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ORIGINAL PAPER

The Relationship Between Religious Beliefs and Quality of Life Among Patients With Multiple Sclerosis

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Abstract Patients with chronic diseases, such as multiple sclerosis (MS), are prone to emotional distresses and reduction in life quality more than others. This study aimed to assess the relationship between religious beliefs and quality of life among patients with MS. In this study, 145 MS patients completed 36-Item Short-Form Health Survey (SF-36) and the Duke University Religion Index (DUREL) questionnaires. The results indicated that unorganized religious activities were significantly associated with marital status and education level. Besides, internal religion was positively correlated to mental health. However, religious variables were not effective prognostic factors in physical and mental quality of life. Overall, further studies have to be conducted to determine the role of religion in quality of life of MS patients with different religious backgrounds.

Keywords Multiple sclerosis · Religion · Quality of life

Introduction

Multiple sclerosis (MS) refers to the chronic and progressive inflammation of the nervous system whose physical, mental, and emotional complications affect different dimensions of patients' lives, resulting in serious limitations (Yamout et al. 2013). This disorder mainly occurs in young adults (Fallahi-Khoshknab et al. 2014). Besides, it is progressively

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increasing around the world, such a way that the number of patients increased from 2.1 million in 2008 to 2.3 million in 2013. Additionally, 30 new cases are reported weekly in the USA (Multiple Sclerosis International Federation 2013).

The prevalence of MS is different in various countries, with the highest rate being related to North American and European countries (108–140 per 100,000 population) and the lowest rate being related to South African and East Asian ones (2.1–2.2 per 100,000 population) (Evans et al. 2013). In Iran, this rate has been estimated to be nearly 15–30 per 100,000 population (Etemadifar et al. 2013, 2014). In some parts of the world including Iran, female/male ratio of suffering from MS has been reported to be 2.8, and the rate of the disease has increased among females in the recent two decades (Elhami et al. 2011).

Generally, patients with chronic disorders are prone to emotional distresses and reduction in life quality more than others (Argyriou et al. 2011). Since technical interventions related to life-threatening factors have not been able to solve the problems faced by refractory patients yet, more attention is being paid to strong beliefs like religious beliefs in different communities (Baljani et al. 2011).

Religiousness encompasses a wide conception and is, in fact, a comprehensive term involving religious activities, beliefs, and doctrines based on a particular intention (Gall et al. 2011). Several investigators have found that increased participation in private religious activities was associated with health status such as longer survival, and better health behaviors (Khoramirad et al. 2015; Koenig 2009, 2012). Studies have also revealed that religious–spiritual beliefs and activities were associated with better coping skills as well as reduction in anxiety and depression, and provided comfort and effective support for both patients and their families (Hedayati et al. 2015; Wnuk et al. 2009). Besides, religious activities were found to be a protective factor, which improved mental health and quality of life in patients with cancer, and cardiovascular, respiratory, and neurological problems (Banerjee et al. 2014; Schnall et al. 2010; Unterrainer et al. 2011). Overall, religion causes patients to pay attention to three goals: a resource for seeking for the cause of the disease, a resource for adaptation, and creation or improvement in hope in patients. In fact, religion results in patients' coping and prevents their destructive behaviors (Weaver and Koenig 2006).

Up to now, many studies have been conducted on the importance of religion and religious beliefs and activities in different disorders (Michaelson et al. 2015; Schnall et al. 2010; Thuné-Boyle et al. 2013), and quality of life (QoL) in MS patients (Allahbakhshian et al. 2010; Salehpoor et al. 2014; Sangelaji et al. 2014; Ghabaee et al. 2016). While many authors have postulated that religiosity correlates strongly with QoL in chronic diseases, a limited number of studies have been performed on the relationship between religiousness and QoL in MS patients. In Iran also, little information is available regarding the relationship between QoL and religion in MS patients and most studies performed in this respect have dealt with patients suffering from hemodialysis and cancer (Baljani et al. 2011; Hojjati et al. 2010). Considering the fact that MS is a chronic disease associated with emotional distress and reduction in quality of life and regarding its high prevalence among adult and middle-aged individuals in Iran, the present study aims to investigate the relationship between religious attendance and quality of life among MS patients. This study was hypothesized that MS patients exhibiting a higher level of religious involvement might be exhibited higher levels of QoL.

Methodology

Sampling and Participants

This cross-sectional study was conducted with the recruitment of MS patients from December 2015 to May 2016 in Shiraz, Iran. All MS patients referred to center for MS patients in Imam Reza clinic, center for MS patients, and a neurologist's clinic specific for MS patients were recruited using sequential convenience sampling. Patients with MS refer to Imam Reza clinic for visiting neurologists and confirmation of their medical records every other week. They are diagnosed by a committee of neurologists based on the McDonald criteria, clinical findings, and magnetic resonance imagination (MRI). This center registers MS patients and provides medical and welfare facilities. It should also be noted that almost 50–60 patients refer to the clinic in every visit. In the center for MS patients, patients take part in consultation, music, and muscle relaxation techniques classes every Monday.

The inclusion criteria of the study were being diagnosed by a neurologist using reliable diagnostic instruments, having the ability to read and write, having the ability to communicate, and consent to participate. Unwillingness for cooperation, and other chronic diseases such as severe renal failure and congestive heart failure were considered as exclusion criteria. At first, the study was approved by the Ethics Committee of Shiraz University of Medical Sciences (No. 92-01-21-6588). Then, the researchers gained the approval of the Research Vice-chancellor of the University and the authorities of Imam Reza clinic. Afterward, they referred to the center for MS patients and the neurologist's clinic and asked the patients who were willing to take part in the study to complete SF-36 and DUREL questionnaires.

Measurement

The patients' sociodemographic information was evaluated at the beginning of the questionnaire.

The patients' QoL was assessed using 36-Item Short-Form Health Survey (SF-36) questionnaire, which evaluates health-related QoL, and contains 36 items. This questionnaire has demonstrated a capacity to effectively discriminate between subjects with different chronic conditions and between subjects with different severity levels of the same disease (Stewart et al. 1988; Ware and Sherbourne 1992). It consists of two main dimensions, namely physical component summary (PCS) and mental component summary (MCS). PCS domains are as follows: physical function, physical limitations, physical pain, and general health; and the four dimensions of MCS measure vitality, social function, emotional limitations, and mental health. Overall, this questionnaire evaluates eight health dimensions. The patients' score in each dimension could range from 0 to 100, with higher scores representing better quality of life. The reliability and validity of this questionnaire have been confirmed in Iranian population (Montazeri et al. 2005). Accordingly, the internal consistency of its eight dimensions was reported as 0.70–0.85 and its test–retest reliability with 1-week interval was 0.43–0.79. Besides, this questionnaire could discriminate patients from healthy individuals in all the indices.

Duke University Religion Index (DUREL) questionnaire developed by Koenig et al. (1997) contains five items which capture the three dimensions of religiosity that most closely relate to health outcomes: One item assesses organized religious activities (ORA),

or attendance, including regular participation in religious activities or services, using a 6-point Likert scale. Another item evaluates unorganized religious activities (NORA), such as individual religious activities (praying), using a 6-point Likert scale. Besides, three items assess internal religion (IR) or individual commitment and religious motivations through a 5-point Likert scale. IR is measured by God's presence as experienced in the lives of people, the relation between religious beliefs and approach to life, and the effort to live religion in all aspects of life (Koenig et al. 1997).

It should be noted that these five items are scores reversely. The total score of this questionnaire could range from 5 to 27. The designers of this questionnaire suggested that the score of each subscale be calculated separately and health outcomes be evaluated independently (Koenig and Büssing 2010). The psychometric properties of this questionnaire were confirmed in Iran, revealing appropriate internal consistency (Cronbach's alpha of 0.866–0.921), and 4-week test–retest correlation was 0.93 (Hafizi et al. 2013; Saffari et al. 2013).

Statistics

The data were analyzed using descriptive statistics (mean and SD). Pearson's correlation coefficient was used to investigate the relationship between the study's variables. Ninety-five percent credible intervals different from zero suggest significant associations. Additionally, regression analysis was employed to analyze the relationship between the independent variables (religious variables) and the dependent ones (PCS and MCS). All the analyses were performed using the SPSS statistical software (version 16) and $p < 0.05$ was considered to be statistically significant.

Results

This study was conducted on 145 patients. As shown in Table 1, most respondents were female (85.8%) and married (58.8%), with a mean age of 30.21 ± 8.01 years. Besides, duration of suffering from the disease was averagely 2.52 ± 3.76 years. Descriptive characteristics of the eight subscales of quality of life, religious beliefs, and activities of the MS patients have been presented in Table 1.

The scores of DUREL questionnaire varied from 1 to 27, with the mean score of 18.33 ± 6.23. Sample means for NORA and internal religion were higher for female patients than for males. However, no significant difference was found between the two genders concerning NORA, ORA, and the total score of religion. Moreover, married patients obtained higher scores in all dimensions of DUREL questionnaire, but the difference was only significant with respect to NORA. Furthermore, the patients with below diploma degrees showed higher religious mean scores compared to those with higher education levels, but the difference was only significant with regard to NORA ($p < 0.05$).

The study results revealed that internal religion was positively correlated to MCS ($p < 0.001$), while no significant relationship was observed between MCS and ORA and NORA ($p < 0.05$) (Table 2).

The study results demonstrated that none of the study variables had unique contribution to prognosis of QoL. Therefore, stepwise multiple regression analysis was used to determine the most important predictors of the quality of life. The results indicated that religious variables determined 5.3% of the changes in PCS ($R^2 = 0.05$, $p = 0.66$). Hence, religious

Table 1 Descriptive statistics of the demographic data and variables in the study sample ($n = 145$)

Variable	*N* (%)
Gender	
Female	127 (85.8)
Male	18 (12.2)
Education	
Illiterate (under diploma)	38 (25.7)
Diploma	42 (28.4)
BSD	56 (37.8)
MSD and higher	4 (2.7)
Marriage status	
Married	57 (38.5)
Single/divorced/widow	87 (58.8)
Variable	**Mean ± SD**
Age	30.21 ± 8.01
Quality of life variables	
General health (GH)	16.01 ± 5.68
Social function (SF)	6.54 ± 2.57
Mental health (MH)	18.61 ± 6.87
Vitality (VT)	13.93 ± 5.66
Bodily pain (BP)	7.68 ± 2.79
Role functioning/emotional (RE)	4.47 ± 1.45
Role functioning/physical (RP)	6.12 ± 1.9
Physical function (PF)	21.51 ± 6.79
PCS	37.08 ± 16.13
MCS	39.93 ± 14.43
Religious variables	
Organized religious activities (ORA)	2.85 ± 1.05
Non-organized religious activities (NORA)	4.25 ± 1.75
Internal religion (IR)	11.82 ± 3.86
Total religion	18.33 ± 6.23

variables were not considered to be effective factors in prediction of PCS physical component of quality of life (Table 3).

The results of stepwise multiple regression analysis also indicated that religious variables determined 2.1% of the changes in MCS ($R^2 = 0.021$, $p = 0.58$). Thus, religious variables were not regarded as effective factors in prediction of MCS mental component of quality of life (Table 4).

Table 2 Correlation between ORA, NORA, internal religion, PCS, and MCS in MS patients

	ORA	NORA	IR	MCS	PCS
ORA					
Pearson correlation	1				
Sig. (2-tailed)					
NORA					
Pearson correlation	0.348**	1			
Sig. (2-tailed)	0.000				
IR					
Pearson correlation	0.255**	0.310**	1		
Sig. (2-tailed)	0.003	0.000			
MCS					
Pearson correlation	0.045	−0.070	0.169	1	
Sig. (2-tailed)	0.617	0.433	0.055		
PCS					
Pearson correlation	0.047	−0.020	0.318**	0.605**	1
Sig. (2-tailed)	0.605	0.822	0.000	0.000	

** Correlation is significant at the 0.01 level (2-tailed)

Table 3 Results of multiple regression analysis for examining the effects of religious variables on PCS

Predictors	ß (standard)	*t* value
Step 1		
Int. religion	0.203	2.277
	$R^2 = 0.041$, $F(1,145) = 5.183$	
Step 2		
Int. religion	0.238	2.535
NORA	−0.111	−1.18
	$R^2 = 0.052$, $F(2,144) = 3.296$	
Step 3		
Int. religion	0.246	2.506
NORA	−0.104	−1.064
ORA	−0.028	−0.283
	$R^2 = 0.053$, $F(3,143) = 2.207$	

Discussion

The results of this study showed that the MS patients' unorganized religious activities were related to some demographic characteristics (i.e., gender, marriage status, and education level), and internal religion were related to MCS, which is one of the dimensions of SF-36 questionnaire. However, religious variables were not considered to be effective in prediction of physical and mental health.

The results of this study could be interpreted in a variety of ways. Although religiousness is an important feature of human behavior, there are few studies in the literature directly dealing with the possible relationship between religiousness and QoL. To our

Table 4 Results of multiple regression analysis for examining the effects of religious variables on MCS

Predictors	ß (standard)	*t* value
Step 1		
NORA	−0.084	−0.927
	$R^2 = 0.007$, $F(1,145) = 0.859$	
Step 2		
NORA	−0.117	−1.249
Int. religion	0.117	1.241
	$R^2 = 0.019$, $F(2,144) = 1.201$	
Step 3		
NORA	0.042	0.434
Int. religion	−0.129	−1.316
ORA	0.11	1.143
	$R^2 = 0.021$, $F(3,143) = 0.858$	

knowledge, this is the first study to examine the correlation between religion and QoL in MS patients in Iran.

Female or married MS patients were more religious than male or single ones. However, female and married patients were not significantly more religious than males and singles by most measures used in this study. The finding that females or married MS patients are generally more religious than male or single ones is consistent with the results of other studies. The results of a previous study performed in Greece to assess quality of life among the primary caregivers of MS patients indicated that the caregivers, particularly women, were highly religious. However, no significant correlation was observed between the dimensions of religion and QoL (Argyriou et al. 2011). Furthermore, the results of another study carried out in Iran disclosed that religious assistance was a kind of coping strategy, which was not used similarly by different age groups with different education levels (Seyyed Fatemi et al. 2006).

We did not find a positive relationship between QoL and religiosity scores, and if anything, there was in only between IR and QoL. This finding could be interpreted in a number of ways. The negative psychological effects of confronting death and suffering, particularly in religious patients, may give the impression that their beliefs have nothing to do with their ability to cope. This could shift MS patients' attention to other aspects rather than to the religiosity. This may be because QoL measures did not include spirituality/religiosity characteristics. This discrepancy may also be explained by reduced religious attendance due to progressive difficulties in mobility in these patients. Moreover, the reason that self-rated religiosity, like attendance, was not correlated with PCS and MCS may be that subjects may self-rate levels of religiosity based on their attendance in organized religious activities.

In our study, higher levels of religious affiliation could not predict QoL in patients with MS. This relationship was demonstrated in the multiple regression analysis after controlling for age, sex, and education level at baseline. These results are consistent with those of the studies that showed the impact of religiosity other disease states (Caqueo-Urízar et al. 2016; Mohr et al. 2012; Saeedi et al. 2015), but in contrast with those of some other studies. For example, a qualitative study was conducted in Canada to investigate the effects of religious groups or participation in church activities on health. The results demonstrated

that religious groups had lower high-risk behaviors and better social behaviors, but showed lower emotional well-being and physical health (Michaelson et al. 2015).

In another study, assessment of the relationship between religion/spirituality and physical health, mental health, and pain among the patients suffering from musculoskeletal disorders indicated that such individuals had different religious and spiritual beliefs compared to the society. These patients felt that the world did not intend to reduce their pain and God had left them alone. Furthermore, religious, spiritual, physical health, and mental health dimensions were interrelated, and individual religious activities, such as praying, meditation, and using religious media, were reversely related to physical health. In fact, individuals suffering from physical problems were inclined toward individual religious activities. On the other hand, generosity, negative religious coping, daily spiritual experiences, religious support, and self-ranking of religious/spiritual intensity were effective in predicting mental health level. Overall, the study results indicated that religion and spirituality were beneficial for patients with chronic disorders, but were accompanied with health costs, as well (Rippentrop et al. 2005). Some other studies have also revealed a negative relationship between pain and religious beliefs (NORA) and practices (ORA) in different patients (Büssing et al. 2009; Koenig 2009).

Another study investigated the effect of religion on the QoL and pain among patients with chronic pancreatic pain undergoing neurolytic celiac plexus block surgery. In that study, the patients were categorized into religious and non-religious groups. The results indicated that the intensity of pain decreased in both groups after the operation, but patients with weaker religious beliefs reported higher levels of pain before the operation. On the other hand, those who affiliated in organized religious activities, such as church activities, experienced less pain and higher QoL (Basiński et al. 2013).

It should be noted that this study was performed in the Iranian Islamic context. The Iranian society is a religious society where religious beliefs are highly prominent. Hence, these results could not be presumed to be meaningful for all sociocultural contexts. Therefore, association between religion and QoL should be considered based on cultural and individual differences. Accordingly, this issue is recommended to be evaluated from the perspective of different cultural communities.

Conclusion

Learning how to live with a chronic disease is a process, and professional caregivers can use various factors, including religion, emphasis on group religious activities, and internal beliefs, to train individuals regarding coping with this process. In Iran, individuals have strong religious beliefs; therefore, designing interventions in this area can increase the chance of success. Nonetheless, controversy of the results obtained in different studies indicates the necessity to perform wider researches on MS patients in different sociocultural groups.

It seems that religious involvement and religious activities together with daily praying could be used as a supporting factor for improving psychological health and QoL in chronic disorders, such as MS. Overall, the results of this study could be helpful for nurses and clinical specialists to promote MS patients' QoL using religion. Although religiosity has been associated with better QoL outcomes in many disorders, its impact on QoL in MS patients calls for investigation.

Limitations and Recommendations

The results of this study should be interpreted with caution due to following limitations. Several aspects in the present study warrant comments that need to be taken into consideration for future studies. First, the sample size was relatively small. Additional studies should be conducted with a larger sample to replicate the observed effects and investigate potentially underpowered smaller effects. Second, there are several variables that we did not measure but that may have contributed to the observed relation between religiosity, and QoL. These include social support and compliance with medication.

Moreover, the present study was conducted on Muslim MS patients, while most studies in this field have been performed on patients with other chronic disorders and other religious backgrounds, particularly Christianity. Moreover, our study findings indicated no significant difference between the male and female patients, which might be attributed to the fact that the majority of the cases were female. Hence, future case–control and randomized trial studies are recommended to be conducted.

Despite these limitations, the results of the present study are potentially important for the following reasons. Firstly, a limited number of studies have been conducted on the possible association between religiousness and QoL in MS patients using validated instruments. In this aspect, the present study is significant, although the results are restricted to a small group of MS patients.

Secondly, the results of this study can encourage further investigations about the role of religiousness in planning religious/spiritual programs in other specific populations of interest or a broader population. Hence, these studies can help develop effective interventions to improve the QoL in these patients.

A future direction for this study might be to assess how and to what extent the religiosity and religious affiliation of MS patients affect their QoL.

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Authors Contribution FV has contributed to the conception and design of the study, analysis and interpretation of data, drafting and revising the article, and final approval of the version to be submitted. AJ has contributed to the acquisition of the data, analysis and interpretation of data, drafting and revising the article, and final approval of the version to be submitted.

Compliance with Ethical Standards

Conflict of interest Author F. Vizeshfar has received research grants from Vice-Chancellor for Research Affairs of Shiraz University of Medical Sciences. Author A. Jaberi is a member of Student Research Committee. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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