

The role of spirituality and religiosity on the suicide ideation and depressive symptoms of middle to old age Brazilian homeless individuals

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Abstract

Purpose: To investigate the associations between spirituality/religiosity (S/R), suicidal ideation (SI), and depressive symptoms among middle-to-old-aged Brazilian homeless individuals.

Methods: This cross-sectional study included 162 individuals aged 50 years or older from the city of São Paulo, Brazil. SI was assessed using item 9 of the Beck Depression Inventory (BDI), and depressive symptoms were evaluated using the total score of the Patient Health Questionnaire-9 (PHQ-9). Religiosity was measured using the Duke Religion Index (DUREL), spirituality using the FACIT-Sp-12, and spiritual/religious coping (SRC) using the Brief RCOPE scale. Adjusted ordinal logistic regression models were used to examine SI severity, and adjusted linear regression models were used to assess depressive symptoms.

Results: Participants had a mean age of 58.45 years (SD = 5.89); 79% were male, and 55.6% were divorced, separated, or widowed. SI was reported by 19.8% of the sample, and 42% presented significant depressive symptoms. Higher levels of spiritual well-being (Meaning and Peace) and intrinsic religiosity were associated with lower depressive symptom scores. Greater intrinsic religiosity, higher Meaning and Peace scores, and positive SRC were associated with lower SI severity, whereas negative SRC was associated with greater SI severity and higher depressive symptom levels.

Conclusion: R/S appear to play dual roles in the mental health of middle-to-old-aged homeless individuals, functioning as correlates of better or worse mental health outcomes. These findings underscore the relevance of incorporating religious and spiritual dimensions into public health strategies and support the development of tailored interventions integrating S/R into mental health and social care policies.

Introduction

The number of homeless individuals has increased over recent decades, particularly in large urban centers of developing countries such as Brazil^[1, 2]. Within this group, an even more vulnerable population exists, the middle-to-old aged individuals, who tend to exhibit a higher prevalence of chronic diseases and mental disorders, such as depression and suicidal ideation (SI)^[3]. These factors have significant public health implications, necessitating actions tailored to the unique circumstances of this population^[4, 5].

Although in the literature, some authors classify homeless individuals aged 50 or over as older individuals^[6, 7], since they are continuously exposed to adverse environments and inappropriate healthcare, accelerating the aging process^[8, 9], this study will maintain the term “middle-to-old aged individuals.” In the homelessness context, factors such as malnutrition, chronic stress, and the insecurity of living on the streets can exacerbate physical and mental health problems^[10, 11].

Indeed, homelessness exposes this age group to a series of risk factors, including social isolation, absence of family support, and difficulty in accessing health services. Constant exposure to these adverse conditions worsens depressive symptoms and, consequently, increases the risk of SI^[12–15]. Research suggests that the prevalence of SI among homeless individuals may be significantly higher than in the general population^[12, 14, 16].

In the face of these adversities, many homeless individuals turn to religion and spirituality to overcome adversities^[17]. Religiosity refers to a structured set of beliefs, practices, and rituals, often guided by sacred texts and traditions, which are observed in devotion to a higher entity, such as God. In contrast, spirituality is a personal and individual journey in search of a greater purpose or connection with the transcendent, without necessarily being linked to specific dogmas or scriptures. While religion tends to offer a collective and prescribed pathway to faith, spirituality is more flexible and intimate, allowing each individual to explore and discover the transcendence in a unique and personal manner^[18, 19].

This distinction between religiosity and spirituality (S/R) is crucial for understanding how these practices may influence mental health. There is extensive literature supporting the association between spiritual and religious practices and better mental health outcomes^[19–22], including reductions in depressive symptoms^[23, 24] and suicide risk^[25, 26]. The positive influence of S/R on mental health occurs because both offer a perspective that encompasses essential aspects such as resilience, optimism, and a sense of purpose in life. These elements not only help individuals coping with adversities but may also foster a shift in the way the world is perceived, resulting in a significant improvement in quality of life^[18, 24].

Although studies indicate that S/R are generally associated with better mental health outcomes in the general population, there is little research exploring their specific impact among middle-to-old aged homeless individuals. Given the high level of vulnerability faced by this population, it is possible that spiritual and religious practices may significantly influence these outcomes. On the one hand, these practices can serve as a crucial source of emotional support and resilience, helping to mitigate the negative effects of adversity^[18]; on the other, feelings of punishment and retribution may lead to worse outcomes as well. Investigating this relationship could help in the development of effective and sensitive interventions tailored to the needs of this population and provide valuable support to public health managers.

Thus, the present study aims to investigate the association among S/R, SI, and depressive symptoms among middle-to-old-aged Brazilian homeless individuals.

Participants and Methods

Study Design

This cross-sectional study is part of a broader research project investigating various aspects related to mental health among homeless individuals in São Paulo, Brazil. The research project was approved by

the Ethics and Research Committee of the **BLINDED** (Approval number #**BLINDED**), and all participants provided voluntary informed consent after being adequately informed about the study's objectives and procedures.

Location and Data Collection

Data was collected in two districts (i.e. the densely populated East Zone and the central Praça da Sé) of the city of São Paulo, Brazil, the largest Brazilian city with approximately 11 million inhabitants^[27]. Data collection took place between May and June 2019 (pre-pandemic). At that time, it was estimated that about 25,000 people were experiencing homelessness in the city. Due to the challenges of accessing this population, given their insecurity and vulnerability, the study team followed the visits conducted by the non-governmental organization (NGO) named "Médicos do Mundo," which is based in São Paulo, Brazil. The choice of this NGO was made because of its established trust and proximity with the homeless population, which facilitated access. The mission of "Médicos do Mundo" is to provide medical assistance and social support to individuals in vulnerable situations.

Interviews were conducted by clerkship medical students who had already completed rotations in psychiatry and internal medicine. Before data collection, students underwent a four-hour theoretical training, followed by two hours of practical "role play" and a pilot application of the questionnaire with a real participant, under the supervision of the researchers. This training was essential, considering that the homeless population frequently faces mental health problems. Supervision during data collection was provided by the NGO coordinator (a neurologist), and also by a Ph.D.-qualified nurse with experience in caring for the homeless. Due to possible educational limitations among the participants, the questionnaire items were read directly by the interviewers to avoid misinterpretations, and responses were recorded. In cases of uncertainty regarding a participant's ability to respond to the questionnaire, the qualified supervisors were consulted to assess the inclusion or exclusion of the participant in the study.

Inclusion and Exclusion Criteria

Inclusion criteria were: homeless individuals, defined as those who were living on the streets without permanent or adequate housing for a minimum of six months, aged 50 years or older, and proficient in Portuguese. We selected adults ≥ 50 years to capture a highly vulnerable segment that physiologically resembles community-dwelling older adults, who face multiple challenges related to health and well-being at a public health level, as explained in the Introduction^[2–4].

Exclusion criteria were established to ensure data validity. Individuals with severe physical or mental health problems, such as psychosis, states of confusion or disorientation, or those under the influence of toxic substances, were not included, as these factors could compromise the accuracy of the responses,

and the reliability of the data collected. These criteria also aimed to ensure the representativeness and integrity of the data, while protecting the well-being of the participants.

Mental Health Outcomes

Suicidal ideation (SI) was assessed using item 9 of the Beck Depression Inventory (BDI), validated for the Brazilian population^[28]. The BDI measures depressive symptoms and is divided into 21 items, with item 9 evaluating SI ideation over the past two weeks. In this item, scores range from 0 to 3, as described below: (0) "I do not have thoughts of killing myself"; (1) "I have thoughts of killing myself, but I would not carry them out"; (2) "I would like to kill myself"; (3) "I would kill myself if I had the chance"^[29]. In this study, any score other than zero was interpreted as indicative of SI. The application of this isolated item has been shown to be related to the risk of repeated suicide attempts and suicide mortality, serving as a reliable tool for the assessment of SI^[30].

Depressive symptoms were investigated using the Patient Health Questionnaire-9 (PHQ-9)^[30]. The PHQ-9 is scale, validated into Portuguese, that is useful for the screening of depression and allows for the identification of individuals at high risk for major depression. The scale is composed of 9 items that evaluate the frequency of depressive symptoms over the past two weeks, with scores ranging from "0" (not at all) to "3" (nearly every day). Examples of items include "Little interest or pleasure in doing things" and "Feeling down, depressed, or hopeless," which reflect core aspects of the depressive experience. Higher scores indicate increased levels of depressive symptoms, which may range from 0 to 27. A cut-off score of ≥ 10 was used to identify the presence of significant depressive symptoms, classifying participants into two categories: absence (no depressive symptoms) or presence (significant depressive symptoms)^[31]. PHQ-9 demonstrated excellent reliability in a previous Brazilian study ($\alpha \geq 0.80$), and in the present study, the internal consistency was $\alpha = 0.870$.

Religious and Spiritual variables

Religiosity was assessed using the Duke Religion Index (DUREL) validated for Brazilian Portuguese^[32]. This instrument comprises five items that cover three aspects of religiosity: one item for organizational religiosity (OR), defined as the attendance of religious services (1="never" to 6="more than once a week"); one item for non-organizational religiosity (NOR), defined as private religious activities such as prayer, reading religious texts, and religious meditation (1="rarely or never" to 6="more than once a day"); and 3 items for intrinsic religiosity (IR), which assess the importance of religion in one's life, using a scale from 1="definitely not true" to 5="definitely true". The three IR items are summed to yield a score ranging from 3 to 15^[33]. The Brazilian version of the instrument demonstrated good internal consistency ($\alpha = 0.732$)^[33], and in this study, the internal consistency was excellent ($\alpha = 0.845$).

Spiritual well-being was measured using the FACIT-Sp 12 scale, validated for the Brazilian population^[34]. The scale comprises 12 items divided into 3 dimensions: Meaning, Peace, and Faith. Participants rated

the items on a five-point Likert scale ranging from 0 (not at all) to 4 (extremely). The questionnaire yields four scores: one for each dimension and a total score. Participants were instructed to indicate how true each item was for them over the past seven days. Examples of items include: “I feel at peace” (Peace), “I have a reason to live” (Meaning), and “I find comfort in my faith or spiritual beliefs” (Faith). In the Brazilian validation, the reliability of the FACIT-Sp was very good ($\alpha = 0.890$)^[34], and in this study it was considered good ($\alpha = 0.770$).

Religious and spiritual coping (SRC) was evaluated using the Brief SRC Scale (Brief-CRE-14), originally developed in the USA and validated for the Brazilian context in 2018^[35].

Two dimensions are evaluated: positive SRC (items 1 to 7) and negative SRC (items 8 to 14)^[35]. Positive SRC includes items that associate religiosity and spirituality with sources of love, care, strength, support, purification, and positive reframing of stress. Conversely, negative SRC encompasses items that relate religiosity and spirituality to interpersonal/intrapersonal conflicts, feelings of guilt and punishment, insecurity, and a negative reframing of stress. Responses are provided on a five-point Likert scale ranging from 1 (never) to 5 (very often). In the instrument’s validation, the internal consistency was excellent ($\alpha = 0.845$)^[35], as was the case in the current sample ($\alpha = 0.904$).

Other religious and spiritual characteristics were also analyzed. Participants were asked about their belief in a Higher Power/God (yes or no), whether they had a religion (yes or no), and frequency of attendance at religious temples (yes or no). To assess the importance of S/R in their lives, participants were asked: “How important is your religion in your life?” (0: not at all, 1: a little, 2: somewhat, 3: very, 4: extremely) and “How important is your spirituality in your life?” (0: not at all, 1: a little, 2: somewhat, 3: very, 4: extremely). Additionally, participants were asked to self-assess their religious and/or spiritual beliefs by responding to: “How religious and/or spiritual are you?” with the following options: “I am religious and spiritual” (RS); “I am religious, but not spiritual” (Rs); “I am spiritual, but not religious” (Sr); and “I am neither religious nor spiritual” (rs).

Adjustment Variables

Sociodemographics: age (years); sex (male or female); marital status (single, married, or divorced/widowed); presence of children (yes or no); chronic conditions (presence or absence of chronic diseases); sexually transmitted infections (presence or absence of these infections); alcohol consumption (participants were asked about alcohol consumption at least three times per week, with responses categorized as yes or no); use of illicit substances (evaluated by the use of illicit drugs at least three times per week, with responses also recorded as yes or no); and level of education (no formal education, up to 4 years, between 4 and 8 years, and more than 8 years of schooling).

Sample Size Calculation

The required sample size was estimated a priori in G*Power 3.1 for a multiple linear regression with eight predictors. Using $\alpha = 0.05$, power $(1 - \beta) = 0.80$, and a small-to-medium effect size ($f^2 = 0.10$), the analysis indicated that at least 159 participants would be necessary.

Statistical Analyses

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 26 (SPSS Inc.). Initially, descriptive statistics were performed to characterize the sample and the instrument scores, including mean, standard deviation, confidence intervals, and absolute and relative frequencies. Inferential analysis was conducted in two stages. In the first stage, unadjusted binary logistic regression models were applied, with SI as the dependent variable (0 = absence of SI; 1 = presence of SI), and depressive symptoms (0 = absence of depressive symptoms; 1 = presence of depressive symptoms), along with sociodemographic and clinical variables as independent factors. Variables that showed a statistically significant association with SI ($p < 0.05$) in the unadjusted analysis—such as chronic disease, presence of sexually transmitted infections (STIs), alcohol use, drug use, and depressive symptoms—were included in the adjusted models.

Although SI is commonly considered a component of depressive symptomatology, SI severity and depressive symptoms were examined as distinct outcomes in this study in order to capture complementary dimensions of mental suffering and to avoid conceptual reductionism in this highly vulnerable population^[36]. Adjusted regression analyses were then conducted to examine the associations between S/R variables and mental health outcomes. SI severity was analyzed using ordinal logistic regression models (proportional odds models, logit link), based on PHQ-9⁽²⁸⁾ item 9 categorized as 0 (“not at all”), 1 (“several days”), 2 (“more than half the days”), and 3 (“nearly every day”). Depressive symptoms were analyzed using adjusted linear regression models, with the PHQ-9 total score treated as a continuous outcome. All models were adjusted for presence of chronic disease, sexually transmitted infection, alcohol use, and drug use. Each S/R variable was entered separately into the models to minimize multicollinearity.

The proportional odds assumption for ordinal models was assessed using the Test of Parallel Lines. For all analyses, a two-sided significance level of $p < 0.05$ and 95% confidence intervals were adopted.

Results

In the original project, a total of 482 homeless adults (≥ 18 years) were invited to participate, while 456 (94.6%) completed the full questionnaire. For this analysis, which focuses on middle- to old-aged adults, we included all 162 participants aged ≥ 50 years, which represented 35.5 % of the original cohort.

Table 1 summarizes the sociodemographic and health profiles of the 162 participants who were included in the study. Participants had a mean age of 58.45 years ($SD = 5.89$), and most were males ($n = 128$; 79.0%). Regarding marital status, 90 (55.6%) were divorced/separated or widowed, and 99 (61.1%)

reported having children. Chronic diseases were present in 90 (55.6%) participants, and 25 (15.4%) reported sexually transmitted infections (STIs). Alcohol use was reported by 83 participants (51.2%), whereas 138 (85.2%) used illicit drugs ≥ 3 times per week. In terms of education, 121 (74.7%) had no formal schooling or up to four years of education.

Table 1
Characteristics of older homeless people (n = 162)

Variables	Value Mean (SD); 95% CI
Age	58.45 (5.89); (57.50–59.41)
Patient Health Questionnaire-9 (PHQ-9)	9.11 (7.06); (8.05–10.64)
Suicidal ideation	0.31 (0.72); (0.20–0.43)
Sex	n(%)
Male	128 (79.0)
Female	34 (21.0)
Marital Status	
Single	58 (35.8)
Married	14 (8.6)
Separated\widowed	90 (55.6)
Children	
Yes	99 (61.1)
Chronic Disease	
Yes	90 (55.6)
Presence of STI	
Yes	25 (15.4)
Alcohol use	
Yes	83 (51.2)
Drug use	
Yes	138 (85.2)
Education	n (%)
Never studied	65 (40.1)
Up to 4 years	56 (34.6)
Between 4 and 8 years	28 (17.3)
More than 8 years	13 (8.0)
Depressive symptoms^a	n (%)

Variables	Value
	Mean (SD); 95% CI
Yes	69(42.0)
Suicidal Ideation^b	n (%)
Yes	32 (19.8)
Note: ^a (cut-off point ≥ 10 points on the scale PHQ-9)	
Presence of STI: presence of sexually transmitted infection.	

With respect to study outcomes, 69 participants (42.0%) exhibited significant depressive symptoms, and 32 (19.8%) met criteria for SI.

[Insert Table 1 here]

Table 2 summaries the religious–spiritual characteristics of the participants. Most respondents (87.0%) believed in a Higher Power, whereas 57.4% reported having a formal religious affiliation. When we cross-classified self-rated religiosity and spirituality, 20.4% fell into the high-religiosity/high-spirituality group, 30.9% into low-religiosity/high-spirituality, and 33.3% into low-religiosity/low-spirituality. Just over half considered religion very or extremely important (53.7%), and nearly two-thirds rated spirituality at the same level (63.0%). Slightly more than one-third (35.2%) attended a place of worship on a regular basis.

Table 2
Religious and spiritual characteristics of older homeless people (n = 162)

Variables	Value n (%)	
Belief in superior being		
Yes	141 (87.0)	
Have a religion		
Yes	93 (57.4)	
Religiosity and Spirituality		
High religiousness and high spirituality	33 (20.4)	
High religiousness and low spirituality	25 (15.4)	
Low religiousness and high spirituality	50 (30.9)	
Low religiousness and low spirituality	54 (33.3)	
Importance of religion		
Nothing	1 (0.6)	
A little	20 (12.3)	
More or less	54 (33.3)	
Very	83 (51.2)	
A lot	4 (2.5)	
Importance of spirituality		
Nothing	1 (0.6)	
A little	15 (9.3)	
More or less	44 (27.2)	
Very	97 (59.9)	
A lot	5 (3.1)	
Duke Religion Index (P-Durel)	Mean (SD)	95% CI
Organizational religiosity	2.99 (1.77)	(2.69–3.28)
Non-organizational religiosity	3.90 (1.70)	(3.65–4.16)
Intrinsic Religiosity	10.48 (3.77)	(9.92–11.13)
RS: high religiosity/high spirituality; Rs: high religiosity/low spirituality; rE: low religiosity/high spirituality; re: low religiosity/low spirituality; SRC: Spiritual Religious Coping		

Variables	Value n (%)	
Belief in superior being		
FACIT-Sp		
Meaning	8.37 (4.17)	(7.79–9.04)
Peace	8.72 (3.99)	(8.02–9.40)
Faith	8.06 (4.22)	(7.42–8.58)
Total	25.16 (9.31)	(23.59–26.60)
SRC		
Positive SRC	2.70 (1.30)	(2.48–2.95)
Negative SRC	2.20 (1.04)	(2.02–2.36)
RS: high religiosity/high spirituality; Rs: high religiosity/low spirituality; rE: low religiosity/high spirituality; re: low religiosity/low spirituality; SRC: Spiritual Religious Coping		

Supplementary Material 1 provides the descriptive statistics for every outcome and religious-spiritual dimensions (PHQ-9, SI item, P-DUREL domains, FACIT-Sp subscales and total, and positive/negative SRC) of the participants.

[Insert Table 2 here]

Table 3 shows the unadjusted logistic regression models. Among the S/R variables, higher non-organizational religiosity (OR = 0.77, 95%CI 0.64–0.93), greater intrinsic religiosity (OR = 0.88, 95%CI 0.80–0.96), and higher scores on the Meaning (OR = 0.80, 95% CI 0.73–0.88) and Peace (OR = 0.77, 95%CI 0.70–0.85) dimensions of the FACIT-Sp were each associated with lower odds of depressive symptoms. The same four indicators predicted reduced SI: non-organizational religiosity (OR = 0.71, 95%CI 0.57–0.88), intrinsic religiosity (OR = 0.85, 95%CI 0.77–0.94), Meaning (OR = 0.78, 95%CI 0.69–0.88), and Peace (OR = 0.84, 95%CI 0.76–0.94). Conversely, negative SRC predicted both higher depressive symptomatology (OR = 2.00, 95%CI 1.43–2.79) and greater SI (OR = 2.05, 95%CI 1.38–3.03). Other variables such as having chronic diseases, having STI, alcohol use, drug use were associated with both SI and depressive symptoms.

Table 3
Logistic regression between independent variables, SI and depressive symptoms (n = 162)

Variables	Suicidal Ideation	Depressive Symptoms
	Unadjusted OR (95% IC) p-value	Unadjusted OR (95% IC) p-value
Age (Mean)	1.022 (0.958–1.090) 0.516	1.028 (0.975–1.084) 0.312
Sex (Female)	2.008 (0.989–3.787) 0.116	1.699 (0.794–3.635) 0.172
Chronic Disease (Yes)	2.403 (1.033–5.588) 0.042	4.427 (2.229–8.793) < 0.001
Presence of STI (Yes)	2.788 (1.098–7.077) 0.031	4.336 (1.695–11.092) 0.002
Alcohol use (Yes)	2.489 (1.09–5.667) 0.030	2.437 (1.284–4.625) 0.006
Drug use (Yes)	3.000 (1.172–7.679) 0.022	4.016 (1.561–10.335) 0.004
Depressive symptoms (Yes)	5.667 (2.355–3.634) < 0.001	
Suicidal Ideation (Yes)		5.667 (2.355–13.634) < 0.001
Religiosity (P-Durel)		
OR	0.739 (0.576–0.949) 0.018	0.866 (0.723–1.036) 0.116
NOR	0.707 (0.566–0.884) 0.002	0.769 (0.637–0.929) 0.006
IR	0.852 (0.768–0.944) 0.002	0.876 (0.804–0.955) 0.003
Spirituality (Facit-SP)		
Meaning	0.776 (0.686–0.877) < 0.001	0.803 (0.733–0.880) < 0.001
Peace	0.844 (0.755–0.944) 0.003	0.772 (0.698–0.854) < 0.001
Faith	0.147 (0.933–1.025) 0.147	0.988 (0.917–1.064) 0.743
SRC		
Positive SRC	0.964 (0.714–1.301) 0.810	1.536 (1.188–1.986) 0.001
Negative SRC	2.046 (1.382–3.031) < 0.001	1.999 (1.432–2.793) < 0.001
Note: ^a : 0 = no SI; 1 = with SI. Depressive Symptoms: (cut-off point ≥ 10 points on the scale PHQ-9) Sexually transmitted infection (STI); Patient Health Questionnaire (PHQ- 9); Duke University Religiosity Scale (DUREL); Organizational Religiosity (OR). Non-organizational Religiosity (RNO). Intrinsic Religiosity (RI); Spiritual Religious Coping (SRC). Positive Spiritual Religious Coping (PSRC). Negative Spiritual Religious Coping (NSRC); Functional Assessment of Chronic Disease Therapy for Spiritual Well-Being (FACIT). Significance (p < 0.05)		

[Insert Table 3 here]

Table 4 summarizes the fully adjusted logistic-regression models. After controlling for chronic disease, sexually transmitted infections, alcohol and drug use, and the reciprocal mental-health outcome, the

“Meaning” dimension of spirituality was associated with lower odds of SI (OR = 0.85, 95%CI 0.74–0.97), whereas negative SRC increased them (OR = 1.67, 95%CI 1.07–2.62). For depressive symptoms, higher intrinsic religiosity (OR = 0.90, 95%CI 0.81–0.98) and higher scores on the “Meaning” (OR = 0.85, 95%CI 0.77–0.95) and “Peace” (OR = 0.77, 95%CI 0.70–0.85) subscales were inversely associated. Positive SRC likewise lowered risk (OR = 0.60, 95% CI 0.27–0.87), whereas negative SRC raised it (OR = 1.58, 95%CI 1.07–2.33).

Table 4

Adjusted Logistic Regression Analyses between independent variables, suicidal ideation, and depressive symptoms of older homeless people (n = 162)

Variables	Suicidal Ideation	Depressive Symptoms
	Adjusted OR (95% IC) p-value	Adjusted OR (95% IC) p-value
Adjusted model*		
Religiosity (P-Durel)		
OR	0.780 (0.585–1.042) 0.092	0.851 (0.683–1.060) 0.150
NOR	0.808 (0.627–1.041) 0.099	0.846 (0.676–1.059) 0.144
IR	0.897 (0.798–1.008) 0.067	0.900 (0.814–0.995) 0.039
Spirituality (Facit-SP)		
Meaning	0.852 (0.743–0.976) 0.021	0.856 (0.773–0.948) 0.003
Peace	0.958 (0.842–1.090) 0.516	0.772 (0.698–0.854) < 0.001
Faith	0.941 (0.843–1.049) 0.272	1.011 (0.926–1.104) 0.805
SRC		
Positive SRC	0.690 (0.456–1.046) 0.081	0.597 (0.274–0.871) 0.003
Negative SRC	1.677 (1.073–2.623) 0.023	1.579 (1.070–2.330) 0.021
Note: ^a : 0 = no SI; 1 = with SI. Depressive Symptoms: (cut-off point ≥ 10 points on the scale PHQ-9) OR: Odds Ratio Sexually transmitted infection (STI); Patient Health Questionnaire (PHQ- 9); Duke University Religiosity Scale (DUREL); Organizational Religiosity (OR). Non-organizational Religiosity (RNO). Intrinsic Religiosity (RI); Spiritual Religious Coping (SRC). Positive Spiritual Religious Coping (PSRC). Negative Spiritual Religious Coping (NSRC); Functional Assessment of Chronic Disease Therapy for Spiritual Well-Being (FACIT). Significance (p < 0.05)		

[Insert Table 4 Here]

Table 5 summarizes the adjusted associations between dimensions of religiosity, spirituality, and SRC with SI severity and depressive symptoms.

Table 5
Adjusted ordinal logistic and linear regression analyses of suicidal ideation severity and depressive symptoms according to spirituality and religiosity among older homeless individuals (n = 162)

Variables	Suicidal Ideation Severity	Depressive Symptoms
	Adjusted OR (95% IC), p-value	B (S.E.), p-value
Adjusted model*		
Religiosity (P-Durel)		
OR	0.890 (0.650–1.012), 0.072	-0.621 (0.282), 0.029
NOR	0.812 (0.681 – 0.098), 0.027	-0.608 (0.297), 0.042
IR	0.849 (0.775–0.925), < 0.001	-0.332 (0.131), 0.012
Spirituality (Facit-SP)		
Meaning	0.802 (0.734–0.886), <0.001	-0.549 (0.120), < 0.001
Peace	0.791 (0.721–0.882), < 0.001	-0.674 (0.119), < 0.001
Faith	0.997 (0.925–1.078), 0.769	-0.087 (0.117), 0.457
SRC		
Positive SRC	0.788 (0.618–0.927), 0.042	-1,395 (0.365), < 0.001
Negative SRC	1.384 (1.009–2.308), 0.043	1.632 (0.493), 0.001

Note: Suicidal ideation was analyzed using ordinal logistic regression (proportional odds model; logit link), considering severity levels of PHQ-9 item 9 (0 = none, 1 = several days, 2 = more than half the days, 3 = nearly every day). Depressive symptoms were analyzed using adjusted linear regression based on the PHQ-9 total score. All models were adjusted for presence of chronic disease, sexually transmitted infection (STI), alcohol use, and drug use. DUREL = Duke University Religion Index (OR = organizational religiosity; NOR = non-organizational religiosity; IR = intrinsic religiosity). FACIT-Sp = Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being. SRC = spiritual/religious coping. OR = odds ratio; CI = confidence interval. Statistical significance was set at $p < 0.05$.

In the ordinal logistic regression models, intrinsic religiosity was independently associated with lower SI severity (OR = 0.85, $p < 0.001$). Organizational and non-organizational religiosity were not significantly associated with SI severity ($p > 0.05$). In contrast, in the linear regression models for depressive symptoms, higher levels of organizational, non-organizational, and intrinsic religiosity were each independently associated with lower PHQ-9 scores (all $p < 0.05$). Higher scores on the Meaning and Peace dimensions of spiritual well-being were consistently associated with lower SI severity (OR = 0.80 and OR = 0.79, respectively; both $p < 0.001$) and with fewer depressive symptoms (both $p < 0.001$). The Faith dimension was not significantly associated with either SI severity or depressive symptoms ($p >$

0,05). Regarding coping strategies, positive SRC was associated with lower odds of more severe SI (OR = 0.79, $p = 0.042$) and with lower depressive symptom scores ($p < 0.001$). Conversely, negative SRC was associated with increased SI severity (OR = 1.38, $p = 0.043$) and higher levels of depressive symptoms ($p = 0.001$).

All models were adjusted for chronic disease, sexually transmitted infection, alcohol use, drug use and depressive symptoms.

[Insert Table 5 here]

Discussion

This study further explored the role of spirituality and religiosity (S/R) on the mental health of middle-to-old-age homeless individuals, with a specific focus on suicidal ideation (SI) and depressive symptoms. Importantly, although suicidal ideation is commonly associated with depressive symptomatology, it is increasingly recognized as a related but distinct clinical and phenomenological dimension, particularly in highly vulnerable populations^[37]. SI may emerge in response to psychosocial stressors, existential distress, and cumulative adversity even in the absence of severe depressive symptom burden, and therefore warrants separate analytical consideration^[36]. In fully adjusted models, the “Meaning” dimension of spirituality was significantly associated with lower SI severity, whereas negative SRC markedly increased that risk. Intrinsic religiosity and positive SRC were also independently associated with lower SI severity, while negative SRC was strongly linked to higher symptoms. Collectively, these findings underscore the clinical value of integrating spiritual and religious components into interventions designed to mitigate the psychiatric burden among this highly vulnerable population.

The 19.8% prevalence of SI observed in our study is striking, since this is well above the 2 to 5% reported among community-dwelling older adults^[1, 2]. This elevated rate likely reflects the cumulative impact of high-risk exposures common among homeless individuals, such as substance misuse, chronic diseases, and depressive symptomatology. In contrast to our unadjusted analyses, organizational and non-organizational religiosity were not independently associated with SI severity in fully adjusted ordinal models, whereas intrinsic religiosity remained significantly associated with lower severity of SI. ^[3, 4] This finding suggests that internalized religious beliefs and motivations may be more relevant to SI severity than external or private religious practices in the context of extreme social vulnerability. Spiritual well-being, particularly having a sense of meaning, was associated with lower, echoing evidence that it may enhance resilience, lowers suicidal thinking, and improves coping in populations facing severe stress, such as homeless individuals and psychiatric patients^[5, 6]. Recent study has shown that some measures of spirituality, especially those assessing meaning, peace, or inner harmony, overlap with psychological well-being^[38]. Following this guidance, we treated the FACIT-Sp as a measure of spiritual well-being rather than religiosity itself, focusing on existential resources that relate to, but are not equivalent to, depressive symptoms^[38]. On the other hand, negative SRC remained a robust predictor of suicidal

ideation, which is in accordance to previous findings^[7, 8]. The literature suggests that such coping amplifies hopelessness by heightening internal conflict, guilt, and punitive spiritual attributions, thereby intensifying the emotional toll of adversity in this population^[9].

The findings of this study should be interpreted in light of the specific institutional, political, and socioeconomic context of São Paulo. As the largest metropolis in Latin America, São Paulo is marked by pronounced social inequality, persistent housing shortages, and a fragmented network of services for people experiencing homelessness, particularly among older adults^[39, 40]. Although social and health policies addressing homelessness have been implemented, access to continuous and integrated mental health care remains limited, often resulting in delayed or discontinuous support for highly vulnerable individuals^[41]. These structural conditions may intensify psychological distress and amplify the relevance of coping processes informed by S/R^[39]. At the same time, the observed protective associations of spiritual well-being and the detrimental effects of negative SRC are consistent with findings from homeless and socioeconomically marginalized populations in other contexts, suggesting both contextual specificity and cross-contextual convergence^[42].

Another finding of our study was that significant depressive symptoms were present in 42% of participants, which is also a worrisome figure that reflects the compounded social and health vulnerabilities faced by middle-to-old-age individuals experiencing homelessness, including social isolation, food insecurity, and limited access to care^[10, 11]. In our sample, higher scores on the “Meaning” and “Peace” subscales of spiritual well-being and on intrinsic religiosity were consistently linked to lower depressive burden. In addition, both organizational and non-organizational religiosity were independently associated with lower depressive symptom severity, reinforcing the notion that multiple dimensions of religiosity may be relevant for depressive outcomes. These findings reinforce the role of spirituality as a psychological resource that fosters positive reappraisal, hope, and emotional resilience, echoing previous reports of lower depression rates in spiritually engaged vulnerable groups^[12, 13]. Intrinsic religiosity, in particular, provides transcendent connection and social networks grounded in shared values, mitigating loneliness and building spiritually oriented support systems that buffer the emotional impact of adverse circumstances^[14, 15].

Positive SRC also exerted an important association, indicating that adaptive faith-based coping strategies mobilized in response to stress can attenuate depressive symptoms amplify the role of individual coping resources, such as S/R. By fostering hope and optimism, positive SRC was related to greater emotional resilience. Earlier studies likewise associate it with stronger social support and a heightened sense of purpose under adversity^[14, 15]. In contrast, negative SRC again emerged as a salient risk factor, predicting higher depressive scores. This maladaptive style may intensify feelings of punishment and helplessness, amplifying psychological vulnerability. The finding underscores the need for interventions that help individuals reframing negative SRC experiences—such as internal conflict or spiritual guilt—to mitigate their detrimental mental-health effects^[16, 17].

These findings carry clinical and policy relevance for services that cater to middle-to-old-age individuals experiencing homelessness. Integrating spiritual and religious practices into mental health care could be an important intervention for this group^[43]. In primary care settings, routine screening of spiritual and religious aspects, followed by existential-focused interventions, may provide additional leverage for reducing depressive symptoms and mitigating the severity of SI^[44]. Shelters and community programmes might introduce faith-informed support groups, mindfulness sessions, or activities grounded in religious values, thereby cultivating environments that promote emotional health and spiritual well-being^[18, 19]. Within clinical mental health services, therapies that explicitly incorporate spirituality, such as religion-adapted cognitive-behavioural therapy, may also complement conventional treatments by offering culturally resonant and emotionally meaningful strategies for this highly vulnerable population^[45].

Moreover, healthcare professionals must be trained to address religious and spiritual issues ethically and with cultural sensitivity, especially in the context of ageing. Such skills are particularly pertinent for middle-to-old-age individuals experiencing homelessness, for whom spirituality often plays a central role in coping with chronic conditions and age-related challenges^[20, 21]. However, it is important to note that clinicians should remain alert to dysfunctional SR 'red flags', like excessive guilt, punitive God images, and belief-driven social withdrawal, as described by Pargament^[46]. Early detection of these patterns in primary care can mitigate mental-health complications^[22, 23].

At the policy level, homelessness programs should incorporate spiritual and religious dimensions into routine care. Mental-health services, for instance, ought to include systematic appraisal of SRC and religiosity in their screening and management protocols. Likewise, holistic approaches within shelters, integrating emotional, spiritual, and social support, could substantially improve mental-health outcomes^[22, 23].

This study has several limitations. Data were collected in 2019, prior to the COVID-19 pandemic and the subsequent rise in homelessness in São Paulo, which may limit the contemporaneity of the findings. The cross-sectional design precludes causal inference and limits conclusions regarding the directionality of associations between spirituality/religiosity and mental health outcomes. SI was assessed using a single item, which, although commonly used in population studies, may not fully capture its clinical complexity. The sample was restricted to two districts and accessed through an NGO, potentially limiting representativeness, particularly among more isolated or transient subgroups. In addition, the exclusion of individuals with severe mental disorders constrains applicability to those with profound psychiatric impairment. Finally, some dimensions of spiritual well-being may partially overlap with psychological well-being, warranting cautious interpretation. Despite these limitations, the study addresses a rarely examined population and uses validated measures of R/S, and SRC, offering relevant insights for research and practice.

Despite these limitations, this study has also several strengths. It uniquely focuses on middle-to-old-age individuals experiencing homelessness, a population seldom examined, and employs comprehensive

and validated instruments to capture specific S/R constructs (i.e. FACIT-Sp^[34], CRE^[35], and P-DUREL^[32]). These features provide valuable insights for designing targeted interventions.

Conclusion

Our findings underscore the relevance of religious and spiritual dimensions in the mental health of middle-to-old-aged individuals experiencing homelessness. Higher levels of intrinsic religiosity, positive SRC, and the Meaning and Peace facets of spiritual well-being were consistently associated with lower severity of SI and depressive symptoms, whereas negative SRC was associated with worse mental health outcomes. From a policy and clinical perspective, approaches that acknowledge and assess spiritual and religious dimensions may contribute to more comprehensive and person-centered mental health care for this highly vulnerable group.

Declarations

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Author Contribution

L.M.V. conceived and designed the study, developed the methodology, coordinated and supervised all stages of the research, and contributed to data collection, data analysis, and interpretation of the findings. L.M.V. also drafted the manuscript and coordinated its critical revision and final preparation. R.A.R., F.T.C., C.O.M., M.V.C.G., and A.C.S.T. contributed to data collection, interpretation of the findings, and preparation of the original manuscript draft. G.L. contributed to the interpretation of the findings and critically revised the manuscript for important intellectual content. All authors reviewed and approved the final version of the manuscript and agree to be accountable for the accuracy and integrity of the work.

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