

## **The Association between Religious Belief and Drug Adherence Mediated by Religious Coping in Patients with Mental Disorders**

Mohadeseh Movahedizadeh<sup>1</sup>, Mohammad Reza Sheikhi<sup>1</sup>, Saeed Shahsavari<sup>2</sup>, Hui Chen<sup>3</sup>

1 Department of Psychiatric Nursing, School of Nursing and Midwifery, Qazvin University of Medical Sciences

2 Health Products Safety Research Center, Qazvin University of Medical Sciences, Qazvin, Iran

3 School of Life Sciences, Faculty of Science, University of Technology Sydney, Ultimo, Australia

### **Abstract**

**Introduction:** Adherence to the drug regimen is an important factor in the treatment of patients with mental disorders. In some studies, religious beliefs have been shown to be effective for treatment adherence. The aim of this study was to investigate the association between religious beliefs and adherence to the medication regimen mediated by religious coping in patients with mental disorders.

**Methods:** In this cross-sectional study, 164 patients with mental disorders were selected through convenient sampling from educational centers in Qazvin city. Data was collected using a demographic questionnaire, March, and Santaklara's Religious Faithfulness questionnaire, and Pargament Religious Coping questionnaire. Data were expressed as mean  $\pm$  standard deviation and analyzed using descriptive and inferential statistics.

**Results:** The mean age of the patients was  $38.87 \pm 14.42$  years. The mean duration of the disease was  $5.71 \pm 5.78$  years. The mean of the religious belief score was  $30.90 \pm 5.96$ , the mean of the negative religious coping score was  $2.17 \pm 2.94$ , and the positive religious coping score was  $6.83 \pm 4.69$ . There was a positive and significant correlation between religious beliefs and the adherence to medication regime and positive religious coping. There was a negative and significant correlation between religious beliefs and adherence to the medication regime, and negative religious coping.

**Conclusion:** There was a positive and significant correlation between religious beliefs and adherence to medication regimen in patients with mental disorders. Religious beliefs were directly associated with positive religious coping and adherence to the medication regimen and were indirectly associated with negative religious confrontation.

**Keywords:** Religious beliefs, adherence to medicine, religious conflict

## **Introduction**

Psychiatric disorders are significant health concerns in both developed and developing countries.<sup>[1]</sup> It has been reported that 450 million people have been diagnosed with mental illnesses worldwide.<sup>[2]</sup> Noorbala et al. (2014), reported a prevalence of 21.5%, 34.2%, and 39.6% during the years 1999, 2008 and 2011, for psychiatric disorders, respectively.<sup>[3]</sup>

Currently, mental illnesses are treated both physically (using drugs) and mentally.<sup>[1]</sup> Proper use of medications plays a very important role in the control of chronic diseases, and is the key to the success of the treatment process. The duration of taking anti-psychoactive drugs (antidepressants and mood stabilizers) should be 4-6 weeks. The efficacy of such treatment can increase with prolonged adherence, but the discontinuation often results in the recurrence of .[4].the symptoms Medication adherence is the adherence to all instructions given to the patient by the therapist, including the administration methods and medication types <sup>[5]</sup>. Failure to adhere to the medication is a major factor in the hospital admission of a psychiatric patient. This can lead to delayed recovery from the acute phase of the disease, poor progression of chronic disease, and the need for advanced therapies.<sup>[6]</sup>

Patients have two concerns about the medication; the side effects and the need for managing the condition. Cooperation with the treatment process is very important, especially in chronic conditions, to control the disease and prevent poor prognosis. This is because mental disorders are generally progressive and poor adherence to the medication can lead to increased morbidity, the loss of quality of life, and ultimately the failure of the treatment <sup>[7]</sup>. The rate of non-acceptance of drug therapy in psychiatric patients in Iran has been reported to be between 13% and 93%, with an average of 40%. <sup>[6]</sup>.

Failure to adhere to medications can lead to the loss of the golden window for better recovery. Drugs for such diseases have several side effects that significantly influence patients' beliefs of the treatment. In addition, patients' adherence can be influenced by the type of disease, culture, and demographic factors. <sup>[8]</sup> Patients whose spiritual health is strengthened can better adapt to their illness even in the last stages of their diseases. Given the benefits to mental health, religious practice can provide positive coping strategies when dealing with stress. In addition, religiosity has been shown to be a protective factor against depression and anxiety.<sup>[9]</sup>

Personality change is common for those suffering from mental disorders, with permanent changes in behaviors, and thoughts. In addition to regular medicines, various therapies are used to manage the symptoms, one of which is to pray. In light of believing in God, individuals reach certain levels of confidence during spiritual development. Praying can influence the formation, alteration, as well as the stabilization of personality.<sup>[10]</sup> Spirituality and religion have become new paradigms to address the challenges of future life. They are a part of life in many individuals, and the degree to which individuals can commit to religious study is a strong indicator of their mental health status. Mental diseases also have a different nature, and these differences influence individuals' beliefs in the need for medication and concerns about the complications. Medication-related side effects can influence patients' adherence.<sup>[11]</sup>

The association between mental health and spirituality has drawn attention to some of the researchers in this field. Iranian studies have shown the positive and significant association between religious practice and spirituality, and physical and mental health status, as well as stress management strategies.<sup>[12]</sup>

It is believed that positive religious beliefs facilitate patients' exposure to negative psychosocial effects of chronic diseases. Also, negative spiritual beliefs can create passive reactions in patients and reduce their adherence to treatment and their health status. Spirituality can increase patients' ability to cope with the onset of illness and promote their recovery.<sup>[13]</sup> Performing religious practices such as praying is a mechanism that increases the sense of worthiness and hope. In general, performing religious rituals is a source of empowerment for the patients, which can accelerate their recovery.<sup>[14]</sup> Alton et al. studied the association between religious power in patients with schizophrenia and adherence to treatment. Patients with high levels of religious faith do not necessarily adhere to their treatments.<sup>[15]</sup>

In a review on the studies on religion/spirituality carried out in Islamic countries, 106 out of 341 studies (31%) indicated that religious practice and spirituality had an effect on suicidal attempts including committing, attempting, or suicidal planning. Regarding anxiety, about half of the 299 studies, revealed an inverse relationship between anxiety and religiosity, and 38 studies reported a 55% reduction in anxiety.<sup>[16]</sup>

In previous studies, the association between the variables affecting the adherence to medication regimen in various diseases, especially in patients with psychiatric disorders, has not been well defined. Therefore, this study aimed to assess the adherence to the medication regimen and the

strength of religious belief in patients with mental disorders. The findings of the current study can be used for designing educational programs to reduce the hospitalization of such patients, the burden on their family, and the healthcare costs.

## **Methods**

### ***Participants and settings***

This was a cross-sectional study conducted in 2018 on patients with mental disorders who were hospitalized in two teaching hospitals in Qazvin city, Iran. Based on the findings of a previous study<sup>[17]</sup> to achieve a 95% confidence interval and 90% test power, the sample size was estimated to be 136. Given a 20% probability of drop out rate, 164 patients were recruited.

Inclusion criteria were; the willingness to participate this study and signing the informed consent, being hospitalized in the psychiatric ward, age over 18 years, history of hospital admission due to mental illness, and not in an acute phase of the disease (being non-psychotic).

### ***Measurements***

***A demographic questionnaire*** was used to collect the information on age, gender, education, occupation, marital status, history of mental illness, duration of the illness, the number of hospital admissions, diagnosis, and history of substance abuse.

***The March Drug Adherence Questionnaire*** contains 9 items with a five-point Likert Scale from Never (score 1) to All (score 5). The total score of the questionnaire was calculated by adding the scores of each item, and a higher score indicated better adherence. Acceptable reliability based on the calculation of Cronbach's alpha coefficient was reported. The ICC correlation test showed desirable reliability for the whole scale (ICC > 0.706).<sup>[18]</sup> In this study, the validity of the questionnaire was assessed by consulting professors, and Cronbach's alpha coefficient was 0.87.

***The Santaclara's Religious Faithfulness questionnaire*** contains 10 items with a four-point Likert scale. Each item was scored from strongly disagree = 1 to completely agree = 4. The total score was between 10 and 40 and a higher score represented a stronger strength of faith. In the study by Pakpour et al., the validity and reliability of this questionnaire were confirmed by the Cronbach's alpha coefficient.<sup>[19]</sup>

***Brief RCOPE*** consists of 14 items to measure the ability of religious coping of a person when confronting a negative incident. It had a four-point Likert option from never (score 0) to very high (score 4). This questionnaire had two positive and negative religious coping strategies, with each

containing 7 items. A positive religious coping strategy was a coping style with which a person evaluates the negative events positively with 'God's help'. With a negative coping strategy, a person avoids the connection with God regardless. Pargament et al. confirmed the validity of this questionnaire. Additionally, its reliability reflected by the Cronbach's alpha coefficient was 0.80.<sup>[20]</sup>

### ***Procedures***

After obtaining the approval from the Ethics Committee of Qazvin University of Medical Sciences (code:1397.099. IR.QUMS.REC), the participants were recruited. The purpose and method of the study were explained to the patients. Before signing the written consent form, the voluntary and anonymous nature of the participation, the confidentiality of data management, and the availability of the findings on request were informed to them. For illiterate patients, the questionnaires were completed with the assistance of the researcher.s

### ***Statistical analysis***

The descriptive statistical method was used to describe the characteristics of the patients. Chi-square, Wilcoxon test, or t-test (where appropriate) were used for certain characteristics (i.e., demographics, medical history, and clinical information). Mediation adherence analysis was performed using the mediation SPSS macro PROCESS developed by Preacher and Hayes. The significance of the indirect effects was examined using the bootstrapping techniques based on 5,000 resamples to determine the 95% confidence limits.

Data were expressed as mean  $\pm$  standard deviation and analyzed using the SPSS software (version 22). The significance level was set at  $p < 0.05$ .

### **Results**

In this study, among the 164 patients with mental disorders participated, 50% were male and 50% were female. Their mean age was 38.87 years with a standard deviation of 14.42 with the age range from 19-60 years. The duration of the disease was reported as  $5.71 \pm 5.78$  years with a range of 1-39 years. The marital status of the participants in this study was single (29.9%), married (59.9%), divorced (6.1%) and widowed (6.1%). Furthermore, 11.6% were illiterate, 31.7% were below diploma, 25% had a diploma, 9.8% had associate degrees, 19.5% had bachelor degrees, and 2.4% had higher education degrees. Regarding occupation, 16.5% of them was self-employed, 8.5% were employee, 1.2% were military, 25.6% were unemployed, 11.6% were laborer, 4.3% were

retired, and 32.3% were housekeepers. Also, 28.7% of the patients were hospitalized once and the average number of admissions was  $3.3 \pm 53.01$  with a range of 0-17 times. Most of them used 2-3 types of drugs per day (50%) and the most frequent drug use was 3 times a day (52.4%). The mean frequency of drug use per day was  $0.96 \pm 3.09$  with a range of 1-4 times. The most commonly reported causes for drug rejection were the inability to feel the emotion (66.7%) and mental stress (60.8%). The mean score of religious faithfulness was  $30.99 \pm 5.39$  with a range of 13-40. Gender, marital status, occupation and the number of drugs consumed per day had a statistically significant effect on religious faithfulness ( $p < 0.05$ ). Furthermore, gender, education, occupation, and admission number had a significant effect on adherence to medication regimen ( $p < 0.05$ ). (Table 1).

The negative religious coping score ( $2.17 \pm 2.94$ ) was significantly lower than the mean score of the whole scale and the positive religious coping score ( $4.69 \pm 6.83$ ) was similar as the average score of this scale. There was a positive and significant association between religious belief and adherence to medication regime and positive religious coping. However, between the religious belief and adherence to the medication regimen, and negative religious coping, a significant negative correlation was found. There was a positive and significant association between positive religious coping and adherence to medication regimen ( $p < 0.05$ ). Therefore, the preconditions of the mediator model were provided to assess the mediating role of the religious coping variables. Using the SPSS Macro test, mediating effects of two variables of positive and negative religious coping strategies between religious strength and adherence to medication regime were investigated. The effects of age, gender, and education were moderated as confounding factors in the mediation. As shown in Figure 1, two variables of positive and negative religious coping strategies had a significant relationship with the strength of religious faith. The strength of religious faith significantly affected these constructs ( $p < 0.01$ ). Furthermore, the direct effects of two variables of positive and negative religious coping strategies on medication adherence (as a dependent variable) were statistically significant ( $p < 0.01$ ). Furthermore, the overall effect of religious faithfulness on the behavior of medication adherence was statistically significant ( $SE = 0.08$ ,  $\beta = 0.28$ ). It should be noted that the effect of age, gender, education, and duration of the disease was adjusted in the model. Therefore, the confounding variables had no significant effect on the mediator's relationships. In this model, the indirect effect of religious faithfulness on medication adherence was significant ( $\beta = 0.26$ , confidence interval = 0.33-0.38). The significant

indirect effect of religious beliefs was obtained through positive religious coping with an effective coefficient of 0.16 (confidence interval of 0.27-0.04). Religious strength indirectly affected medication adherence through negative religious coping with a coefficient of 0.9 (confidence interval 0.03-18.0). It should be noted that this model predicted 24 percent of changes in the behavior of medication adherence.

## **Discussion**

Adherence to treatment plays a very important role in the management of mental disorders. Since one of the factors influencing adherence to treatment is patient's belief and perception of the treatment, in the current study, the association between the level of religious beliefs and adherence to medication regime in patients with mental disorders was studied.

Here, patients with mental disorders displayed high scores of religious faithfulness ( $30.39 \pm 5.96$ ). This is similar to a study by Elton et al., where religious beliefs in patients with mental disorders were reported as 36.31.<sup>[15]</sup>

In this study, the sense of religious belief was stronger in women than in men. In other words, gender had a significant impact on religious beliefs. Nawabakhsh et al. showed that girls were more religious than boys. According to the life of prophets and their followers, the first followers of the prophets were women, maybe due to stronger emotions. This was considered by a group of mystics as the strong connection between women and spiritual realms.<sup>[21]</sup>

In the present study, marital status had a significant effect on religious beliefs. In a study by Fokuri et al., single students had a higher percentage of religious beliefs than married students.<sup>[22]</sup> In Zakavi's study, religious attitudes in married students were higher than single students, but without statistical significance<sup>[23]</sup>, which is in contrast to the results of this study.

This study is consistent with several other studies confirming that demographic characteristics, such as age, gender, and educational level, can affect patients' adherence to the treatment. In a study on the desire for treatment in patients with bipolar disorders, an emphasis was placed on the significant association between the demographic factors and patients' adherence to the treatment<sup>[24]</sup>

In the current study, a significant association was found between the education level and adherence to the medication regimen. A study on two groups of patients with different conditions, asthma and renal transplantation, showed that patients with higher education had more cooperation with

clinicians on treatment<sup>[25]</sup> However, in a group of cancer patients, there was no correlation between the adherence to treatment and the level of education. However, all patients had good adherence to the treatment regardless of the educational level, which would be probably due to the nature of the condition and their mental status,<sup>[25]</sup> which was in line with the result of the current study .In the present study, adherence to the medication regimen had a significant association with the occupation. In the study by Asayeshi et al., there was no correlation between job satisfaction and patients' compliance with medication adherence,<sup>[26]</sup> which was different from the results of this study.

In this study, religious beliefs or religiosity affected the adherence to medication regime. Zagożdżon also suggested that although religious beliefs were not associated with good adherence to medication regimen in patients with schizophrenia, it improved mental orientation and tendency as an important aspect of recovery from the disease.<sup>[27]</sup> It has also been suggested that in religious people with anxiety or depression, adherence to medication regimen was greater than that of non-religious people with the same condition, however, there was no strong evidence to support such conclusion.<sup>[27]</sup>

According to Kunig's study, religious people were more involved in the treatment process and more likely to accept prescribed medical treatment.<sup>[16]</sup> In this study, religiosity was directly related to negative religious coping, as well as adherence to medication. It was indirectly associated with medication adherence through negative religious coping. Both positive and negative religious coping strategies were directly associated with medication adherence. Thus, religiosity is directly related to adherence to medication regimen through negative and positive religious copings. In the study by Lin, a positive association between religiosity and adherence to medication regimen through negative coping strategies was supported.<sup>[28]</sup> However, Freitas et al. <sup>[29]</sup> showed that negative religious coping had a negative association with adherence to medication regimen in patients with inflammatory bowel diseases, which was contradictory to the other studies. A significant correlation between positive religious coping and medication adherence has also been reported in this study. Differences in results can be due to the differences in methods and participants. .Freitas et al.'s study was on Brazilian population, while our study was on Iranian population. Since these ethnic groups have different religious beliefs, the effects of religious coping may also be different<sup>[29]</sup>. Future studies should determine the validity of these propositions. However, the association between negative religious coping and medication adherence in the



current study and the study by Freitas et al. suggests that health care professionals should consider patients' negative religious coping and beliefs to increase their adherence to medication regimen<sup>[29]</sup>.

The limitation of this study is that the questionnaires were completed through interviewing and self-reporting. The patients might have different degrees of adherence, which could be biased therefore does not correspond to the reality. In addition, the present study was performed among patients with mental disorders admitted to the hospital; therefore, the findings cannot be generalized to all patients with mental disorders.

### **Conclusion**

The results of this study showed a positive and significant association between religious believe and adherence to medication regimen in patients with mental disorders. Religion is also directly associated with negative religious coping and adherence to medication, and indirectly with adherence to medication through negative religious coping. Given the strong influence of religion and spirituality on physical and mental health status, the healthcare professionals can consider to adopt religion and spirituality related strategies to prevent and treat certain diseases.

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Table 1. Comparison of the religious faithfulness and acceptance of medication regime using demographic variables				
Variable	Religious faithfulness Mean ± SD	test, p-value	Medication adherence Mean± SD	test, p-value
Gender		t=-2.34, p=0.20		t=-3.08, p=0.002
Male	29.32±6.30		19.44±5.09	
Female	31.47±5.43		21.62±3.91	
Age		f =1.86 (df=3,160)		f= 2.46 (df=3,160)
30 years	29.38±6.22		2.29±4.52	
31-40	29.89±5.69	p=0.139	20.36±5.19	p=0.064
41-50	32.03±5.52		22.08±3.56	
51-60	31.76±6.57		18.59±4.53	
Marital status		F= 4.0 (df=3,160)		F=1.41 (df=3,160)
Single	28.31±6.49		19.78±5.22	
Married	31.65±5.42	p=0.008	21.06±4.47	p=0.243
Divorced	28.3±5.23		21.00±4.08	
Widow	30.80±6.37		18.70±3.31	
Education level		f = 1.01 (df=5158)		f =3.10 (df=5158)
Illiterate	30.42±6.08		19.11±4.48	
Below diploma	29.92±6.21	p=0.317	19.06±5.21	
Diploma	32.27±5.55		21.49±4.38	
Associate degree	29.12±6.77		20.56±4.26	p=0.011
Bachelor	29.53±5.69		22.09±3.68	
Master and PhD	29.25±3.59		24.01±2.01	
Occupation		f =4.615 (df=6157)		f= 3.19 (df=6157)
Self-employed	30.19±4.49		20.41±4.82	
Employee	29.43±4.01		21.86±4.09	
Military	19.5±9.19		13.0±5.66	p=0.005

Unemployed	31.79±6.29	p=0.0001	20.17±4.87	
Worker	27.85±10.17		19.79±4.08	
Retired	32.85±5.19		15.43±4.43	
Housekeeper			21.25±4.16	
Frequency of admission		f= 0.862 (df=3,160)		F=7.789 (df=3,160)
0-1	31.53±4.67	p=0.462	22.81±2.76	p=0.0001
2-3	30.08±6.33		20.15±5.11	
4-5	29.43±5.42		20.39±4.36	
6 or more	30.03±7.19		18.09±4.84	
Number of drugs per day		F= 4.05 (df=3,160)		f= 0.592 (df=3,160)
1	34.0±1.0	p=0.008	19.33±3.21	p=0.62
2-3	30.47±6.08		20.25±4.97	
3-5	30.09±5.90		21.09±4.07	
±5	30.57±6.38		19.79±5.56	

Figure 1. The association between Religious belief and adherence to medication regimen mediated by religious coping strategies.

