

Exploring Suicidal Ideation among Psychiatric Patients: Predictive Role of Personality Traits and Religiosity

Sadia Musharraf¹, Sarwat Sultan², Tahira Mubashar,³ Soulat Khan⁴

1. Department of Applied Psychology, The Women University, Multan, Pakistan.
 2. Department of Applied Psychology, Bahauddin Zakariya University, Multan, Pakistan.
 3. Institute of Applied Psychology, University of the Punjab, Lahore, Pakistan.
 4. Department of Applied Psychology, National University of Modern Languages, Islamabad, Pakistan.
- Correspondence: Sadia Musharraf. Email: sadia_musharraf@hotmail.com

Abstract

Background. Suicidal behavior is among one of the leading causes of death which may be a result of suicidal ideations. Biological and environmental factors are said to influence the spectrum of suicidal ideation from passive thoughts about death to active plans to take life. Therefore, the present research aimed at examining the predictive association of personality traits and religiosity with suicidal ideation among patients diagnosed with different psychiatric disorders.

Method. The sample consisted of 210 psychiatric patients diagnosed with Substance Abuse Disorder ($n = 88$), Major Depression ($n = 84$), and Generalized Anxiety Disorder ($n = 38$) with a mean age of 26.84 years. The participants filled in Urdu-version of the Sahin-Francis Scale of Attitude toward Islam, the Eysenck Personality Questionnaire, and the Beck Scale for Suicidal Ideation.

Results. The results divulged positive relation of suicidal ideation with neuroticism and psychoticism and negative relation of suicidal ideation with extraversion, social conformity, and religiosity. Further, neuroticism emerged as significant predictor of suicidal ideation followed by extraversion and psychoticism. The direction of prediction was in line with correlation.

Conclusion. The findings provide substantive implications for suicide prevention through the identification and evaluation of individuals with a higher risk for engaging in suicide ideation as well as highlighting the role of personality and religious attitudes for consideration in future strategies for the prevention of suicide.

Keywords. *Suicidal ideation, personality traits, religiosity, psychiatric disorders.*



Introduction

Suicide in Pakistan has become a serious public health problem (Naveed, Qadir, Afzaal, & Waqas, 2017). The suicidal rate has been increased at an alarming pace regardless of social and religious condemnation of suicidal behavior in Pakistani culture (Haider & Haider, 2002; Khan, 1998; Khan & Hyder, 2006; Khan & Prince, 2003). Self-harm and suicidal behaviors are considered as criminalized and stigmatized acts, thus, underreported in Pakistan (Naveed et al., 2017). Evidence existed about the influence of suicidal ideation on suicidal behaviors (Phillips et al., 2005; Sareen, Houlahan, Cox, & Asmundson, 2005). Moreover, the patients with psychiatric problems such as depression are more prone to suicidal ideation (American Psychiatric Association, 2000). Therefore, the present research aimed to explore predictors of suicidal ideation (i.e., personality traits and religiosity) among psychiatric patients.

There is a scarcity of research on suicidal behaviors in Pakistan. A study conducted in Karachi revealed suicide rates as 0.11 per 100,000 (Ahmed & Zuberi, 1981). According to World Bank Report, rates of suicide have raised from few hundreds before 1990s to 7,000 occurrences in 2008 (World Bank, 2008). Different media reports indicated that 701 people committed suicide in the first quarter of 2012 (Mirza, 2012). For the most recent years, there is no available systematic and official statistics because of the absence of any formal suicide surveillance system in Pakistan (Jordans et al., 2014; Mamun & Ullah, 2020).

A significant amount of research has reported wide-ranging occurrences of self-harming behaviors during the progression of psychiatric disorders (Fang et al., 2015). More recently, Czeisler et al. (2020) examined substance use, mental health and suicidal ideation during the pandemic of COVID-19. They found that mental health issues such as anxiety and depression as well as suicidal ideation rate enhanced during the pandemic. Rodríguez-Cintas et al. (2018) also found that substance abuse and psychological disorders have associations with suicidal attempts. Another research found that employees with mood disorders were more likely to have suicidal ideation when they were mistreated (Follmer & Follmer, 2021). However, few studies have also focused on risk determinants associated with suicidal thoughts among the psychiatric population.

One such risk is the possession of certain personality traits (Verona, Patrick, & Joiner, 2001). Rudd, Joiner, and Rajab (2004) suggested that personality assessment can provide support in predisposing vulnerabilities to suicide. A study by Duberstein et al. (2000) utilized the taxonomic framework of the five-factor model of personality (Costa & McCrae, 1992) to investigate its association with suicidal ideation in older depressed patients and demonstrated that suicidal ideation has a positive association with neuroticism, self-reported openness, and negative association with extraversion. Further, employing the short form of the Revised Eysenck Personality Questionnaire, Hills and Francis (2005) found that neuroticism was the main significant predictor of suicidal ideation, closely followed by psychoticism. Quite recently, Manning, Chan, Steffens, Pierce and Potter (2021) found that those with high scores on depression, neuroticism and low scores on social support and extraversion have an increased likelihood of suicidal ideation in older adults.

The second predictor of suicidal ideation was religiosity. A large-scale cohort study has been conducted using a sample of 60 countries belonging to five diverse religions. The study examined subjective religiosity, religious practices and suicidal attitudes. Findings revealed that religiosity negatively predicted suicidal rates and positively predicted negative attitudes towards suicidal ideation at national level. However, the attitudes towards suicide may vary across religions (Saiz, Ayllón-Alonso, Sánchez-Iglesias, Chopra & Mills, 2021). Another study found the positive impact of religiosity on happiness and suicidal behavior of psychiatric patients and concluded that religious activities for psychiatric patients may improve their subjective well-being (Dadfar, Lester, & Abdel-Khalek, 2021).

Suicidal thoughts and behaviors can be better explained through the classical sociological work by Emile Durkheim (1987). According to him, social integration prominently plays an important role to understand suicide. He particularly focuses on both sociological as well as psychological factors. In this view, 'anomie' the people who feel depressed are more likely to commit suicide. Durkheim categorized suicide as melancholy type of suicide and maniac type of suicide which are a result of suicidal thoughts (Durkheim, 1897).

Among the other factors, religious integration was also observed by Durkheim who narrates that Catholics commit suicide less frequently than Protestants due to higher level of social integration in Catholic societies. Later, empirical evidences also support the religious integration for other religions. For instance, Islam expects of its followers a daily ritual of prayer and the compliance of the self to the collective will (Simpson & Conklin, 1989). Islam bestowed with sense of community among its adherents (Stack & Kposowa, 2011). Routine prayers at mosque provide the opportunity of social interaction with other community members that decreases suicide ideation among Muslims.

The present study has mainly focused on the identification of specific personality traits and religiosity levels concerning suicidal ideation in psychiatric patients. A study conducted by Beautrais (2002) indicated that the presence of psychiatric disturbances is a strong risk determinant for self-harming behaviors. However, it is important to note that, not every individual has suicidal thoughts during the course of a psychiatric disorder. Thus, psychiatric problems are important but not the single underlying cause for suicidal risk. The question arises that which protective factors may act as buffers against suicidal thoughts and protect individuals from committing suicide even during psychiatric disorders. Therefore, it is assumed that high order personality traits correlate with suicidal ideation among psychiatric patients (Hypothesis 1a).

Past research has identified few factors that work as buffers to protect individuals against suicidal risk; one of which is religiosity (Rushing, Corsentino, Hames, Sachs-Ericsson, & Steffens, 2013; Van Tubergen, Grotenhuis, & Ultee, 2005). However, research with reference to suicidal behavior and religion is not widespread. Additionally, existing literature provides inconsistent findings. Furthermore, the majority of the research investigating the relationship between religiosity and suicidal ideation has been conducted on the general population. Thus, this is relatively a neglected area within psychiatric research. The role of religious variables in suicidology has been examined in view of different religious perspectives and inconsistent findings have been found. Several studies investigated the relationship between Islam and suicide. Findings indicated relatively low rates of suicide in Islamic countries (Daradkeh, 1989; Lester, 2006).

On the other hand, suicide and other self-threatening acts are undoubtedly condemnable in Islam. The low suicide rates in Muslim communities may be attributed to Islamic religious practices and dogmas. Several researchers have argued that perhaps, cultural stigmas and religious factors linked with suicidal behaviors may attribute to the under-reporting of suicide rates in Muslim communities (Abraham, Abraham, & Jacob, 2005; Wasserman, Cheng, & Jiang, 2005). Therefore, it is assumed that religiosity correlate with suicidal ideation among psychiatric patients (Hypothesis 1a).

Despite the great rise in the suicidal rate in Pakistan, only a few studies examined the predictors of suicidal ideation and behavior. The prior research has focused on circumstantial shreds of evidence (Shahid & Hyder, 2008), seasonal variations (Suhail & Qura-tul-Ain, 2002), socio-demographic factors (Khan & Reza, 2000), and self-esteem deficits (Rizwan & Ahmad, 2010). However, the relationship of personality traits and religiosity with suicidal ideation among psychiatric patients has not been explored previously in Pakistan. Further, the literature on suicidal thoughts has mostly focused on depressed patients; however, such findings cannot be generalized to patients with other psychiatric disturbances. The present research has tried to bridge this gap by the inclusion of participants from three different groups i.e., Major Depression, Generalized Anxiety Disorder, and Substance Abuse Disorder. It is assumed that personality traits and religiosity predict suicidal ideation among psychiatric patients (Hypothesis 2). Moreover, to provide more authentic findings. Suicidal ideators were identified and compared with non-suicidal ideators on personality traits and religiosity. It is assumed that group of suicidal ideators differ from non-suicidal ideators on personality traits and religiosity (Hypothesis 3).

Method

Participants

Sample consisting of ($N = 210$) outpatients diagnosed with psychiatric disorders was selected through a purposive sampling procedure. Psychiatric patients from three groups of psychiatric disorders: Major Depression (group 1, $n = 84$; males = 48, females = 36), Generalized Anxiety Disorder (group 2, $n = 38$; males = 14, females = 24), and Substance Abuse Disorder (group 3, $n = 88$; all males) were recruited.

Only male participants with Substance Abuse Disorder were recruited because there was no female with substance abuse disorder in the hospital setup. The sample was drawn from different hospitals and rehabilitation centers in Multan. The mean age of the research participants was 26.84 years ($SD = 2.96$, range = 22-31 years). Most of the participants ($n = 86$) have matriculation degree, followed by participants with intermediate ($n = 52$), primary ($n = 42$), and bachelor degree ($n = 30$). G power 3.1 (Faul, Erdfelder, Buchner & Lang, 2009) was used to analyze appropriate sample size selecting multiple regression as statistical test and by specifying the effect size of .15 (medium effect size), α error probability .05, power 95% (1- B error = .95). The analysis suggested a total sample of 138 participants. However, 210 patients were recruited.

Inclusion criteria. Only those participants were included who were diagnosed as the patients of major depression, generalized anxiety, or substance abuse disorder. However, participants were clinically stable as they were taking psychotropic medication. Only Muslim patients were considered for present study (as Muslims accounted for 98% of the population of Pakistan). Only young adults were included to maintain homogeneity and patients with minimum education of primary level were taken so that they can comprehend the questionnaires.

Exclusion criteria. Patients with comorbidity on Axis I & Axis II and having severe neurological or physical disturbance were excluded.

Measures

The Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975). EPQ is a 59-item measure assessing four personality traits. Three of the subscales (i.e., extroversion, neuroticism, and lie scale) consisted of 17 items while the psychoticism scale consisted of 8 items. Participants rate either the statement applies to them or not on two options: 1 = yes and 0 = No. The sample item is "Do you ever feel 'just miserable' for no reason?" (Neuroticism). Out of 59 items, 41 were keyed 'Yes', and 18 were keyed 'NO'. Urdu version of the EPQ (Amjad & Kausar, 2001) was used in the present research. Internal consistencies of the subscales of the adapted Urdu version ranged between $\alpha = .86$ to $\alpha = .54$ (Amjad & Kausar, 2001). In the present research, the internal consistencies ranged between $\alpha = .76$ (extraversion) to $\alpha = .60$ (psychoticism).

The Beck Scale for Suicidal Ideation (BSSI; Beck & Steer, 1991). BSSI is a 19-item measure assessing suicidal ideation in psychiatric patients. Participants rate the extent to which each statement applies to them on a 3-point Likert scale ranging from 0 = *Never* to 2 = *Always*. The sample phrase is "Wish to die". Two of the items were reverse-coded. Urdu version of the BSSI was used in the present research. Internal consistency of the adapted Urdu version was $\alpha = .75$ (Ayub, 2008) and in the present research was $\alpha = .72$.

The Sahin-Francis Scale of Attitude toward Islam (Sahin & Francis, 2002). SFS-AI is a 23-item measure assessing religiosity. Participants rate the extent to which each item adequately describes them on a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The sample item is "I know that Allah/God helps me". The Urdu version of the measure (Musharraf, Lewis, & Sultan, 2014) was adapted on a sample of 174 university students, where the level of internal consistency reliability obtained was $\alpha = .89$ and internal consistency was also $\alpha = .89$ in the present research.

Procedure

The proposed research plan was approved by the first researcher's institutional review board. Participants were approached through psychiatric and rehabilitation centers and major hospitals in Multan. Considering the sensitivity of the research, a formal permission letter was presented before the administration of the hospital and rehabilitation center to seek their approval explaining the purpose and objectives of the research. For the recruitment of participants, archival data of hospitals and rehabilitation centers were checked and participants fulfilling the criteria of the present research were approached. Further, to add more authenticity, the diagnosis was confirmed by the concerned psychologists/psychiatrist in the light of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000). The participants were outpatients and came in for their follow-up sessions. Consent was obtained from psychiatric patients to participate in the present study. They were guaranteed about the confidentiality of data and their right to withdraw from the study at any stage. The interested participants signed a consent form and filled in the study measures.

Participants filled in the study measures of eight different order (e.g., in order 1 EPQ was presented at first followed by SFS-AI, and BSSI) to overcome any possible issue related to order effect. They were asked to respond to each question honestly. The patients completed the research questionnaire in the hospital setting. Finally, participants were thanked for their participation in the study. The data was removed based upon incomplete information of study variables and suspicious response styles. The final dataset consisted of 210 participants.

Results

The prime objective of the research was to examine the predictors of suicidal ideation among psychiatric patients from personality traits (i.e., extraversion, neuroticism, psychoticism, and lie scale) and religiosity. Another aim of the study was to identify the difference between suicidal ideators and non-suicidal ideators on study variables. It was assumed that personality traits and spirituality related to suicidal ideation. Pearson product moment correlation was computed in this regard. Table 1 provides descriptive and the Pearson product moment correlation between study variables.

Table 1

Means, Standard Deviations and Correlations between Personality Traits, Religiosity and Suicidal Ideation in Psychiatric Patients (N= 210)

Variables	M	SD	2	3	4	5	6
Personality Traits							
1. Extraversion	7.52	3.33	-.29**	-.24**	.04	.18**	-.40**
2. Neuroticism	11.80	3.12	-	.56**	-.03	-.33**	.62**
3. Psychoticism	3.01	2.26		-	-.09	-.40**	.61**
4. Lie Scale	10.70	3.03			-	.01	-.11*
5. Religiosity	76.45	16.70				-	-.46**
6. Suicidal Ideation	3.40	7.70					-

Note. * $p < .05$, ** $p < .01$.

The table showed that religiosity had a positive association with extraversion and a negative association with neuroticism and psychoticism. Moreover, suicidal ideation correlated positively with neuroticism and psychoticism while correlated negatively with extraversion, lie scale, and religiosity.

Considering the significance of the correlation, hierarchical multiple regression analysis was carried out for religiosity and personality traits (i.e., extraversion, neuroticism, and psychoticism) as a predictor of suicidal ideation (Table 3). Hierarchical multiple regression was preferred because the variance on criterion variable is being explained by correlated predictors (Pendhazur, 1997; as seen in case of personality traits) and indication from existing literature. For instance, literature guided about the substantial role of neuroticism in suicidal ideation, so enter before other personality traits. Religiosity was entered in the first step, neuroticism in the second step, extraversion in the third step, and psychoticism in the fourth step. Further, the lie scale was entered in the fifth and final step.

Table 2

Hierarchical Multiple Regression Analysis Predicting Suicidal Ideation from Religiosity and Personality Traits (N=210)

Predictors	ΔR^2	B
Step 1 Religiosity	.21**	-.46**
Step 2 Personality Trait (Neuroticism)	.24**	.52**
Step 3 Personality Trait (Extraversion)	.04**	-.22**
Step 4 Personality Trait (Psychoticism)	.05**	.30**
Step 5 Lie scale	.00	-.06
Total R^2	.57***	

Note. ** $p < .01$, *** $p < .001$.

Table 2 showed that religiosity, neuroticism, extraversion, and psychoticism explained 21%, 24%, 4%, and 5% variance in suicidal ideation respectively. Lie scale model explained no variance in suicidal ideation. The result indicated that religiosity and extraversion emerged as negative predictors of suicidal ideation. On contrary, neuroticism and psychoticism emerged as positive predictors of suicidal ideation.

Furthermore, another main concern of the present research was to identify the differences between suicidal ideators and non-suicidal ideators with respect to personality traits and religiosity. At first, the suicidal ideator group was identified on the basis of the scores on two of the items of BSSI; one, measuring active suicidal desires and second, measuring passive suicidal desires, the 34 of the participants with suicidal ideation were identified. According to Beck, Kovacs, and Weissman, (1979), when the patients rated these two items as zero, there is no suicidal ideation. After the identification of suicidal ideators, the next step was to balance out the group of non-suicidal ideators for comparison. For this purpose, 34 non-suicidal ideators were selected from 176 non-suicidal ideators on the basis of age, sex, and type of disorder of the suicidal ideator group. The purpose of this selection was to form equivalent groups with reference to sample size and control the confounding effects of certain variables (i.e. age, sex, and type of disorder). An independent sample t-test was employed to find out the difference between the two groups of psychiatric patients on personality traits and religiosity.

Table 3

Differences between Suicidal Ideators and Non-suicidal Ideators for Personality Traits and Religiosity using Independent sample t-test (N=68)

Variables	Suicidal Ideators (n =34)		Non -Suicidal Ideators (n =34)		t(66)	P	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
Personality Traits									
Extraversion	4.35	2.81	7.70	2.85	-4.88	.00	-4.72	-1.97	-1.19
Neuroticism	14.45	1.50	8.96	2.52	10.91	.00	4.48	6.49	2.71
Psychoticism	3.0	.70	0.69	.43	16.39	.00	2.02	2.59	3.89
Lie Scale	10.15	2.41	10.72	3.10	-.84	.18	-1.91	.77	-0.23
Religiosity	54.85	9.78	87.14	14.40	-10.81	.00	-38.2	-26.3	-2.70

Table 3 showed that suicidal ideators and non-suicidal ideators differed on three personality traits of extraversion, neuroticism, psychoticism, and religiosity. It further indicated that non-suicidal ideators had a higher level of extraversion and religiosity. Moreover, suicidal ideators had a higher level of neuroticism and psychoticism.

Discussion

The prime aim of the present study was to investigate the impact of personality traits and religiosity on suicidal ideation among psychiatric patients diagnosed with three different psychological disorders (i.e., major depression, generalized anxiety, and substance abuse). Additionally, the focus was to find out the difference between suicidal ideators and non-suicidal ideators among these patients on their personality traits and religiosity.

The order of measurement was shuffled into eight different conditions to eliminate the probability of issues related to the order effect. The present study provided evidence about the role of personality traits (i.e., neuroticism, extraversion, psychoticism, lie scale) and religiosity from a collectivistic Muslim culture of Pakistan. In general, it can be concluded that personality traits and religiosity impact suicidal ideation among patients with psychological disorders.

The findings of the present research revealed (based on Pearson product moment correlation) a significant positive relationship of neuroticism, psychoticism, with suicidal ideation, and negative relationship of extraversion with suicidal ideation. Moreover, the strengths of the positive correlation were higher than the negative correlation. Literature, similar to present findings, also indicated a positive association of suicidal ideation with neuroticism (Cox, Enns, & Clara, 2004), psychoticism (Farmer et al., 2001), and negative association of suicidal ideation with extraversion (Kerby, 2003). A recent study also established the role of elevated neuroticism in suicidal ideation among women with major depression (Rappaport, Flint, & Kendler, 2017).

Moreover, the fourth scale of EPQ, the lie/social conformity scale negatively associated with suicidal ideation. However, previously, Hills and Francis (2005) found no association between lie scale and suicidal ideation, and Knight, Furnham, and Lester (2000) found no association between lie scale and attitude toward suicide. These findings coincide with the Pakistani collectivistic interdependent culture (Hofstede, 2001) where having and reporting suicidal thoughts is taken as a social taboo (Khan, 1998). Moreover, in Islamic culture self-harm is discouraged, so, suicide or deliberate self-harm is an illegal act in Pakistan (Mahmood, 1989), similar to many other Muslim countries. Literature also guided that under-reporting of suicide in Muslim communities may be due to the associated cultural and religious stigmas associated with suicidal ideation (Wasserman et al., 2005). Therefore, due to associated stigmatization in Pakistan psychiatric patients may be underreported suicidal ideation to avoid disgrace and embarrassment. The finding also focused on the significance of collateral source information like personality traits for the assessment of suicidal risk, especially in Pakistan, where suicidal behavior is under-reported due to multiple cultural and legal factors (Khan & Reza, 2000).

The present findings also revealed a negative correlation of religiosity with suicidal ideation. A systematic review of 850 studies that explored the role of religiousness in the mental health of individuals highlighted that religious involvement of individuals especially under stressful life conditions improved their psychological well-being and reduced depression, substance use/abuse, and suicidal thoughts (Moreira-Almeida, Lotufo Neto, & Koenig, 2006).

So, it can be inferred that although life stressors are important events that derail a person from positive feelings to suicidal thoughts, however, religiousness act as a solid wall against suicidal thoughts among religious individuals. Moreover, present findings can also be interpreted considering religious integration theory (Durkheim, 1966) that religion plays an important function in unity. The past research suggests Islam as a highly integrated religion that presumes the followers to perform various religious practices including five prayers in a day. These core religious beliefs and religious practices provide them the perception of a close and cohesive relation with God (Rezaeian, 2009). Thus, low suicidal ideation with high religiosity may be a result of Islamic beliefs and practices.

The findings of correlation analysis were also supported by multiple hierarchical regression. Overall, extraversion and religiosity emerged as negative predictors while neuroticism and psychoticism emerged as positive predictors of suicidal ideation (Hill & Francis, 2006). Few interesting findings have been found about the predictive effects of personality traits and religiosity. Neuroticism appeared to be the most significant positive predictor in present research which has features of anxiety and emotional instability (Widiger, 2009) followed by psychoticism and extraversion. These findings replicate the findings of Hills and Francis (2006) who explored the role of Eysenckian higher-order personality dimensions on suicidal ideation of undergraduate students in the UK. Moreover, a systematic review identified the promising role of neuroticism and extraversion in not only suicidal ideation but also in suicidal attempts and suicidal completion (Brezo & Turecki, 2006).

Lastly, the findings of the t-test by specifically taking suicidal ideators and non-suicidal ideators corroborated the findings of correlation analysis in the general sample. Similar to correlation, the findings suggested a higher score of extraversion and religiosity in non-suicidal ideators and higher scores of neuroticism and psychoticism in suicidal ideators.

Limitations and Suggestions

It is hoped that the findings of the study will provide substantive implications for the screening, prevention, and identification of suicidal ideators. However, the present study has few limitations that need to be acknowledged.

The present research examined the role of personality traits and religiousness quantitatively using a cross-sectional design, so, a causal link cannot be inferred. In the future, to infer causality, longitudinal design should be used. Moreover, in-depth exploration of the reasons behind suicidal ideation can be explored in the future to identify other causes of suicidal ideation in psychiatric patients from Pakistan. Furthermore, the present research explored the direct role of personality and religiosity in suicidal ideation. However, they can contribute to suicidal ideation in collaboration. Therefore, in the future, the moderating role of religiosity and personality traits in suicidal ideation needs to be explored.

The data for the present research was taken from the outpatient of hospitals and rehabilitation centers located in Multan, however, these suicidal thoughts are now prevailing in late adolescents and young adults. Therefore, in the future, these populations can also be explored. Furthermore, the participants of the present research were the psychiatric patients who have under the inherent threat of suicidal ideation and suicide. Therefore, in the future, quick management plans must be developed to immediately elevate the crisis and to identify the alarming phase at an early stage.

Implications

Present findings implicate that psychiatric problems seem like a serious threat to suicidal behavior as mentioned in their criteria of diagnosis too (American Psychiatric Association, 2000). Although personality traits strongly influenced suicidal ideation, specifically in presence of psychiatric problems, however, the environment plays an important role as a protective factor of suicidal ideation. The emergence of religiosity as a protective factor for suicidal ideation among psychiatric patients is an important contribution of present research in the collectivistic Muslim culture of Pakistan where suicide and suicidal ideation is considered as a social taboo and are under-reported due to humiliation and legal actions. Further, the emergence of religiosity in present research as a protective factor may implicate its examination and utilization during a routine clinical session of those psychiatric patients who are at suicidal risk and in the management of suicidal ideation by formulating appropriate management strategies. Moreover, the findings implicated that intervention programs must be focused on religiosity and personality traits in general for timely actions to prevent suicidal behavior.

It is hoped, that the findings of the study will provide substantive implications for the screening, prevention, and identification of suicidal ideators. The findings, in general, propose important implications for community caretakers, mental health professionals, health agencies, and organizations work to improve mental health and reduce suicidal behaviors.

Funding

This study received no specific grant from any funding agency in the public or private sector.

Competing Interests. The authors are well informed and declared no competing interests.

Ethical approval

The study was approved by the Ethics Committee (DPEC).

Consent for publication

Consent approved by the authors.

Availability of data and materials

Contact corresponding author.

Acknowledgement

Authors thank to all boarding institutes who consented to participate in the study.

Authors' contribution

All authors contributed to the conceptualization of research design, literature review, items development, data collection, and data analysis.

References

- Abraham, V., Abraham, S., & Jacob, K. (2005). Suicide in the elderly in Kaniyambadi block, Tamil Nadu, south India. *International Journal of Geriatric Psychiatry*, 20, 953-955. doi: 10.1002/gps.1385-1391.
- Ahmed, S., & Zuberi H. (1981). Changing pattern of suicide and parasuicide in Karachi. *J Pak Med Assoc*, 31, 76-80.
- American Psychiatric Association. (2000). Diagnostic and statistical manual of mental disorders-IV-TR. Washington, DC: American Psychological Association.

- Amjad, N., & Kousar, R. (2001). *A comparative study of personality of males and females arts and science students* (Unpublished master's thesis). University of the Punjab, Lahore.
- Ayub, N. (2008). Validation of the Urdu translation of the Beck Scale for Suicide Ideation. *Assessment*, 15, 287-293. doi: 10.1177/1073191107312240.
- Beautrais, A.L. (2002) Risk Factors for Serious Suicide Attempts among Young People. In: Kosky R.J., Eshkevari H.S., Goldney R.D., Hassan R. (eds) *Suicide Prevention*. Springer, Boston, MA. https://doi.org/10.1007/0-306-47150-7_23.
- Beck, A.T. , & Steer, R.A. (1991). Manual for Beck Scale for suicide ideation. San Antonio, TX: Psychological Corporation.
- Beck, A. T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal intention: the Scale for Suicide Ideation. *Journal of Consulting and Clinical Psychology*, 47(2), 343-352. doi: 10.1037/0022-006X.47.2.343.
- Brezo, J., Paris, J., & Turecki, G. (2006). Personality traits as correlates of suicidal ideation, suicide attempts, and suicide completions: a systematic review. *Acta Psychiatrica Scandinavica*, 113, 180-206. doi: 10.1111/j.1600-0447.2005.00702.x
- Costa, P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, 13, 653-665. doi: 10.1016/0191-8869(92)90236-I.
- Cox, B. J., Enns, M. W., & Clara, I. P. (2004). Psychological dimensions associated with suicidal ideation and attempts in the National Comorbidity Survey. *Suicide and Life- Threatening Behavior*, 34, 209-219. doi: 10.1521/suli.34.3.209.42781.
- Czeisler, M. É., Lane, R. I., Petrosky, E., Wiley, J. F., Christensen, A., Njai, R., ... & Rajaratnam, S. M. (2020). Mental health, substance use, and suicidal ideation during the COVID-19 pandemic— United States, June 24–30, 2020. *Morbidity and Mortality Weekly Report*, 69, 1049-1057. doi: 10.15585/mmwr.mm6932a1.
- Dadfar, M., Lester, D. & Abdel-Khalek, A.M. (2021) Religiosity, happiness and suicidal behaviour: A cross-sectional comparative study in Iran, *Mental Health, Religion & Culture*, 24, 128-141, doi: 10.1080/13674676.2020.1767554
- Daradkeh, T. K. (1989). Suicide in Jordan 1980–1985. *Acta Psychiatrica Scandinavica*, 79, 241-244. doi: 10.1111/j.1600-0447.1989.tb10252.x
- Duberstein, P. R., Conwell, Y., Seidlitz, L., Denning, D. G., Cox, C., & Caine, E. D. (2000). Personality traits and suicidal behavior and ideation in depressed inpatients 50 years of age and older. *Journals of Gerontology Series B*, 55, 18-26. doi: 10.1093/geronb/55.1.P18
- Durkheim, E. (1897). *Le suicide*. Paris: Felix Alcan.
- Durkheim, E. (1966). *Suicide*. New York: The Free Press.
- Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire (junior & adult)*. Hodder and Stoughton Educational.
- Fang, Y.-X., He, M., Lin, J.-Y., Ma, K.-J., Zhao, H., Hong, Z., & Li, B.-X. (2015). Suicidal drownings with psychiatric disorders in Shanghai: A retrospective study from 2010 to 2014. *PloS one*, 10(4), e0121050. doi: 10.1371/journal.pone.0121050.
- Farmer, A., Redman, K., Harris, T., Webb, R., Mahmood, A., Sadler, S., & McGuffin, P. (2001). The Cardiff sib-pair study. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*, 22, 71-73.
- Follmer, K. B. & Follmer, D. J. (2021). Longitudinal relations between workplace mistreatment and engagement – The role of suicidal ideation among employees with mood disorders. *Organizational Behavior and Human Decision Processes*, 162, 206-217. doi:10.1016/j.obhdp.2020.12.002.
- Haider, S., & Haider, I. (2002). Deliberate self poisoning (employment and debt). *Pakistan Journal of Medical Sciences*, 18, 122-125.

- Hills, P. R., & Francis, L. J. (2005). The relationships of religiosity and personality with suicidal ideation. *Mortality, 10*, 286-293. doi: 10.1080/13576270500321860.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. Thousand Oaks, CA: Sage Publications.
- Jordans, M. J., Kaufman, A., Brenman, N. F., Adhikari, R. P., Luitel, N. P., Tol, W. A., & Komproe, I. (2014). Suicide in South Asia: a scoping review. *BMC psychiatry, 14*. doi: 10.1186/s12888-014-0358-9.
- Kerby, D. S. (2003). CART analysis with unit-weighted regression to predict suicidal ideation from Big Five traits. *Personality and Individual Differences, 35*, 249-261. doi: 10.1016/S0191-8869(02)00174-5.
- Khan, M. M. (1998). Suicide and attempted suicide in Pakistan. *Crisis, 19*, 172-176.
- Khan, M. M., & Hyder, A. A. (2006). Suicides in the developing world: Case study from Pakistan. *Suicide and Life-Threatening Behavior, 36*(1), 76-81. doi: 10.1521/suli.2006.36.1.76.
- Khan, M. M., & Prince, M. (2003). Beyond rates: the tragedy of suicide in Pakistan. *Tropical Doctor, 33*, 67-69. doi: 10.1177/004947550303300203.
- Khan, M. M., & Reza, H. (2000). The pattern of suicide in Pakistan. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 21*(1), 31-35. doi: 10.1027/0227-5910.21.1.31 .
- Knight, M. T., Furnham, A. F., & Lester, D. (2000). Lay theories of suicide. *Personality and Individual Differences, 29*, 453-457. doi: 10.1016/S0191-8869(99)00205-6.
- Khan, S., Mubashar, T., Akhtar, T., & Butt, T. A. (2020). Impact of anger on suicidal ideation: Mediating role of perceived emotional distress in late adolescents and emerging adults with psychological problems. *Pakistan Journal of Psychological Research, 35*, 295-312.
- Lester, D. (2006). Suicide and islam. *Archives of suicide research, 10*(1), 77-97.
- Mahmood, S. (1989). *The Pakistan penal code (XLV of 1880)*, vol. II, sections 300–374: Lahore: Legal Research Centre.
- Mamun, M. A., & Ullah, I. (2020). COVID-19 suicides in Pakistan, dying off not COVID-19 fear but poverty?—The forthcoming economic challenges for a developing country. *Brain, Behavior, and Immunity, 87*, 163-167. doi: 10.1016/j.bbi.2020.05.028.
- Manning, K. J., Chan, G., Steffens, D. C., Pierce, C. W. & Potter, G. G. (2021). The interaction of personality and social support on prospective suicidal ideation in men and women with late-life depression. *The American Journal of Geriatric Psychiatry, 29*, 66-77. doi:10.1016/j.jagp.2020.03.018.
- Mirza, A. (2012). Trend of suicide increased by 24 percent this year. *Daily Times*. Retrieved from <http://www.dailytimes.com.pk>.
- Moreira-Almeida, A., Lotufo Neto, F., & Koenig, H. G. (2006). Religiousness and mental health: A review. *Revista Brasileira De Psiquiatria, 28*, 242-250.
- Musharraf, S., Alan Lewis, C., & Sultan, S. (2014). The Urdu translation of the Sahin–Francis Scale of Attitude toward Islam: A case of using only positive valence items in Pakistan. *Journal of Beliefs & Values, 35*(1), 25-35. doi: 10.1080/13617672.2014.884847.
- Naveed, S., Qadir, T., Afzaal, T., & Waqas, A. (2017). Suicide and its legal implications in Pakistan: a literature review. *Cureus, 9*.doi: 10.7759/cureus.1665.
- Pendhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction (3rd ed.)*. Fort Worth, TX: Harcourt.
- Phillips, K. A., Coles, M. E., Menard, W., Yen, S., Fay, C., & Weisberg, R. B. (2005). Suicidal ideation and suicide attempts in body dysmorphic disorder. *The Journal of Clinical Psychiatry, 66*, 717-725.

- Rappaport, L. M., Flint, J., & Kendler, K. S. (2017). Clarifying the role of neuroticism in suicidal ideation and suicide attempt among women with major depressive disorder. *Psychological Medicine*, *47*, 2334-2344. doi: 10.1017/S003329171700085X.
- Rezaeian, M. (2009). Islam and suicide: A short personal communication. *OMEGA-Journal of Death and Dying*, *58*, 77-85. doi: 10.2190/OM.58.1.e.
- Rizwan, M., & Ahmad, R. (2010). Self-esteem as a predictor of suicide risk among psychiatric patients. *Journal of Alternative Perspectives in the Social Sciences*, *2*, 577-592.
- Rodríguez-Cintas, L., Daigre, C., Braquehais, M. D., Palma-Alvarez, R. F., Grau-López, L., Ros-Cucurull, E., Rodríguez-Martos, L., Abad, A.C. & Roncero, C. (2018). Factors associated with lifetime suicidal ideation and suicide attempts in outpatients with substance use disorders. *Psychiatry Research*, *262*, 440-445. doi:10.1016/j.psychres.2017.09.021.
- Rudd, M. D., Joiner, T. E., & Rajab, M. H. (2004). *Treating suicidal behavior: An effective, time-limited approach*. New York, NY: Guilford Press.
- Rushing, N. C., Corsentino, E., Hames, J. L., Sachs-Ericsson, N., & Steffens, D. C. (2013). The relationship of religious involvement indicators and social support to current and past suicidality among depressed older adults. *Aging & Mental Health*, *17*, 366-374. doi: 10.1080/13607863.2012.738414.
- Sahin, A., & Francis, L. J. (2002). Assessing attitude toward Islam among Muslim adolescents: The psychometric properties of the Sahin-Francis scale. *Muslim Education Quarterly*, *19*(4), 35-47.
- Saiz, J., Ayllón-Alonso, E., Sánchez-Iglesias, Chopra, D. & Mills, P.J. (2021). Religiosity and Suicide: A large-Scale international and individual analysis considering the effects of different religious beliefs. *Journal of Religion and Health*. doi:10.1007/s10943-020-01137-x.
- Sareen, J., Houlahan, T., Cox, B. J., & Asmundson, G. J. (2005). Anxiety disorders associated with suicidal ideation and suicide attempts in the National Comorbidity Survey. *The Journal of Nervous and Mental Disease*, *193*, 450-454.
- Shahid, M., & Hyder, A. A. (2008). Deliberate self-harm and suicide: a review from Pakistan. *International Journal of Injury Control and Safety Promotion*, *15*, 233-241. doi: 10.1080/17457300802149811
- Simpson, M. E., & Conklin, G. H. (1989). Socioeconomic development, Suicide and Religion: A test of Durkheim's theory of religion and suicide. *Social Forces*, *67*(4), 945-964.
- Stack, S., & Kposowa, A. J. (2011). Religion and suicide acceptability: A cross-national analysis. *Journal for the Scientific Study of Religion*, *50*(2), 289-306.
- Suhail, K., & Qura-tul-Ain. (2002). Changes in rates of reported suicides over two decades: A content analysis study. *Journal of Behavioral Sciences*, *13*, 33-48.
- Van Tubergen, F., Te Grotenhuis, M., & Ultee, W. (2005). Denomination, Religious Context, and Suicide: Neo-Durkheimian Multilevel Explanations Tested with Individual and Contextual Data. *American Journal of Sociology*, *111*, 797-823. doi: 10.1086/497307
- Verona, E., Patrick, C. J., & Joiner, T. E. (2001). Psychopathy, antisocial personality, and suicide risk. *Journal of Abnormal Psychology*, *110*, 462-470. doi: 10.1037/0021-843X.110.3.462
- Wasserman, D., Cheng, Q., & Jiang, G.-X. (2005). Global suicide rates among young people aged 15-19. *World Psychiatry*, *4*, 114-120.
- Widiger, T. A. (2009). Neuroticism. In M. R. Leary & R. H. Hoyle (Eds.), *Handbook of individual differences in social behavior* (p. 129-146). New York, NY: The Guilford Press
- World Bank Report. (2008). *Enormous rise in suicidal rate in Pakistan*. Retrieved 11/08/2016, from <http://www.medindia.net/news/Enormous-Rise-in-Suicide-Rate-in-Pakistan-World-Bank-Report-83211-1.htm>