ORIGINAL RESEARCH

Religious coping and suicidal ideation as a predictive model for suicide attempts

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ABSTRACT

Background and objective: Religious coping can help understanding suicide in its prevention and intervention. The objective of this study was to investigate if religious coping and suicidal ideation could be used as a predictive model for suicide attempts.
Methods: This is a survey and correlational delineation, carried out in southern Brazil with 260 adults assisted by the a public mental health service in two cities in northern Paraná from October 2020 to June 2021. For data collection, three instruments were used: The first one was a sociodemographic/clinical questionnaire to profile the participants; The second instrument was composed of 30 items dealing with impulsivity manifestations. The third instrument was used because it addresses coping and how people deal with everyday adversity through faith. Logistic regression analysis was used, through the SPSS®, v. 28. The dichotomous outcome variable was the suicide attempt, and the independent variables were a negative domain of the RCOPE scale. At first, three regression models were considered. A greater adherence happened only when the nominal variable "Have you ever tried to commit suicide?" qualified as an outcome variable.
Results: The suicide attempt as an outcome and the other variables performing as predictive represented a higher sensitivity (96.8%) compared to the previous models. As the negative coping score was increased by 1 unit, there was also an increase in the chances of suicide attempting by 1.83 times (95% CI 1.11;3.00).
Conclusions: It was discussed that religiosity has a positive impact on suicidal behavior, as it provides well-being/happiness, especially for those with mental disorders. This study would contribute to understanding the role and effects of religious coping in the process of counseling by healthcare workers. It is the first study to present predictive modelling for suicide attempt from negative religious coping. Hopefully, it would contribute to improve the process of counseling by mental health nurses and other healthcare workers.

Key Words: Suicide prevention, Coping strategies, Religion and psychology, Community mental health services, Psychiatric nursing

1. INTRODUCTION

Suicide is a deliberate action whose purpose is the voluntary extermination of one's own life. There is no consensus in the literature on a terms definition when there is a reference to suicide. A definition that has consensus among researchers in the area concerns the terminologies ideation, attempt, and suicide. These terminologies are used by international entities, such as the Centers for Disease Control and Prevention (CDC), the American Psychiatric Association (APA), the World Health Organization (WHO), the National Institute of Mental Health, the American Foundation for Suicide Prevention, the American Association of Suicidology (Youths), and the American Association of Suicidology (Adults).[1]

The Centers for Disease Control and Prevention [CDC][2]

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consider that suicidal ideation encompasses recurrent thoughts about suicide, involving thoughts that include the whole action planning until its outcome. According to Barbosa, Macedo and Silveira,[3] suicidal behavior has three distinct stages. The initial stage is known as suicidal ideation and is characterized by thoughts about death or the dying process, and there may be progression to suicidal planning. Subsequently, there is the suicide attempt, in which the person can succeed or not; if success occurs, then the accomplished suicide stage is established.

Current data from the CDC[2] reveal that in 2021, 48.143 died due to suicide, making suicide one of the main causes of death in the United States. Worldwide, in 2020, 12.2 million adults thought about committing suicide, of which 3.2 million planned it, and 1.2 million actually attempted suicide.

In Brazil, data from the Health Surveillance Secretariat of the Ministry of Health,[4] indicates that, between 2010 and 2019, 112,230 deaths by suicide occurred in the country. There was an increase in the suicide rate, from 9,454 in 2010 to 13,523 in 2019. There was also an increase in death risk by suicide in all Brazilian regions. Therefore, in 2019, the national rate was 6.6 per 100,000 inhabitants.

Among all the efforts for suicide reduction at a global level, the importance of focusing on the social determinants related to death by gender stands out. This effort is due to the suicide increase in America, as it is one of the unique regions in the world where mortality from suicide has been rising, which represented, in 2019, more than 97,000 deaths.[5]

Suicide manifests itself as one of the most extreme/decisive acts before mental health crises, also because it is a desolating feeling for family members. Annually, it represents more than 700,000 deaths.[6] It is understood, thereby, that this condition derives from different interactions/factors, of which the religiosity role is highlighted as a protective element to the act and attitudes related to the subjective/behavioral dimensions as possible predictors of suicide.[7]

In a study, suicidal ideation was considered a attempts/deaths predictor, in addition to emphasizing that this ideation intensity (during life) occurred daily, lasting up to eight hours, being persistent and continuous. In this regard, Vale,[8] in his study with 137 individuals undergoing treatment at Mental Health Centers for Alcohol and Other Drugs, sought to identify the suicidal ideation of these assisted participants and noticed that, among the main motivations for the suicidal act, much of it was related to the intense suffering reported. Another relevant fact is that more than half of the respondents indicated religion/family as an "impediment" factor for these acts.

A Norwegian study, carried out by Andersson, Lilleng and Ruud,[9] aimed to assess the suicidal ideation prevalence in 3,842 patients who had some kind of mental disorder and, concomitantly, used some kind of psychotropic drug, also seeking to identify the variables related to ideations. Data revealed that 25.8% of people presenting suicidal ideation used alcohol and had some kind of disorder, such as personality disorder, post-traumatic stress disorder or depressive disorder. There was also a response incidence among those who were single and had low perceived social relationship with friends/family.[9]

In this regard, concomitantly with the use of alcohol and other psychoactive substances, it can be said that depression is strongly associated with suicidal thoughts. Thus, Brown et al.[10] clarifies that there is a greater probability of death by suicide among those who have an overdose background and low-quality personal relationships, with poor affective bond.[10] Corroborating it, Larsen et al.[11] argue that low social support may be an important predictor of moderate/severe depressive symptoms.

Also, with respect to mental issues, a cross-sectional review study carried out with 1,443 adults assisted in the Primary Health Care network sought to analyze the different aspects involved in suicide attempts, as well as the possible intervention in the act. The results revealed that the subjects who committed suicide (45%) had been assisted in Primary Health Care, with almost 20% of them being assisted in mental health care in the last month preceding the act.[12]

A topic that has been relevant in the scientific literature about suicidal ideation is religiosity/spirituality. In an investigation carried out with 737 patients with depression and/or anxiety, Tae and Chae[13] sought to understand the psychological risk and protective factors as suicide attempts mediators. The results evinced that the low level of spirituality emerged as a dependent and strongly significant variable for suicide attempts increase, especially when the person also had a depressive condition. As the spirituality levels raised among the participants, attempts were reduced, which represented an impressive protective effect against the act itself.[13]

From this perspective, preventing elements that trigger suicide can be associated to confrontation strategies, called coping. Mônico[14] sustains that people who use coping strategies through religiosity (religious coping) are less prone to risk situations. The author also highlights the religiosity benefits for young people, as it slows alcohol consumption and reduces anxiety symptoms, consequently reducing suicidal ideation.

Authors, such as Tae and Chae,[13] indicate that religiosity/spirituality benefits lie on the fact that it brings a protective effect (psychic) to suicide, since it increases positive feelings related to comfort/relief of suffering before social and psychological problems. In addition, a better coping applicability referring to stress is possible, given that spiritual skills are enhanced, bringing plasticity in terms of a subjective well-being related to suffering.

However, there are still gaps in this subject. In a study with 352 undergraduates[15] performed by Bryan et al, a significant interaction between religious coping and religious coping exacerbated the relationship between depression and anxiety symptoms. During the COVID-19 pandemic, a Malaysian research with healthcare workers concluded that the positive religious coping was vital in reducing anxiety and depression among them[16] and therefore would be a tool for suicide prevention.

Baptista and Cardoso[1] believe that there are many factors to be contemplated to understand suicide, including social, financial, psychic/psychiatric, affective, and family elements. The authors include religious beliefs as a factor that, in their perception, can help understanding suicide in terms of its etymology, epidemiology, and prevention.

In this regard, Panzini and Bandeira[17] consider that the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) presented a reformulation in the way of approaching religion among psychiatric disorders. The authors argue that there was a removal of purely negative connotations about religion in psychopathology, through the Religious or Spiritual Problems classification (Code V), and elucidate that not all religions or beliefs promote well-being or subjective satisfaction, as it may even work as an illness factor.

Thus, spiritual abilities can be strengthened through irrational beliefs about religious interventions, which not only benefit mental aspects, but also provide hope. Notably, these benefits can be felt when there is some physical disorder (morbidity) that may compromise the feelings about life valorization.[18] Therefore, before the above observance, the present study aimed to analyze whether religious coping and suicidal ideation behave as a predictive model for suicide attempts.

2. METHODS

2.1 Participants

The study was carried out with 260 adults assisted at Mental Health Facilites in two cities in northern Paraná. There was also online participation (58.4%, n = 152). The mean age was 38.9 years (SD $\pm$ 12.9), the minimum age was 18 years, and the maximum age was 71. Females represented 66.6% of the sample (n = 173), and males represented 33.4% (n = 87). The sample selection criterion was not having a cognitive disorder that would impair understanding of the interview, such as Schizophrenia, and being over 18 years of age. All interviewees understood the content of the interview and its aim.Using a mean score of 2.37, standard deviation of 1.08 and odds ratio of 1.83, a post hoc analysis of study power was calculated using G Power® (version 3.1.9.7). From the values obtained, the power of the study was estimated at 99.41

2.2 Instruments

For data collection, three instruments were used. The first was a sociodemographic/clinical questionnaire to profile the participants, addressing issues related to age, sex, marital status, suicidal ideation, educational status, family income, religion, and housing.

The second instrument referred to the Barratt Scale, a Likert scale (4 points) composed of 30 items (whose scores range between 30-120 points) and which deals with impulsivity manifestations. When filling it out, the subject expresses his own behavior before everyday manifestations, whose high scores will reflect the impulsive behaviors' presence. The scale presents items related to motor impulsivity and non-planning as subdomains. The instrument presents evidence of its psychometric properties in the version that has been adapted/translated into Brazilian reality.[19,20] Therefore, the first response to the bilingual sample is the psychometric parameters of non-significant correlations (such as the 20 item - "I keep the line of reasoning"), being later adjusted in the second sample (idiomatic slang). As for the total score, in the American version, it was r = 0.93 and r = 0.91 ($p < .001$). Regarding the partial scores, the two versions presented a variation between 0.80 and 0.91 ($p < .001$). In Dieman[17] studies, BIS-11 presented an internal consistency index of 0.62 for Brazilian adolescents, emphasizing the lack of adaptation studies with this scale for Brazilian adults.[19,20]

The third instrument was used because it addresses coping and how people deal with everyday adversitiy through faith. It consists of the Panzini[21] Religious and Spiritual Coping Scale, which has 87 items with responses arranged on a five-point Likert scale, namely: 1 = not at all, 2 = a little, 3 = more or less, 4 = a lot, and 5 = very much. The structure is distributed in two dimensions, in which the negative one (NSRC) attaches 4 factors, and the positive one (PSRC) attaches 8 factors. Four evaluative indexes were used to measure responses (NSRC and PSRC mean), scores (total) and NSRC/PSRC ratio, and an open response (first question of the Scale). The spiritual/religious coping (SRC) refers to the way people use faith to cope with stress and

has been associated with improvements in quality of life and physical and mental health. The Panzini[21] Religious and Spiritual Coping Scale has a Cronbach alpha of 0.97and is the first instrument to measure SRC in Brazil, based on RCOPE Scale.[22] The RCOPE scale has been used in researches about relationship between anxiety and depression symptons[15] and as mediating effect between resilience and well-being.[23]

2.3 Procedures

2.3.1 *Data collection*

Initially, phone contacts and traveling to the intended locations were performed, aiming to reach potential participants; the instruments were self-applicable, lasting approximately 20 minutes. Invitations referring to the study were also released through electronic means/social networks, so that other individuals could learn about the research. For remote collection, the norms present in Ordinance 1.565/2020 and the health/sanitary measures regarding isolation at that occasion were followed. All participants signed two copies of the Informed Consent Form and were properly instructed about this study's purpose. All ethical procedures were followed, in compliance with the National Health Council Resolution 510/2016 and its complements. The research was approved by the Human Research Ethics Committee of the University to which it was bounded, under Opinion nº 4.276.621/2020.

2.3.2 *Data analysis*

Logistic regression analysis through Statistical Package for the Social Sciences (SPSS) software, v. 28, was used. The dichotomous outcome variable was the suicide attempt, and the independent variables were the score named Total Negative Coping (NSRC-TOTAL), which represents the domain called Negative Coping and the dichotomous question "Have you ever thought about suicide ?" sum. At first, three regression models were considered. A greater adherence happened only when the nominal variable "Have you ever tried to commit suicide?" qualified as an outcome variable and the others qualified as predictors.

2.4 Model adjustment

The variables were introduced via the Enter method, also using bootstrapping processes, with 1,000 samples. The Omnibus Likelihood-ratio, Cox & Snell's R^2, Nagelkerke's R^2, Wald's Test, and Hosmer & Lemeshow's tests were calculated. To compute the odds ratio, Expo (B) was calculated. Multicollinearity assumptions were verified via VIF and Tolerance scores. In the initial block, the Log-2 likelihood value was 340.23. In the Omnibus Likelihood-ratio test, all the variables presented a $p > .001$ value. The Hosmer & Lemeshow test showed $p = .89$, concluding that there are no significant differences between the expected model and the observed data. From the measured data, accuracy, specificity, and sensitivity values were established for these variables as predictors for suicide attempts.

3. Results

In the initial stage, the coefficient obtained from Cox & Snell's R^2 in the 0.50 value means that 50% of the variations occurred in the odds ratio log are explained by the independent variables (NSRC-TOTAL, and suicidal ideation), whereas R^2 Nagelkerke explains 68% of the variations recorded in the outcome variable (having attempted suicide). Descriptive values for the NSRC-TOTAL variable were mean equal to 2.37, extent from 1 to 5, standard deviation of 0.82 and variance of 0.67.

The Wald test verified statistical significance for each logistic equation coefficient ($p < .01$). The Expo (B) represents the odds ratio. A value greater than 1 means that, as the predictor variable increases, the outcome chances increase. In this case, when NSRC-TOTAL increases by 1 unit, the chances of suicide attempting increases by 1.83 times (95% CI 1.11; 3.00). Table 1 exemplifies the last model that obtained the best accuracy (86.9%), specificity (81.3%), and sensitivity (96.8%).

Table 1. Classification table between expected x observed data in the logistic regression model regarding suicidal ideation and suicide attempt

Observed			Expected		Appropriate percentage (%)
			Ever tried to commit suicide		
Stage 1			No	Yes	
	Have you ever tried to commit suicide?	No	135	31	81.3
		Yes	3	91	96.8
	Global percentage				86.9

In the first model assumed, in which only NSRC-TOTAL was included as a predictor, there was an accuracy of 69.6%, specificity of 86.7%, and sensitivity of 39.4%. For the second model assumed, suicidal ideation was classified as an outcome variable, and NSRC-TOTAL was classified as a predictor, which resulted in a model with 69.6% accuracy, 77.5% specificity, and 60.7% sensitivity. The third and last model obtained an accuracy of 86.9%, specificity of 81.3%, and sensitivity of 96.8%. In the figure 1, the ideal cut-off point (cut-off = 0.52) was observed to balance sensitivity and specificity. There are several ways to estimate statistical data, among which is the ROC (Receiver Operating Characteristic) curve, which is presented through a graph representing the quantitative data and according to the sensitivity rates and false positives - positive and negative fractions.[24]

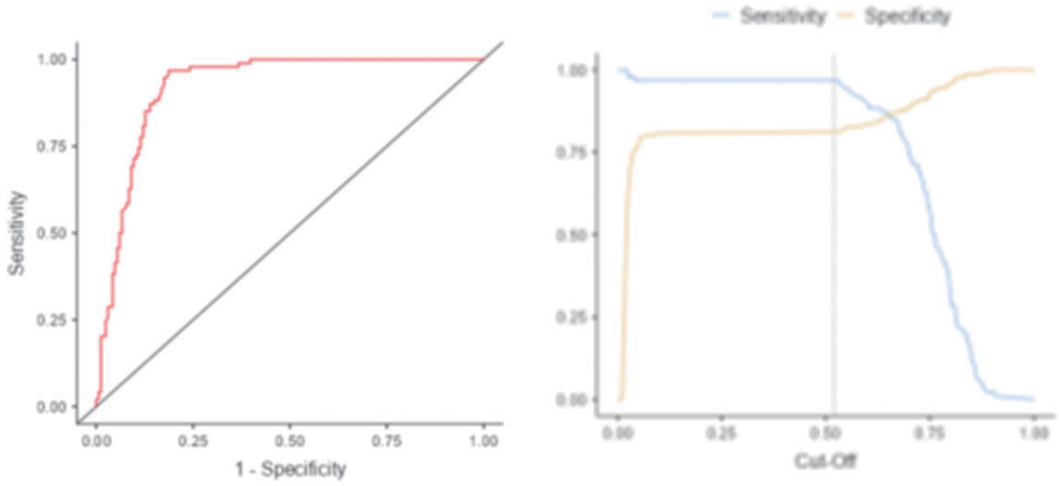

Figure 1. Receiver operating characteristic curve from data in the logistic regression model regarding suicidal ideation and suicide attempt (definitive model)

Also, Nahm[24] explain that the ROC, in figure 1 above, is also capable of ensuring this variation monitoring, as the cut-off points evolve. Thus, its better test quality is expressed when the ROC curve is closer to the upper left corner.

4. Discussion

In two studies that used the RCOPE scale, there was no association with suicidal ideation. However, it was identified that there is a relationship between stress, anxiety and depressive symptoms,[15] and it also highlights the weak negative association between negative coping and resilience.[23]

In the present study, suicide attempt as an outcome and the other variables performing as predictors configured a higher sensitivity (96.8%) compared to the previous models. In this regard, a cohort study revealed that suicide attempt rates were three times higher in individuals with a previous ideation background or even attempts.[25] It should be emphasized that, in that same study, the suicide attempt also worked as an outcome variable.

In their study, Yan et al.[26] could note that socioeconomic status, unemployment in the pandemic period, hopelessness, anxiety/depression, and other stressful events performed as outcome predictors for suicide. In accordance with the authors, weakened social support also proved disadvantageous to individuals, since it provided greater chances of suicide.

As the NSRC-TOTAL increased by 1 unit, there was also an increase in the chances of suicide attempting by 1.83 times (95% CI 1.11;3.00). It means that the chance of this suicide attempt occurring is explained by the association strength between predictors and outcome. For that matter, it should be highlighted that religiosity acts as an important protective factor against the suicidal act. According to Mônico,[14] religiosity works as a powerful force, while sustaining socioemotional practice. In addition, self-protection and support in daily decisions are guaranteed, being the faith perceived as of supreme value for facing tribulation.

Regarding the Hosmer & Lemeshow test (p value = .89), it is understood that there are no significant differences between the expected model and the data emerging from the analysis. From that point of view, a study on the Muslim panorama showed that negative life experiences and a previous suicide attempt background (number of these negative events) acted as essential positive predictors for new acts occurrence.[27]

Larsen et al.[11] argue that the sooner self-injury manifests itself, the greater the repetitions/frequency and the chances of suicide itself. These chances are expressed when there is

a longer duration of behavior related to self-injury, which is also responsible for increasing this risk. Eskin et al.[27] add that suicide acceptance (with regard to culture/religiosity), as well as negative events referred to life acts (attempts), were associated with thoughts on the issue.

Depression also appeared as a predictor related to suicidal desires in Pires and Souza[28] research. The authors underlined that eighth-year medicine students were the most prone to these desires and that this predisposition occurs because there is a greater external demand, whether in the educational or personal sphere.

Likewise, Lima et al.[29] noticed that the suicidal ideation prevalence converges with the problem that young men express greater emotional insufficiency (impaired resilience) before life's adversities. The authors attribute this suffering to overload and stress resulting from the transition period in which they are immersed. In addition, feelings of anger and hostility were also related to the outcome (ideation).

Furthermore, Silva et al.[30] pointed out that individuals with a previous suicide attempt background exhibited a higher ideation proportion. Finally, those who showed lower intensity (in the last action) had a higher prevalence compared to those who showed moderate intensity of "thoughts".

Low levels of spirituality/religiosity associated with emotional abuse and mental disorders (anxiety/depression) presence would be responsible for the substantial increase in suicide attempts, acting as independent factors of this relationship.[7] The religiosity exercised also impacts on positive affections concession, such as the happiness promotion and a greater perceived satisfaction with life.[31] In Dadfar, Lester and Abdel-Khalek[32] studies, it seems clear that religiosity can positively impact suicidal behavior, since it provides well-being and happiness to the subject, especially to those with psychiatric disorders.

5. Conclusion

A limitation of the present study was the period in which the research took place (pandemic), which may have influenced the aspects surrounding suicidal behavior. It is presumed that this period was fruitful to find people who had more exacerbated ideations, so this data could be better explored.

The findings of this study reflect the need to strengthen health activities in line with other aspects that are generally not addressed, as they are stigmatized. Thereby, the importance of reinforcing actions aimed at people with mental disorders is emphasized, above all on biopsychosocial approaches, including religiosity factors and coping measures. The findings from this study helped by using a statistical model to test the relationships between religious coping and suicide ideation. It is important to mention that religious/spiritual coping strategies have shown influence in mitigating suicidal behavior, making it clear that the more positive strategies are used, the weaker the suicide risk tendencies. Much has been said about this "health/religiousness" dyad, but there is little consistency in the scientific literature about this combination, as well as about its direct benefits in suicide attempts.

In view of the above, the idea of religious coping as a component of well-being seems promising, especially when it does not aim at subject objectifying, but at his existence and psychic pain humanization. So, new studies are underway, with the health and psychology professionals' collaboration, striving for a more systemic understanding of the many factors that still need to be unveiled on the matter.

Thereby, approaches that deal with the health team's management of the individual who uses more negative strategies of religious coping are indispensable, and during clinical care or in the screening of people at risk of suicide, an assessment of religious coping becomes essential to be able to balance the risk for protective factors for suicide, since the present study identified that every one point of an increase in the score on the negative coping scale, there is a 1.83 times greater chance of the person having suicidal ideation. This study is the first to present a predictive model for suicide attempts from negative religious coping.

Therefore, the need for future research that can improve the benefits of using positive strategies of religious coping is understood, especially regarding nursing attitudes before the collective subject, so that the study of cultural/individual aspects strengthening is included, as well as the weaknesses that surround the method for the affected individual. Thus, spiritual abilities can be strengthened through irrational beliefs about religious interventions, which not only benefit mental aspects, but also provide hope. Hopefully, this study will contribute to a richer understanding of the many expressions of religion in coping and to a more complete integration of religious and spiritual dimensions into the process of counseling by mental health nurses.

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Authors contributions

All authors contributed to the review of the data analysis and the hypotheses arising from the analyzes and worked on in the discussion of the data. All authors read and approved the final manuscript.

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