Effects of religiosity and religious coping on medication adherence and quality of life among people with epilepsy

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ABSTRACT

The epidemiologic information demonstrates the importance of caring people with epilepsy (PWE). Indeed, the impaired quality of life (QoL) and medication nonadherence rate among PWE have been reported. However, religiosity and religious coping could be potential factors for clinicians to foster appropriate intervention on epileptic care. This study investigated two models to further understand the relationships between religiosity, religious coping (including positive and negative coping), medication adherence, and QoL in an Iranian sample with epilepsy. Eligible PWE (n = 760) completed the religiosity scale (Duke University Religion Index; DUREL) at baseline; the religious coping scale (Brief Religious Coping Scale; Brief RCOPE) one month later; the medication adherence scale (Medication Adherence Report Scale; MARS-5) two months later; and the QoL scale (Quality of Life in Epilepsy; QOLIE-31) twelve months later. Their antiepileptic drug serum level was measured during the period they completed the MARS. Through structural equation modeling (SEM), we found that religiosity directly correlated with negative religious coping and medication adherence, and indirectly correlated with medication adherence through negative religious coping. Both positive and negative religious coping directly correlated with medication adherence and QoL. Therefore, religiosity and religious coping may be determinants of medication adherence and QoL in PWE; health professionals may consider asking PWE if religion is important to them and how they use it to cope with their epilepsy.

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1. Introduction

Epilepsy is an important problem in developing countries because of the high incidence (~10 to 19 per 10,000 person-year) [1] and the negative impact of epileptic symptoms on quality of life (QoL) [2,3]. A recent review analyzed 45 articles [4] and concluded that Iran has a high prevalence of epilepsy (5% in central Iran; 1% in northern Iran; 4% in eastern Iran). As antiepileptic drugs (AEDs) have controlled symptoms [5] and QoL has improved [6,7], medication adherence is a key factor

in the lives of people with epilepsy (PWE). Unfortunately, the poor adherence to medication is a problem among PWE: medication nonadherence rates range between 30 and 50% [8–10]. Hence, improving medication adherence in this population should be a top priority.

In order to address medication adherence, we thought that religiosity and religious coping in Iran could be important determinants. Religiosity is a multidimensional concept, including personal religious beliefs (intrinsic religiosity), individual involvement in public religious activities (organizational religiosity), and private religious practices such as praying and reading religious texts (nonorganizational religiosity) [11, 12]. Moreover, the link between religiosity and epilepsy has been demonstrated among PWE (e.g., Wise–Knut) [13]; indeed, approximately 4% of PWE reported religious premonitory symptoms or auras [14]. An underlying mechanism also has been proposed: religious cognition is related to specific brain regions and people with brain disorder (e.g., PWE) may have neuropsychological processes that predispose them to greater religiosity [15]. Although to our knowledge, no studies have examined whether religiosity is positively related to medication

adherence among PWE, studies on people with HIV/AIDS show a positive relationship [16,17]. Therefore, we hypothesized that religiosity may be positively associated with medication adherence in PWE in Iran.

In addition to the direct relationship, religious coping could be a mediator in the relationship between religiosity and medication adherence. Religious coping is different than coping in general. According to the religious coping theory proposed by Pargament et al. [18], religious coping involves finding meaning, gaining control, gaining comfort, gaining intimacy with others and closeness to God, and achieving life transformation through religious methods. More general forms of coping do not usually include such methods. Religious beliefs and activities have been reported to be important strategies for coping with many diseases including cardiovascular diseases [19]. A relationship between religious coping and medication adherence has been found: negative religious coping was negatively related to self-reported medication adherence in people with inflammatory bowel disease [20]. Thus, we hypothesized that religiosity may affect medication adherence through religious coping.

We assume that religiosity, spirituality, and mood interact with one another. Pargament et al. [18] have defined spirituality as the key function of religion, and Koenig et al. [21] indicate that spirituality may (or may not) lead to or arise from the development of religious rituals. Moreover, the relationship between religiosity and psychiatric symptoms was found to be similar to, but not the same as the relationship between spirituality and psychiatric symptoms [22]. Other studies have found that mood is associated with religiosity/spirituality [23,24]. Therefore, we assumed that religiosity, spirituality, and mood are three related factors, while religiosity and spirituality are similar but different concepts.

Because better medication adherence is related to higher level of QoL [25,26], we additionally postulated that religiosity and religious coping may be indirectly correlated with QoL through medication adherence. However, research is mixed with regard to support of this proposition. Giovagnoli et al. [27] found a positive relationship between religiosity and QoL, whereas Tedrus et al. [12] reported no relationship between religiosity and QoL. Because mediated effects are usually weak, some studies may detect such associations while others may not. Hence, we considered using a mediated model to better understand the relationship between religiosity, medication adherence, and QoL. As for the religious coping, we hypothesized that it might also have a direct association with QoL for PWE as demonstrated by Tedrus et al. [28].

We proposed two models to examine the relationships among religiosity, religious coping, medication adherence, and QoL in an Iranian sample of PWE. Specifically, Model 1 (Fig. 1) hypothesized that religiosity would be positively associated with positive religious coping and medication adherence, and be negatively associated with negative religious coping; positive/negative religious coping would be positively/negatively associated with medication adherence; positive and negative religious copings would mediate the association between religiosity and medication adherence. Model 2 (Fig. 2) hypothesized that medication adherence would be positively associated with QoL and that positive and negative religious coping together with medication adherence would mediate the relationship between religiosity and QoL.

2. Methods

2.1. Participants

From 2015 to 2016, PWE were prospectively recruited from four neurology clinics in the cities of Tehran and Qazvin. Participants were included if they (a) were 18 years old or more, (b) had a diagnosis for epilepsy identified by the International League Against Epilepsy criteria [29]; and (c) had been prescribed antiepileptic drugs. Patients were excluded if they (a) were not able to provide consent or (b) had intellectual disability or cognitive impartment (as assessed using the mini-mental status examination: MMSE < 24 [30]). The study was approved by the Ethics Committee of Qazvin University of Medical Sciences, and all participants provided informed consent before enrolling in the study.
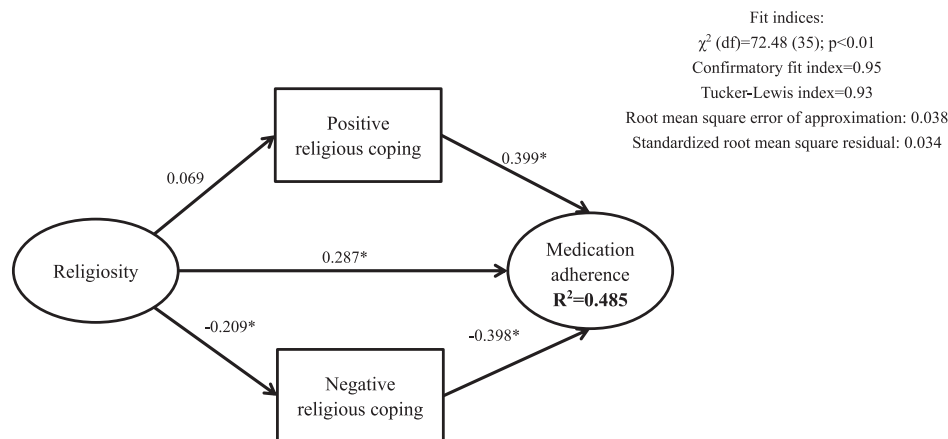
2.2. Measures

2.2.1. Religiosity: Duke University Religion Index (DUREL)

The DUREL, a five-item scale, was used to measure religiosity. The five items were made up of three dimensions: intrinsic religiosity (3 items), organizational religiosity (1 item), and nonorganizational religiosity (1 item). All items are rated on a five-point Likert scale [31]. As suggested by the developers, the three dimensions should not be summed to prevent effects canceling out each other [32]. Therefore, using latent construct to measure the religiosity seems most appropriate. In addition, the DUREL has been translated into Persian for use in Iranian populations using the standard translation process, cognitive debriefing, and psychometric testing. The internal consistency is high ($\alpha = 0.87$ and 0.92), the test–retest reliability is excellent (intraclass correlation coefficient = 0.96 to 0.99), and the concurrent validity is based on strong high correlations with the Santa Clara Strength of Religious Faith Questionnaire ($r = 0.62$ to 0.79) [33].

2.2.2. Religious coping: Brief Religious Coping Scale (Brief RCOPE)

The 14-item brief RCOPE measures positive (7 items) and negative religious coping (7 items). Positive religious coping emphasizes connections with a transcendent force and belief in a benevolent higher power;

Fit indices:
χ^2 (df)=72.48 (35); p<0.01
Confirmatory fit index=0.95
Tucker-Lewis index=0.93
Root mean square error of approximation: 0.038
Standardized root mean square residual: 0.034

Fig. 1. Model 1: relationships between religiosity, religious coping, and medication adherence. Religiosity was composed of intrinsic, organizational, and nonorganizational religiosity; medication adherence included antiepileptic drug serum level and Medication Adherence Report Scale (MARS) score. Age, gender, duration of illness, and education were adjusted for in the model. *p < 0.001.