.47)</td>
<td>3.44 (3.43–3.44)</td>
<td>1</td>
<td>3.781</td>
<td>25.35</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Negative cope, range 1–4</td>
<td>2.18 (2.18–2.19)</td>
<td>2.32 (2.30–2.33)</td>
<td>1</td>
<td>95.988</td>
<td>393.07</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Exercise cope, range 1–4</td>
<td>2.10 (2.08–2.11)</td>
<td>2.05 (2.03–2.08)</td>
<td>1</td>
<td>10.571</td>
<td>13.27</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Prayer cope, range 1–4</td>
<td>2.43 (2.41–2.44)</td>
<td>2.52 (2.49–2.54)</td>
<td>1</td>
<td>43.364</td>
<td>22.94</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Alcohol/drugs, range 1–4</td>
<td>1.23 (1.23–1.24)</td>
<td>1.32 (1.31–1.33)</td>
<td>1</td>
<td>39.434</td>
<td>226.34</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Trouble sleeping</td>
<td>30.4%</td>
<td>45.1%</td>
<td>1</td>
<td>118.066</td>
<td>716.33</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Lifetime major depression</td>
<td>9.9%</td>
<td>17.5%</td>
<td>1</td>
<td>31.987</td>
<td>426.54</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Nonspiritual and nonreligious</td>
<td>28.9%</td>
<td>29.3%</td>
<td>1</td>
<td>0.092</td>
<td>0.471</td>
<td>0.49</td>
</tr>
<tr>
<td>Spiritual</td>
<td>35.0%</td>
<td>37.7%</td>
<td>1</td>
<td>3.875</td>
<td>16.99</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Religious</td>
<td>36.1%</td>
<td>33.0%</td>
<td>1</td>
<td>5.165</td>
<td>23.32</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Error</td>
<td>27553</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data for CPF and No CPF scores presented as mean (95% CI) unless otherwise stated. Results adjusted for age, sex, marital status and level of social support. Df Degrees of freedom; PWB Psychological well-being

TABLE 3
Linear regression analysis of psychological well-being and coping methods in the population with chronic pain and fatigue

<table>
<thead>
<tr>
<th></th>
<th>Spiritual</th>
<th></th>
<th>Religious</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std B</td>
<td>t</td>
<td>P</td>
<td>Std B</td>
</tr>
<tr>
<td>Psychological well-being</td>
<td>0.028</td>
<td>2.298</td>
<td>NS</td>
<td>0.078</td>
</tr>
<tr>
<td>Positive coping</td>
<td>0.108</td>
<td>8.42</td>
<td>&lt;0.001</td>
<td>0.109</td>
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<tr>
<td>Negative coping</td>
<td>0.033</td>
<td>2.59</td>
<td>0.01</td>
<td>0.023</td>
</tr>
<tr>
<td>Alcohol/drug coping</td>
<td>−0.004</td>
<td>−0.29</td>
<td>NS</td>
<td>−0.106</td>
</tr>
<tr>
<td>Exercise coping</td>
<td>0.044</td>
<td>3.33</td>
<td>0.001</td>
<td>0.107</td>
</tr>
</tbody>
</table>

Results adjusted for age, sex, marital status and level of social support. The reference category was nonspiritual and nonreligious subjects. NS Not significant. Std B Standardized beta

CONCLUSION

Religion, as measured by worship frequency together with importance of spiritual values, is associated with lower levels of chronic pain and fatigue syndromes in the Canadian population. Frequent worship attendance is associated with better psychological well-being in the population with chronic pain and fatigue. Religiousness and spirituality are both associated with the use of positive (psychological) and exercise (physical) strategies.
to appropriate sources to deal with spiritual struggles are encouraged as part of patient-centred care (49). Developing religiously and spiritually sensitive pain reduction interventions, spiritually oriented group therapy or practising spiritual meditation have been proposed, and are beginning to be examined as useful additional ways to help (20). The present study suggests that frequency of religious worship attendance should be considered in the development of such interventions. Further study of the associations presented here, particularly in a longitudinal manner, may contribute to our understanding of chronic pain and fatigue and other chronic distressing disorders, and may enhance the tools used to deal with them.

REFERENCES
