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ORIGINAL ARTICLE

Religiosity, depression, and quality of life in bipolar disorder: a two-year prospective study

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Objective: Few quantitative studies have examined the effect of religious involvement on the course of bipolar disorder (BD). We investigated the effects of religious activity and coping behaviors on the course of depression, mania, and quality of life (QoL) in patients with BD.
Methods: Two-year longitudinal study of 168 outpatients with BD. Linear regression was used to examine associations between religious predictors and outcome variables (manic symptoms, depression, QoL), controlling for sociodemographic variables.
Results: Among the 158 patients reassessed after 2 years, positive religious coping at T1 predicted better QoL across all four domains: physical (β = 10.2, 95%CI 4.2 to 16.1), mental (β = 13.4, 95%CI 7.1 to 19.7), social (β = 10.5, 95%CI 3.6 to 17.33), and environmental (β = 11.1, 95%CI 6.2 to 16.1) at T2. Negative religious coping at T1 predicted worse mental (β = -28.1, 95%CI -52.06 to -4.2) and environmental (β = -20.4, 95%CI -39.3 to -1.6) QoL. Intrinsic religiosity at T1 predicted better environmental QoL (β = 9.56, 95%CI 2.76 to 16.36) at T2. Negative religious coping at T1 predicted manic symptoms (β = 4.1) at T2.
Conclusion: Religiosity/spirituality (R/S) may influence the QoL of patients with BD over time, even among euthymic patients. Targeting R/S (especially positive and negative religious coping) in psychosocial interventions may enhance the quality of recovery in patients with BD.

Keywords: Bipolar disorder; religion; spirituality; quality of life; mania

Introduction

Despite the therapeutic advances achieved to date, bipolar disorder (BD) remains one of the mental disorders with the greatest global burden. In 2010, BD ranked fourth among mental conditions causing the most years lived with a disability (YLDs) in the world. BD accounted for 7.4% of YLDs, which is the same proportion as schizophrenia.[1] In addition to disability, a recent review indicated that mortality risk in BD patients is double that of the general population.[2] Depressive symptoms, including subsyndromal ones, are responsible for most of the burden that is associated with BD in terms of functioning, quality of life (QoL), economic loss, and suicide. On average, bipolar patients experience mood symptoms (usually depression) in half of their weeks.[3]

BD treatment is still suboptimal, and considerable room for improvement remains. Additionally, there has been a growing concern that BD patients, even when euthymic, experience sustained impairment in functioning and QoL in various domains, such as work and social and family life.[4,5] A recent study of 166 patients found no difference between the QoL levels of patients with schizophrenia and those of BD patients in remission.[6] Therefore, greater focus on a broader range of psychosocial outcomes, in addition to symptomatic improvement, is needed. Predictors of QoL and functionality in BD must be identified to develop psychosocial approaches that can supplement psychopharmacotherapy, to help patients achieve full recovery (both symptomatic and functional).[3,5]

Many studies have shown that religiosity and spirituality (R/S) are psychosocial factors that affect disease progression, QoL, and survival in both clinical and nonclinical populations.[7-9] Research on the relationship between R/S and depression has shown that religious affiliation, church attendance, intrinsic religiosity (religion as "an end in itself" and occupying a central role in one's life), and positive religious coping (PRC) are usually associated with lower depressive symptoms. In contrast, other expressions of R/S, such as extrinsic religiosity (where R/S is used to obtain other ends, such as security, distraction, and socialization) and negative religious coping (NRC), are associated with higher depressive symptoms.[10] Religious coping refers to the way that patients employ religious beliefs and behaviors in understanding and adapting to stress. Some forms of PRC are collaboration with God in solving problems and benevolent religious appraisals of the illness. NRC is usually less common than PRC, and manifests itself in religious struggles, such as interpreting the disease as a punishment from God, questioning the love or power of God, or conflicts with the religious community.

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A number of longitudinal studies suggest that R/S has a positive effect on the course of depressive disorders, both in terms of QoL and resilience, and on overall clinical improvement.[11-13]

Few studies, however, have examined the relationship between R/S and BD. Although there are reports in the literature of cases of florid R/S delusions in BD patients (especially in the manic phase), there have been few cross-sectional studies and almost no high-quality longitudinal studies with large samples examining the relationship between R/S and symptoms over time.[14] A previous review found only five studies on R/S and BD from 1957-2008.[14] These studies involved small samples, used diverse methods, and reported conflicting findings. They reported a greater frequency of reports of conversion and experiences of salvation,[15] higher frequency of the use of religious coping,[16] greater presence of mystical symptoms,[17,18] and greater religious involvement[19] in BD patients.

Two large cross-sectional studies of BD and R/S published in the past decade investigated relationships between R/S, mood symptoms, and QoL. Based on a sample of 334 outpatients with BD, a higher frequency of prayer and meditation was associated with a mixed BD state (OR = 1.29; 95% confidence interval [95%CI] 1.10 to 1.52), and a lower frequency was found among euthymic bipolar patients (OR = 0.84, 95%CI 0.72 to 0.99).[20] In the second study, 168 outpatients with BD found significantly lower levels of depression in patients with higher intrinsic religiosity (OR = 0.19; 95%CI 0.06 to 0.57) and PRC (OR = 0.25; 95%CI 0.09 to 0.71). Intrinsic religiosity and PRC were also associated with better QoL, while NRC was associated with worse QoL.[21]

Cross-sectional studies in different countries and sociocultural contexts have found that R/S is often a primary coping strategy used by patients with BD.[22] Given that most of these data are cross-sectional, the causal direction is not known. To our knowledge, only two longitudinal studies have examined the effects of R/S on the natural history of BD. One study followed young adults with schizophrenia (n=22) or BD (n=26), and found that NRC predicted greater self-reported distress and personal loss during 1 year of follow-up, after controlling for gender and age.[23,24] In the second study, which assessed 46 adolescents with BD, higher church attendance predicted better functioning at 1-year follow-up; however, no attempt was made to control for sociodemographic variables.[25] To better understand the nature of the association between R/S and BD and inform treatment approaches, additional longitudinal studies and studies to identify which aspects of R/S impact BD outcomes are needed.

Within this context, the objective of this study was to examine the effects of several dimensions of religiosity (affiliation, organizational, private, intrinsic and religious coping) on symptoms of depression, mania, and QoL in BD patients over time. Our hypothesis was that religiosity and PRC would predict fewer depressive symptoms and better QoL, while NRC would predict increased depression and worse QoL.

Methods

In this 2-year prospective study, baseline data were collected between August and December 2011 (T1) and participants were followed for 24 months through 2013 (T2). The study was approved by the ethics committee of Hospital Universitário da Universidade Federal de Juiz de Fora (HU-UFJF) (protocol no. 315559).

Participants

Participants were enrolled from the Mood Disorders Program of the HU-UFJF Department of Psychiatry. Inclusion criteria were age 18 years or older, BD diagnosis by DSM-TR,[26] and being in treatment for at least 1 year. The Mood Disorders Program serves patients with BD and severe recurrent depressive and schizoaffective disorders and provides public mental health services in the city of Juiz de Fora (Minas Gerais, Brazil).

Of 182 patients who met the inclusion criteria, 168 agreed to participate and provided written informed consent. Participants had been treated for a mean of 6.7 years (range: 3-25 years). Further details on the recruitment process have been provided elsewhere.[21] At 2-year follow-up (T2), 158 patients were re-interviewed. Ten participants were lost to follow-up: four died (three of cardiovascular causes and one due to chronic obstructive pulmonary disease), four moved without providing forwarding addresses, and the whereabouts of two were unknown.

Measures

Demographic, social, and clinical data, such as age, gender, skin color, education, employment status, marital status, and disease duration and treatment, were collected at baseline by personal interview and through medical records.

Mania

The Young Mania Rating Scale (YMRS), in its adapted and validated Portuguese-language version, was administered. The YMRS contains 11 items that cover the main symptoms of mania as defined in the DSM-IV.[27] The cutoff point for mania is 12 points, and the overall scales ranges from 0 to 68, with higher scores indicating greater severity. The tool is easy to use and has robust psychometric characteristics for evaluating the presence and severity of manic symptoms.[28,29]

Depression

The Brazilian version of the Montgomery-Åsberg Depression Rating Scale (MADRS) was used. It consists of 10 items, which range from 0-60 points, and has a cutoff of 10 for remission of depression.[30,31]

Quality of life

The Portuguese version of the WHOQoL-BREF is the product of an international collaborative study organized by the World Health Organization (WHO). This instrument has 26 questions, of which two are general and 24 relate to four QoL domains: physical, mental, environmental, and social.[32,33]

Religiosity

Single items were used to assess religious affiliation, disagreement between the religious leader and doctor regarding treatment, and the interference of such disagreement with treatment (with item responses ranging from 1, completely true for me, to 5, not true).

The Portuguese version of the Duke Religious Index (DUREL) was used to assess religiosity. The DUREL has five items, is self-rated, and indicates level of religious involvement. It addresses the following three religious dimensions: organizational religiosity (OR) (''How often do you go to church, temple, or religious meetings?''), which was dichotomized for analysis into $\geqslant$ or $<$ 1x/week); private religiosity (PR) (''How much time do you devote to private religious activities, such as prayer, meditation, or the reading of sacred or religious texts?''), which was dichotomized for analysis into $\geqslant$ or $<$ 1x/day); and three intrinsic religiosity questions (IR) (e.g., ''My religious beliefs underpin my whole life's purpose''), where $\geqslant$ 10 points indicates the presence of IR, which indicates answers of ''tends to be true'' and ''definitely true for me.''[34,35]

Religious coping

This was a modified scale consisting of 14 items taken from the Religious Coping Scale (RCOPE), which has been translated to and validated in Portuguese. Patients were asked to rate how much they used the 14 listed religious coping strategies to deal with the major problem they faced in the last 3 years. Seven positive RC items (e.g., ''I tried to put my plans into action with God,'' ''I looked for a place of worship or prayer,'' ''I tried to see how God would strengthen me in this situation'') and seven negative RC items (e.g., ''I thought it was a punishment from God,'' ''I felt excluded from my religious environment,'' ''I did not do much, I just waited for God to solve my problems'') were selected.[36,37] One of the NRC items (''I wondered whether God really cared about me'') was confusing to patients, and was therefore excluded from the analysis. PRC was considered present if the subscale score was $\geqslant$ 20, and NRC was considered present if the subscale score was $\geqslant$ 16.

Statistical analysis

A descriptive analysis was performed, with variables presented as mean $\pm$ standard deviation (SD) or n (%). Student's *t* test for dependent samples was used to evaluate the change in clinical and religious variables between T1 and T2. Random-effects linear regression models were used to test the effect of religiosity at T1 on QoL, mania, and depression at T2, after controlling for sociodemographic data. The alpha level was set at $p \leqslant 0.05$.

Results

Table 1 presents the clinical, sociodemographic, and religious characteristics of participants at T1 and T2. The sample was predominantly composed of middle-aged (mean age 46.2$\pm$10.01) white women with low educational attainment (6.8 years of schooling), low income, and high religiosity.

Over the 2 years of follow-up, there was a significant reduction in symptoms of mania (from 3.1$\pm$5.9 to 0.9$\pm$3.3; $p < 0.001$) and depression (7.7$\pm$10.3 to 4.7$\pm$7.9; $p = 0.001$). At T2, 75.3% of patients were euthymic, 20.3% had depression, and 4.4% had hypomania or mania. There was a slight but statistically significant increase in intrinsic religiosity and PRC, as well as an increase in QoL in the physical and mental dimensions.

Table 1 Demographic, clinical, and religious characteristics at T1 (n=168) and T2 (n=158)

Characteristics	T1	T2	p-value
Female gender, n (%)	137 (81.5)	131 (79.5)	
Religious affiliation, n (%)			
Catholic	90 (53.6)	85 (53.0)	
Evangelical Christian	48 (28.6)	46 (29.0)	
Others	10 (6.0)	9 (6.0)	
None	20 (11.9)	18 (12.0)	
Depression	**7.67 (10.27)**	**4.73 (7.86)**	**0.001**
Mania	**3.06 (5.92)**	**0.94 (3.28)**	**0.001**
Organizational religiosity	4.14 (1.65)	4.05 (1.43)	0.393
Private religiosity	4.37 (1.60)	4.41 (1.37)	0.890
Intrinsic religiosity	**12.32 (2.91)**	**13.67 (1.68)**	**0.000**
Disagreement of leader	4.21 (1.15)	4.16 (1.12)	0.732
Treatment interference	4.43 (1.04)	4.31 (1.04)	0.333
Positive religious coping	**18.80 (4.45)**	**20.99 (4.50)**	**0.000**
Negative religious coping	9.55 (2.77)	9.15 (2.73)	0.148
Physical quality of life	**47.74 (21.75)**	**52.78 (19.61)**	**0.022**
Mental quality of life	**48.74 (23.12)**	**53.69 (20.94)**	**0.015**
Social quality of life	49.44 (26.20)	53.69 (22.03)	0.157
Environmental quality of life	47.80 (18.29)	46.69 (16.46)	0.374

Data presented as mean (standard deviation), unless otherwise specified.
Bold type indicates statistical significance ($p < 0.05$).

Table 2 shows the effects of religiosity variables at T1 on mood symptoms and QoL at T2, controlling for gender, age, skin color, and marital status. Disagreement of religious leaders regarding treatment was not associated with outcomes at T2. A significant association was found between R/S variables at T1 and mood symptoms at T2; NRC at T1 significantly predicted manic symptoms at T2 ($\beta = 4.09$, $p = 0.02$).

Religious coping at T1 had a significant effect on all QoL domains (physical, mental, social, and environmental) at T2. PRC was associated with better QoL, whereas NRC was associated with worse QoL. In addition, intrinsic religiosity at T1 predicted better environmental QoL at T2. Compared with Catholics, participants who reported affiliation o "other religions" had worse environmental QoL at T2.

Discussion

The main finding of this 2-year prospective study was a significant effect of religiosity variables on QoL, even in a predominantly euthymic patient population. Higher PRC at T1 predicted a score 10 to 13 points higher in all QoL dimensions at T2 compared to those with lower PRC. In contrast, higher NRC at T1 predicted a score 20 and 28 points lower in environmental and mental QoL at T2, respectively, compared to those with lower NRC.

Unlike the cross-sectional analysis at T1, when IR and PRC were found to relate to lower depression (OR = 0.19 and 0.25, respectively), R/S dimensions at T1 did not predict depression levels at T2.[21] A possible explanation is that the mean depressive symptoms decreased from 7.7 at T1 to 4.7 at T2, which is well below the cutoff for remission of depression ($\leqslant 10$) (floor effect). An unexpected finding was the correlation between NRC in T1 and mania at T2, which might indicate worse mood stabilization related to NRC or, perhaps, a casual finding. It would be useful to see if future prospective studies replicate this finding.

Recent discussions with regard to the treatment of BD patients have argued that, in addition to achieving a remission of symptoms, it is also important to improve QoL and ability to function. In our study, R/S and religious coping in particular influenced changes in QoL over time. These findings are promising, given that a major shortcoming of current therapies for BD is limited improvement in QoL.[3,5]

Religious coping relates to the use of religious resources (beliefs, practices, cognitive framework, and participation in religious services or volunteer work) in order to adapt to challenging circumstances. PRC, such as seeking to draw a lesson from God when faced with problems or seeking to do one's own part and leave the rest in God's hands, predicted an increase in QoL over time. In contrast, NRC strategies, such as taking a passive approach by delegating to God the resolution of one's problems or attributing one's problems to divine punishment or negative spiritual influences, predicted a decline in QoL.

To our knowledge, this was the first longitudinal study with a relatively large sample to evaluate the effect of R/S on the course of BD. Our findings are consistent with longitudinal studies showing that R/S has positive effects

Table 2 Effect of religious characteristics at T1 on QoL and clinical outcomes at 2-year follow-up (T2) (n=158)

Religious characteristics	Mania		Depression		Physical QoL		Mental QoL		Social QoL		Environmental QoL	
	Beta	95%CI	Beta	95%CI	Beta	95%CI	Beta	95%CI	Beta	95%CI	Beta	95%CI
Organizational religiosity	-0.30	-1.40 to 0.80	-0.71	-3.32 to 1.91	1.40	-4.75 to 7.55	2.30	-3.64 to 9.63	-0.60	-7.66 to 6.45	3.10	-2.10 to 8.31
Private religiosity	-0.21	-1.37 to 0.96	-0.93	-3.70 to 1.84	-0.16	-6.79 to 6.46	0.87	-6.29 to 8.04	-1.20	-8.80 to 6.39	-0.70	-6.31 to 4.95
Intrinsic religiosity	0.61	-2.53 to 3.74	2.23	-5.21 to 9.67	3.01	-5.18 to 11.20	7.78	-1.00 to 16.56	5.99	-3.36 to 15.34	**9.56**	**2.76 to 16.36**
Positive religious coping	0.54	-0.60 to 1.69	-0.55	-3.26 to 2.16	**10.17**	**4.22 to 16.11**	**13.41**	**7.10 to 19.73**	**10.46**	**3.60 to 17.33**	**11.15**	**6.22 to 16.07**
Negative religious coping	**4.09**	**0.63 to 7.54**	0.50	-7.85 to 8.84	-21.10	-43.31 to 1.10	**-28.10**	**-51.96 to -4.22**	-25.35	-50.78 to 0.07	**-20.45**	**-39.26** to **-1.64**
Disagreement of leader	-0.09	-1.24 to 1.06	2.39	-0.31 to 5.09	-2.12	-8.93 to 4.70	0.28	-7.09 to 7.66	-0.01	-7.88 to 7.76	0.24	-5.55 to 6.04
Interference in treatment	-0.29	-1.49 to 0.91	1.65	-1.19 to 4.49	-1.05	-6.30 to 8.41	1.99	-5.95 to 9.94	2.22	-6.20 to 10.64	1.22	-5.02 to 7.47
Religious affiliation*												
Evangelical Christian	-0.47	-1.70 to 0.76	-2.15	-5.11 to 0.82	-0.72	-7.72 to 6.28	-1.14	-8.69 to 6.41	-2.28	-10.31 to 5.75	-2.07	-7.95 to 3.82
Other	2.14	-0.24 to 4.52	-1.90	-7.62 to 3.82	-9.73	-24.09 to 4.62	-13.58	-29.07 to 1.91	-16.61	-33.08 to -0.12	**-15.13**	**-27.20** to **-3.06**
None	-1.18	-2.99 to 0.63	-1.34	-5.71 to 3.03	-9.07	-19.21 to 1.07	-9.21	-20.15 to 1.74	-1.87	-13.52 to 9.76	-7.07	-15.60 to 1.46

95%CI = 95% confidence interval; QoL = quality of life.
Linear regression controlled for gender, age, skin color, civil status.
Significant results are in bold.
* Reference group is Catholicism.

on the course of depressive symptoms and QoL in depressed patients.[11-13]

Because pharmacotherapy has relatively limited effects on QoL and functionality, psychosocial interventions – such as psychoeducational programs and psychotherapy – are needed to address these outcomes in BD.[3,5] Recent reviews have reported that therapeutic interventions in mental health that use aspects of R/S, especially spirituality-modified cognitive behavioral therapy, have had positive effects on depression and anxiety symptoms.[37,38]

This and other studies indicate that use of religious coping by bipolar patients to deal with their symptoms is common.[22] Religious coping is therefore a potential therapeutic target both in psychoeducation and psychotherapy for BD. Given the positive and negative impact of religious coping on the course of BD, identifying and supporting PRC strategies and seeking to resolve NRC (or referring patients to other professionals, such as religious ministers or pastoral counselors) may be effective ways to help BD patients cope with their disease.[23,24]

It is noteworthy that, when data were collected at T1, the subject of R/S was often brought up by patients themselves. It is possible that participation in the study encouraged individuals to reflect on and discuss their R/S and resume abandoned religious habits, which could explain the increase in R/S between T1 and T2. There is evidence that simply taking a spiritual history, even if short (2-5 minutes), is associated with greater satisfaction with treatment and better QoL. The spiritual history has been recognized as a relatively simple practical way to integrate spirituality into patient care.[39]

Given the high level of R/S in Brazil and other parts of the world and the fact that R/S can have either a positive or a negative impact on mental health, the World Psychiatric Association recently published a Position Statement on Spirituality and Religion in Psychiatry that states "a tactful consideration of patients' religious beliefs and practices as well as their spirituality" should be a part of patient evaluation and may also have implications for treatment.[40]

The present study has several limitations. First, the study was performed in Brazil, where the population has a high level of religiosity.[41] There is some evidence that the strength of the relationship between R/S and health may be influenced by the extent to which a country is religious. Thus, care must be taken in generalizing these findings to other sociocultural contexts, although R/S has also been found to be important for BD patients in places such as the USA,[20] New Zealand,[19] Nigeria,[25] and Turkey.[22] Given that this is an observational study, causal inferences must be made cautiously. Also, the association between R/S at T1 and QoL at T2 might reflect a difference already existing at T1. However, this probably cannot fully explain our findings, since associations between religious coping and QoL on cross-sectional analysis at T1 were fewer and weaker.[21] In addition to replication of these findings in other sociocultural contexts, it is important to conduct clinical trials involving psychosocial interventions that integrate R/S into the care of BD patients to determine if doing so is associated with improvements in QoL and clinical outcomes above those provided by standard care.

Our results suggest that intrinsic religious involvement and religious coping strategies may influence the course of symptoms and QoL in BD patients. These findings underscore the need to identify the religious coping strategies used by patients, and support positive strategies while addressing negative ones. Identifying and modifying religious coping strategies may help relieve suffering and stress among BD patients who are religious or spiritual. Together with pharmacotherapy, the integration of R/S into psychosocial interventions may help increase QoL and improve functioning in BD patients, thus increasing the likelihood of a better and longer-lasting recovery.

Disclosure

The authors report no conflicts of interest.

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