Research report

Intrinsic religiosity, resilience, quality of life, and suicide risk in depressed inpatients

Bruno Paz Mosqueiro*, Neusa Sica da Rocha, Marcelo Pio de Almeida Fleck

Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil

A R T I C L E  I N F O

Article history:
Received 27 December 2014
Accepted 12 March 2015
Available online 21 March 2015

Keywords:
Intrinsic religiosity
Resilience
Depression
Suicide risk
Quality of life

A B S T R A C T

Background: Religiosity is inversely related to depression and is directly associated with positive psychological outcomes. Nonetheless, there is no consensus on whether or how religiosity could impact and protect against depression. The present study evaluated the association between intrinsic religiosity and resilient psychological characteristics in depressed inpatients.

Methods: A sample of 143 depressed patients was prospectively evaluated in an inpatient psychiatric treatment in South Brazil. High Intrinsic Religiosity (HIR) and Low Intrinsic Religiosity (LIR) patients were compared across socio-demographic information, clinical measures, religiosity, resilience and quality of life. A linear regression model was used to evaluate the association between intrinsic religiosity and resilience, and the Cohen’s test was utilized to assess effect sizes.

Results: At admission, HIR patients showed higher HAM-D (p = 0.05), BPRS (p = 0.02), GAF (p = 0.02), and CGI (p = 0.03) scores, lower educational levels (p = 0.04), higher social support (p = 0.03), and fewer previous suicide attempts (p = 0.05). At discharge, HIR patients showed higher quality of life (p = 0.001) and higher resilience (p = 0.000), with a large effect size difference between groups (1.02). Based on a linear regression model (adjusted r = 0.19, p = 0.000), intrinsic religiosity was associated with resilience, controlling for covariates.

Conclusion: In a sample of depressed inpatients, intrinsic religiosity was found to be associated with resilience, quality of life, and fewer previous suicide attempts. These findings support the relevance of religiosity assessments in mental health practice and support the hypothesis that resilient psychological characteristics may mediate the positive effects of intrinsic religiosity in depression.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

The relationship between religiosity and depression remains a challenging issue in psychiatry. Religiosity has been described as a protective factor for major depression (Miller et al., 2012), suicide (Huguelet et al., 2007; Moreira-Almeida et al., 2006) and is positively associated with psychological health (Rosmarin et al., 2013), and quality of life (Panzini et al., 2011). Nonetheless, to date, there is no consensus on religiosity influences on mental health and the pathways that mediate benefits of religiosity on depression (Blazer, 2012).

In a systematic review, 67% of the most methodologically rigorous studies identified inverse relationships between religiosity and depression (Bonelli et al., 2012). A meta-analysis of 147 studies identified a weak but inverse association between religiousness and depression; a stronger association was found in people undergoing stressful life events (Smith et al., 2003). Intrinsic religiosity, more specifically, predicted shorter time to remission in older depressed patients (Koenig et al., 1998) and was associated with less depressive symptomatology and higher quality of life in bipolar disorder patients (Stroppa and Moreira-Almeida, 2013).

Resilience is defined as the capacity to “bounce back” or recover in the context of trauma or adversity (Rutten et al., 2013; Southwick et al., 2011). Religiosity is thought to be a resource of resilience in adversities and traumatic events (Feder et al., 2012). In United States, after the September 11th terrorist attacks, for example, turning to religion represented the second most used coping strategy to deal with stress based on 90% of community interviewed individuals (Schuster et al., 2001). Spirituality, likewise, was identified as a key independent predictor of resilience in patients with depression (Min et al., 2012).

Depressed inpatients represent a population with severe symptomatology and at a high risk of suicide (Seemüller et al., 2010). To our knowledge, no previous studies have directly assessed how intrinsic...
religiosity is related to resilience in this population. The aim of present study was to evaluate intrinsic religiosity, resilience, suicide risk, quality of life and clinical characteristics of depressed inpatients. The hypothesis of the present study was that intrinsic religiosity is positively associated with psychological resilient characteristics, representing a possible pathway to mediate more favorable clinical outcomes in depression.

2. Method

2.1. Study sample

This study evaluated a prospective cohort of psychiatric inpatients in Hospital de Clínicas de Porto Alegre, a tertiary care general hospital in South Brazil. Information regarding religiosity and resilience of depressed inpatients was collected from May 2011 to August 2013. Assessments were performed in the first 72 h of admission and in the 48 h before hospital discharge. Informed consent was obtained according to the ethical committee’s requirement. Patients with cognitive deficits which prevented comprehension or patients with acute substance use disorder as a primary diagnosis were not included in the study.

2.2. Assessments

2.2.1. Diagnostic, socio-demographic and clinical data

Trained psychiatrists or psychiatry residents evaluated diagnostic and clinical measures. Diagnosis of depressive episodes and comorbidities were assessed using the Mini international Neuropsychiatric Interview (Amorim, 2000) in a semi-structured interview performed within the first 72 h of admission. Clinical measures scales were used at admission and before discharge, including Hamilton Depression Rating Scale (HAM-D) (Hamilton, 1960), General Assessment of Functionality (GAF) (Smith et al., 2011), Clinical Global Impression (CGI) (Lima et al., 2007), and Brief Psychopathological Rating Scale (BPRS) (Crippa et al., 2002).

Trained interviewers (medicine or psychology students and psychologists) independently evaluated socio-demographic data and the Brazilian versions of the following instruments: World Health Organization Quality of Life abbreviated form instrument (WHOQOL-BREF) (Berlim et al., 2005), Duke University Religion Index (DUREL) (Moreira-Almeida et al., 2008), Resilience Scale (RS) (Pescosolido et al., 2005), Medical Outcomes Study’s Social Support Scale (MOS) (Griep et al., 2005), and Cumulative Illness Rating Scale (CIRS) (Salvi et al., 2008). Socio-demographic information was structured in a protocol completed with the best information available (patient interview or medical records) within the first 72 h of admission, including age, sex, ethnicity, marital status, occupation, education, and socioeconomic level, number of previous psychiatry hospitalizations, suicide attempts, and illicit drug use. Trained psychologists used the Wechsler Adult Intelligence Scale (WAIS) Brazilian adapted version to estimate IQ (Wagner et al., 2010). Religiosity and resilience measures were evaluated before patient discharge. Researchers were not strictly blinded to religiosity and resilience instruments, but the clinical data and the main protocol information were collected independently and before religiosity and resilience instruments were used.

2.2.2. Religiosity measures

Religiosity was evaluated using Duke University Religion Index (DUREL) (Lucchetti et al., 2010; Moreira-Almeida et al., 2008). DUREL is a 5-item Likert scale measure with three dimensions of religiosity. The first question evaluates organizational religiosity (including church, temple, or institutional attendance), the second evaluates non-organizational religiosity (religion activities performed in private, such as prayer, readings, and meditation), and the last three questions evaluated intrinsic religiosity dimensions (subjective beliefs and motivation related to religiosity involvement). Intrinsic religiosity was chosen as the main religiosity dimension to study its relationship to resilience. According to previous research, DUREL can be used as a continuous score in each domain or as a categorical division. High intrinsic religiosity was defined by an overall score in the last three questions of more than 10 points (Stroppa and Moreira-Almeida, 2013).

2.2.3. Social support

Medical Outcomes Study’s Social Support Scale (MOS) was used to quantify social support (Griep et al., 2005). The instrument was developed and applied in an epidemiological study with chronic diseases, such as hypertension, diabetes, cardiovascular diseases, and depression in three centers in the United States. Social support was defined as the individual perception of available social resources in a needed situation. MOS instrument is composed of 19 questions in a 5-item Likert scale format. A higher overall score reflects greater social support (Griep et al., 2005).

2.2.4. Quality of life

Quality of Life was evaluated using the World Health Organization Quality of Life abbreviated instrument (WHOQOL-BREF) (Rocha et al., 2012). The instrument is composed of 26 items in a Likert scale. WHOQOL-BREF is based on the full version WHOQOL-100, developed in a worldwide perspective which included 15 international field centers. WHOQOL-BREF is composed of physical, psychological, social, and environmental domains. It has been developed and validated based on the concept of quality of life proposed by WHO as “an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (Fleck et al., 1999).”

2.2.5. Resilience

Resilience is defined as a process of adaptation in the face of trauma, stress, or adversity. Psychological characteristics associated with resilience were studied using the Brazilian Portuguese version of Resilience Scale (RS) (Pescosolido et al., 2005). Resilience Scale scores are positively correlated with well being (Cloninger and Zohar, 2011), life satisfaction, morale, and health (Wagnild and Young, 1993) and negatively correlated with depression (Abiola and Udofia, 2011; Hasui et al., 2009; Wagnild and Young, 1993). The instrument includes 25 items with a 7-point Likert scale. Measures were analyzed as global score ranging from 25 to 175 and a two-domain division identified by Wagnild and Young in factorial analysis (Hasui et al., 2009; Wagnild and Young, 1993; Windle et al., 2011). The first domain is called personal competence and represents self-reliance, independence, determination, invincibility, mastery, resourcefulness and perseverance. The second reflects adaptability, flexibility, and a sense of peace in the face of adversity, as well as a balanced perspective of life and acceptance of life circumstances. Higher scores on RS indicate greater resilience.

2.2.6. Statistical analysis

Analyses were performed using SPSS software. The Kolmogorov–Smirnov test evaluated the normality distribution of the sample. A Student’s t test was used to compare continuous normally distributed variables, a Chi-Square test was used to evaluate categorical variables, and a Mann–Whitney test was used to compare non-parametric distributions. High intrinsic religiosity (HIR) and Low intrinsic Religiosity (LIR) groups of depressed inpatients were compared across socio-demographic data, clinical variables, resilience, and quality of life. The Cohen’s d test evaluates the effect size of differences in resilience between LIR and HIR groups. The relationship between resilience and socio-demographic, clinical data, and religiosity was
investigated using bivariate correlation analysis. A linear regression model was performed to investigate the association between intrinsic religiosity and resilience, controlling for covariates. A significance level of 5% was accepted as significant.

2.2.7. Linear regression mode

Significant associations identified in bivariate correlation were considered in a theoretical linear regression model to evaluate the relationship between intrinsic religiosity and resilience. Variables associated with resilience in the bivariate analysis (Pearson or Spearman moment-to-moment correlations) were organizational religiosity ($r = 0.42$, $p = 0.002$), non-organizational religiosity ($r = 0.27$, $p = 0.02$), intrinsic religiosity ($r = 0.44$, $p = 0.000$), mean days in psychiatric unit ($r = 0.21$, $p = 0.01$), estimated IQ ($r = -0.23$, $p = 0.03$), MOS ($r = 0.43$, $p = 0.000$), and mean WHOQOL-BREF overall score at discharge ($r = 0.42$, $p = 0.000$). Resilience was evaluated as a dependent variable controlling for intrinsic religiosity, organizational, non-organizational religiosity, MOS scores, education level (years of study), and days in psychiatric unit, and HAM-D score at discharge as independent variables. Considering high collinearity statistics, in the three dimensions of religiosity, intrinsic religiosity was the main variable. The variable number of years studied that indirectly evaluated education levels, considering its association to resilience reported in literature, and the significant difference identified in $t$ test comparison analysis between HIR and LIR groups was included in the model. The MOS global score represented the relevance of social support in the relationship between religiosity and health (Rushing et al., 2012). Quality of life theoretically was not considered as a control variable in relation to intrinsic religiosity and resilience, but as a possible outcome of intrinsic religiosity and resilience.

### 3. Results

The sample of 143 depressed inpatients was composed primarily of women (59.4%) who were white (86.5%) with a mean age of 46 years old. Around 40% of patients were married; only 23.5% of patients were currently employed. Patients presented with a mean 3 previous psychiatric admissions, with 11 years of psychiatric diagnosis. Previously, 61% of patients had attempted suicide, with a mean of 1.9 suicide attempts across patients. The mean HAM-D and BPRS scores in admission were 23.2 and 24.3 points, respectively.

Almost two-thirds patients (65.4%) reported attendance to a religious institution at least a few times a year, and a half (53.6%) attended at least a few times a month. Attendance of private religious practices were reported by 83.5% of patients at least a few times a month. 68.1% of patients were part of the HIR group and 31.9% were part of the LIR group.

The analyses showed no statistically significant differences across age, gender, ethnicity, marital status, occupation, and socio-economic levels between groups. Patients with LIR had statistically higher levels of education (2 years more of study). Those with HIR had higher HAM-D, BPRS, GAF, and CGI scores at admission. HIR patients also reported more social support and fewer suicide attempts. No statistically significant difference was identified across the other variables, including the number of previous psychiatry hospitalizations, previous substance use, and IQ measures (Table 1).

WHOOQL-BREF measures at admission showed no difference between groups. At discharge, HIR patients had higher quality of life scores and in domains evaluated (Table 2). HIR patients also had higher resilience scores across both domains (Table 3). Cohen’s $d$ test identified a large effect size difference between groups (1.02). A linear regression model (Fig. 1) found an association between resilience and intrinsic religiosity ($r = 0.19$, $p = 0.000$). Intrinsic religiosity was statistically associated with resilience, controlling for social support (MOS), education (years of study), HAM-D at discharge, and days spent in the psychiatric unit (Table 4).

### 4. Discussion

The present study demonstrated that intrinsic religiosity is associated with resilience, quality of life, and fewer reported suicide attempts in a sample of severe depressed inpatients. The present findings are in accordance with prospective studies reporting a protective effect of religiosity on depression (Koenig et al., 2012), which is highlighted in a recent published 10-year follow up study performed by Miller and cols that identified an inverse relationship of self-reported religiosity and depression in high risk patients (Miller et al., 2012).

HIR patients had a greater symptomatology at admission compared to LIR patients. As suicide risk constitutes a main indication of inpatient treatment and religiosity represent a protective factor to suicide (Wasserman et al., 2011), HIR patients may be admitted under more severe conditions. Nonetheless, despite greater symptomatology, HIR patients had more resilience, greater quality of life, and reported less previous suicide attempts, supporting a protective effect of intrinsic religiosity on suicide and inpatient psychiatric admission (Pargament and Lomax, 2013).

#### Table 1

Comparison between Low and High Intrinsic Religiosity (IR) of depressed inpatients ($n = 141$).

<table>
<thead>
<tr>
<th>Socio-demographic data</th>
<th>Low IR</th>
<th>High IR</th>
<th>$p$-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>43.2</td>
<td>48.3</td>
<td>0.07</td>
</tr>
<tr>
<td>Male</td>
<td>33.3%</td>
<td>44.8%</td>
<td>0.1</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>White</td>
<td>85.4%</td>
<td>87.8%</td>
</tr>
<tr>
<td></td>
<td>Non-white</td>
<td>18.2%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>37.2%</td>
<td>31.3%</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>44.2%</td>
<td>38.6%</td>
</tr>
<tr>
<td></td>
<td>Separated</td>
<td>11.6%</td>
<td>25.5%</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>7%</td>
<td>6.4 %</td>
</tr>
<tr>
<td>Education (years of study)</td>
<td>10.4</td>
<td>8.5</td>
<td><strong>0.04</strong></td>
</tr>
<tr>
<td>Occupation</td>
<td>Student</td>
<td>4.8%</td>
<td>3.3%</td>
</tr>
<tr>
<td></td>
<td>Employed</td>
<td>28.6%</td>
<td>21.7%</td>
</tr>
<tr>
<td></td>
<td>Unemployed</td>
<td>23.8%</td>
<td>18.8%</td>
</tr>
<tr>
<td></td>
<td>Stay at home</td>
<td>2.4%</td>
<td>2.2%</td>
</tr>
<tr>
<td></td>
<td>Receiving benefits</td>
<td>23.8%</td>
<td>17.4%</td>
</tr>
<tr>
<td></td>
<td>Retired</td>
<td>9.5%</td>
<td>17.4%</td>
</tr>
<tr>
<td>Prefer not to mention</td>
<td>7.1%</td>
<td>19.6%</td>
<td></td>
</tr>
<tr>
<td>Duration of illness (years)</td>
<td>11.3</td>
<td>10.8</td>
<td>0.64</td>
</tr>
<tr>
<td>Psychiatry hospitalizations</td>
<td>2.7</td>
<td>3.4</td>
<td>0.89</td>
</tr>
<tr>
<td>Length of inpatient treatment</td>
<td>26.1</td>
<td>30.2</td>
<td>0.29</td>
</tr>
<tr>
<td>Number of previous suicide attempts</td>
<td>2.4</td>
<td>1.6</td>
<td><strong>0.05</strong></td>
</tr>
<tr>
<td>Any suicide attempt</td>
<td>68.9%</td>
<td>57.4%</td>
<td>0.1</td>
</tr>
<tr>
<td>Illicit substance use in life</td>
<td>30%</td>
<td>28.1%</td>
<td>0.8</td>
</tr>
<tr>
<td>Social support (MOS)</td>
<td>68.6</td>
<td>75.4</td>
<td>0.05</td>
</tr>
</tbody>
</table>

**Clinical measures**

| Depression (MINI)      | Previous mania | 33.3% | 33.7% | 0.96 |
|                       | Previous hypomania | 13.3% | 12.6% | 0.90 |
|                       | CIRS              | 2.4   | 2.7    | 0.95 |
|                       | HAM-D admission   | 21.3  | 24.0   | 0.05 |
|                       | BPRS admission    | 21.2  | 25.5   | **0.02** |
|                       | CGI admission     | 5.0   | 5.5    | **0.03** |
|                       | GAF admission     | 37.8  | 31.1   | **0.02** |
|                       | HAM-D AD*         | 13.6  | 16.9   | **0.04** |
|                       | BPRS AD*          | 12.6  | 16.8   | **0.03** |
|                       | CGI AD*           | 1.7   | 2.1    | 0.21 |
|                       | GAF AD*           | 31.6  | 28.6   | 0.59 |
| Estimated IQ**        | 90.3             | 85.3   | 0.12   |

* Mean variation between (A) admission and (D) discharge.
** Adult Intelligence Scale (WAIS) Brazilian version.
An important step in this research is to understand the mechanisms that mediate the complex interplay of religiosity, psychopathology, and health (Koenig et al., 2012; Maselko et al., 2008). The literature suggests that religiosity benefits to depressive disorders are related to positive coping (Pargament et al., 2004), meaning and purpose in life (Rutten et al., 2013), forgiveness (Toussaint et al., 2012), positive emotions (Rutten et al., 2013), healthy behavior (Moreira-Almeida et al., 2006), and religious environmental support (Southwick and Charney, 2012).

Psychologically-resilient characteristics represent another possible pathway to mediate positive outcomes of intrinsic religiosity in mental health. Personality studies have identified an association of psychological resilience with high self-directness and low harm-avoidance (Eley et al., 2013). Self-directness and harm-avoidance in turn are identified as strong protective traits to depression (Cloninger et al., 2006). Moreover, self-transcendence, a character dimension close to intrinsic religiosity, is independently related to positive emotions and well-being (Cloninger; 2006; Cloninger and Zohar, 2011; Josefsson et al., 2011). The relationship between intrinsic religiosity and resilient psychological characteristics represents another route to understand benefits of intrinsic religiosity to depression.

There were some limitations in the present study. Transversal analysis of intrinsic religiosity and resilience do not allow definitive causal explanations. Intrinsic religiosity additionally was able to explain a slight part of resilience of depressed inpatients; otherwise, this according to the literature stands that resilience is likely to result from multiple, independent predictors, with each accounting for a relatively small portion of the variance (Bonanno and Diminich, 2012). The time of follow up in this preliminary analysis (from patient admission to discharge) may have limited identification of differences in clinical outcomes of patients with higher resilience measures. Absence data on religiosity denomination or a more comprehensive questionnaire regarding religious beliefs and practices was limited by the possibilities of a Cohort study. Religiosity and resilience data were collected before discharge, to avoid confusion with psychotic symptoms and to distribute research instruments according study possibilities. We do not know whether these variables can be influenced by acute symptomatology. Limitations of self-report questionnaires of religiosity and resilience are overshadowed by the relevance of patient reported outcomes instruments in health assistance and to research.

Despite limitations, intrinsic religiosity was consistently associated with positive mental health outcomes in depressed inpatients, including a large effect size difference in self-reported psychological

---

**Table 3**

WHQOL-BREF Scores of Depressed Inpatients at Discharge and High and Low Intrinsic Religiosity (n=138).

<table>
<thead>
<tr>
<th>WHQOL-BREF domains</th>
<th>Low IR (n=44)</th>
<th>High IR (n=93)</th>
<th>T- Test p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical health</td>
<td>12.3 (2.1)*</td>
<td>13.7 (2.9)</td>
<td>0.005</td>
</tr>
<tr>
<td>Psychological health</td>
<td>11.5 (2.9)</td>
<td>13.7 (3.2)</td>
<td>0.000</td>
</tr>
<tr>
<td>Social relationships</td>
<td>12.3 (2.7)</td>
<td>13.9 (3.9)</td>
<td>0.02</td>
</tr>
<tr>
<td>Environment</td>
<td>12.5 (2.2)</td>
<td>14.0 (2.4)</td>
<td>0.001</td>
</tr>
<tr>
<td>Overall</td>
<td>12.7 (3.7)</td>
<td>14.8 (3.2)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

* Mean values (± SD).

**Fig. 1.** Resilience Multivariate Linear Regression Model of depressed inpatients, controlling for covariates. Coefficients Dependent Variable: Resilience Scale, n=70, R² 0.22, adjusted R² 0.16, p = 0.005.
resilience and positive associations with quality of life and fewer suicide attempts. The long-term relationship of intrinsic religiosity as a resilience resource to depression constitutes relevant research to prospective studies. An interesting discussion is to what extent intrinsic religiosity capacity to promote resilience is independent, moderated or specific to some cultures where religiosity plays relevant role (Gebauer et al., 2012). The biological pathways in the relationship of intrinsic religiosity to resilience to depression constitute another promised field of research (Miller et al., 2012; Southwick and Charney, 2012).

### 5. Conclusion

The importance of religiosity, reported by patients, and its relationship with mental health, highlights the relevance to address this topic in clinical practice. In high-risk populations with potential compromising outcomes psychological resilient characteristics may mediate positive relationships of intrinsic religiosity and mental health.

### Acknowledgments

The authors wish to thank 20-265 project research group for data collection contributions and Claude Robert Cloninger, Ph.D., for suggestions in literature review.

### Conflict of interest

The authors have no conflicts of interest to report.

### References

