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Problem-Focused Coping and Suicidal Risk in Individuals with End-Stage Renal Disease: Moderating Role of Intrinsic Religiosity

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The present study explored the potential moderating role of intrinsic religiosity between problem-focused coping and suicide risk among patients with renal failure. The purposive sampling technique was used to collect the data from 250 individuals with renal failure; men (n = 165) and women (n = 85) with (M = 45.39, SD 13.80) taken from hospitals in Rawalpindi, Islamabad, and Lahore. Results indicated that intrinsic religiosity moderates the relationship between problem-focused coping and suicidal risk by adding a 6% variance. Furthermore, men used more problem-focused coping as compared to women based on the group of education. This was specifically noted in individuals with low education

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levels. This study will provide guidelines for mental health professionals to identify the possible suicide risk among patients with renal failure. Treatment adherence can be improved when their coping styles are congruent with their treatment demands. Therefore, it is necessary to plan proper interventions for renal failure patients.

*Keywords: C*oping, Kidney Disease, Religiosity, Suicide

Renal Failure is a major health problem having a serious influence on the quality of an individual's life. In renal failure, there is a decrease in the filtration rate of kidneys accompanied by a loss of monitoring endocrine and excretory kidney functions (Shinde & Mane, 2014). Literature shows that the prevalence of renal failure increases up to 8 percent every year. In Pakistan, each year 20,000 causalities have been reported (Fatima, 2017). Overall the prevalence of chronic kidney disease is found to be higher among people with old age. A similar number of studies also reported the high prevalence among men and women renal failure patients (Hasan, et al., 2018).

The risk factors related to renal failure include old age, low birth weight, and family history of the individual with kidney disease. Moreover, other leading causes are comprised of obesity, diabetes mellitus, smoking, and hypertension (Kazancioğlu, 2013). To deal with the stressors related to renal failure individuals use different coping strategies whereas, problem-focused coping was found to be useful in its management (Grover, 2016).

Patients suffering from renal failure need to take treatment either in the form of a transplant or dialysis. Hemodialysis is the most common treatment plan than kidney transplantation and peritoneal dialysis (Silva et al., 2016). Renal failure management involves correction of fluids, electrolyte levels, kidney replacement therapy, and avoidance of nephrotoxins. Various studies highlighted the role of acetylcysteine to prevent acute renal failure rather than other variety of procedures (Needham, 2005).

Although, the treatment is painful but crucial for survival. Hence, patients feel dependent on dialysis machines, etc. (Eissa et al., 2010; Al Nazly et al., 2013). Thus, individuals with renal failure have to

acclimatize to the adaptive coping strategies with the help of an interdisciplinary health care team (technical equipment, nutritionist, psychologist, etc.) to deal with their biopsychosocial needs (Msc & Babatsikou, 2014).

Coping can be defined as the thoughts and acts people use to manage specific stressful situations as well as their emotions (Matud, 2004). Folkman and Lazarus (1984) presented two types of coping, problem-focused coping (PFC) and emotion-focused coping (EFC). PFC is a more adaptive coping strategy that includes: active coping, planning, and reflecting on past experiences. EFC is a more maladaptive coping strategy that has a vast amount of different types of strategies which include: avoidant coping, distancing, and rumination (Carver et al., 1989; Dunkley et al., 2017; McMahon et al., 2013). The prior examination concluded that people who use more effective coping strategies will experience less disrupted behavior that may lead to distress (Rohde et al., 1990).

Literature proposed that EFC and PFC have been used widely by renal transplant patients, in comparison to hemodialysis patients (Gurkan et al., 2015). If an individual feels responsible for his illness, then definitely he will be feeling distressed. To combat stress levels individuals use different coping strategies whereas, whereas PFC was found to be more useful in the management of stressful conditions (Grover, 2016).

Individuals with renal failure remain on dialysis machines for a longer period which makes them hopeless and less problem-focused (Ahmad & Al Nazly, 2015). Ghaffari et al., (2019) reported that lesser use of PFC may end up with recklessness and even suicidal attempts. Furthermore, the results drawn from several studies proposed that men are prone to use the PFC mechanism, whereas women indulge more in EFC and seek social support more often (Janney, 2017).

An individual's adaptation depends on his skills to combat stressful situations. In the current study, coping theory consists of behavioral and cognitive skills that can be used to control internal and external demands that may be operated as a reference point. According to

the theory, coping has a major function in the management or power of change of the stressor (Folkman, 2013).

Religious practice and intrinsic religious beliefs have been widespread. Religion involvement seems to be more common among people with higher income, old age, married, and highly educated (Zaben et al., 2015). Samsha's Suicide Prevention Resource Center (2015) reported that effective medical care access to clinical interventions, strong social support, problem-solving skills, and religiosity can limit suicide and promote self-protection. Results of another study show that the evaluation of hemodialysis and kidney transplant patients results in turning more towards religion as a coping strategy followed by positive reappraisal and active coping (Gurkan et al., 2015).

Having strong religious beliefs among dialysis patients is a protective factor against suicidal risk (Martiny et al., 2011) and illnesses, difficulties, and miseries (Hojjati et al., 2017). According to McDaniel and Burnet (1990), religiosity is a faith in God followed by an agreement to fulfill the rules believed to be set by HIM. Allport and Ross (1967) presented two-dimensional models of religiosity: intrinsic and extrinsic. Intrinsic religiosity is an actual faith in which people do religious practice for their own sake (Kite & Whitley, 2016). In extrinsic religiosity, people are under the influence of extrinsic religious orientation and may follow religion to meet their external ends. Religious participation is one of the traditional ways through which patients cope with physical diseases (Jazieh et al., 2012). Such beliefs give faith and expectation for a healthier life and the power to tolerate physical ailments. Hence, religiosity can affect the physical and psychological health of dialysis patients, including their choice to carry on dialysis treatment over time (Pruchno et al., 2006). Consequently, it motivates the patients to face demanding situations and raise their hopes for everything, especially a healthier life (Pour & Hojjati, 2015).

Both intrinsic and extrinsic religiosity is associated with health outcomes (Eric & Muehlenbein, 2020). Maltby and Day (2003) found that an extrinsic orientation was associated with anxiety in the face of stressful events, as well as feelings of loss or sadness. The opposite was true for intrinsic religiosity, indicating that intrinsic orientations may be

associated with positive psychological outcomes (with plausible connections to physical health, whereas extrinsic orientation is linked with poorer outcomes. There is also evidence that intrinsic religiosity is related to an internal locus of control (Coursey et al. 2013).

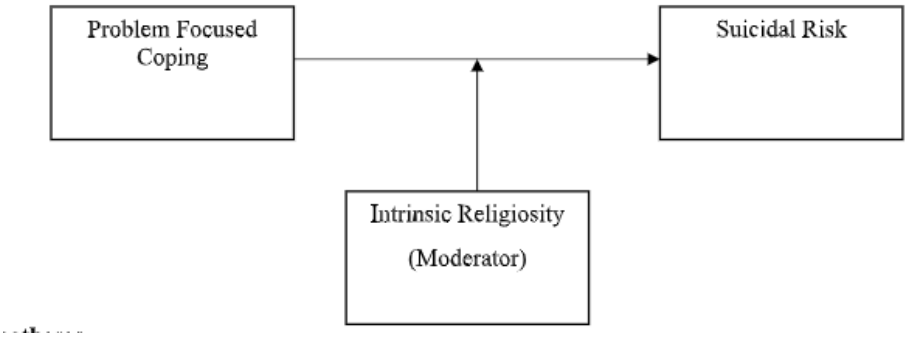
Religiosity was found to be a protective factor against suicidal behaviors. Resultantly, religiosity was negatively associated with non-lethal suicidal behavior (ideation and attempts), a protective effect. Similarly, it was found that intrinsic religiosity was negatively associated with non-lethal suicidal behaviors. However, these associations were weak (Lester, 2017). In a recent investigation it was concluded that intrinsic religiosity was associated with adherence to dialysis sessions, but not with adherence to medication (Medeiros, et al. 2017). Moreover, older patients were found to reveal higher levels of religiosity, whereas the younger ones expressed a lesser degree of religious and nonreligious coping (Cruz, 2017)

All of the above-mentioned researches have been conducted in Western countries whereas, in spheres like Pakistan few studies highlighted the link between problem-focused coping and suicidal risks among renal failure patients. Studies in Pakistan focus on the role of coping mechanisms involved in suicidal ideation, postpartum depression, work-related stress, and mental health. Religious coping is also studied with hopelessness and suicidal ideation. Prior studies were carried out on different populations such as medical students, drug users, etc., whereas, the current study emphasized the relationship between problem-focused coping and suicidal ideation among renal patients. Moreover, there is no evidence of further research that has been published in Pakistan exploring the importance of problem-focused coping in older adults with renal failure.

The increase in the number of hemodialysis patients and scarcity of study in this field, suggests the need to evaluate individuals' coping mechanisms largely. Mok and Tam (2001) suggested that coping mechanisms should be assessed and evaluated in terms of an individual's values, culture, norms, attitudes of society, and worldview related to their norms, culture, and legacy. This is the major reason that study needs to be further conducted in this regard. So, the current study is intended to

investigate the relationship between problem-focused coping and suicidal risks in a sample of individuals with renal failures. Furthermore, the moderating role of intrinsic religiosity between problem-focused coping and suicide risks was also examined.

Figure 1.
Conceptual Framework of the study



Hypotheses

1. Problem-focused coping will negatively predict suicide risk and intrinsic religiosity will positively predict problem-focused coping and negatively correlate with suicide risk among individuals with renal failure.
2. Intrinsic religiosity will moderately affect the relationship between problem-focused coping and suicide risk.
3. There will be a difference in problem-focused coping across gender and various groups of education about problem-focused and suicidal risk.
4. People with low education levels will be using less problem-focused coping and have more suicide risk than those with high education levels.

Method

Research Design

A Cross-sectional design was followed in the current study. A purposive sampling technique was used, and data were collected from Benazir Bhutto Hospital Rawalpindi, Quaid-e-Azam International Hospital, Rawalpindi, PIMS hospital Islamabad, and Sharif Medical City Hospital Lahore.

Sample

The sample consists of 250 patients with renal failure, which includes men (*n* = 165) and women (*n* = 85) with mean age (*M*=45.39, *SD*=13.80). The inclusion criteria included patients diagnosed with chronic kidney disease stage 5 and, patients who received either hemodialysis or peritoneal dialysis. The sample is representative of both genders, different age groups, marital statuses, and different levels of education.

Table 1

Demographic description of the individuals with renal failures (N=250)

Demographics	(*n*)	(%)	M (SD)
Age	250	100%	45.39 (13.80)
20-60			
Gender			
Men	165	66.0	
Women	85	34.0	
Marital Status			
Married	210	84.0	
Single	35	14.0	
Widow	5	2.0	
Education			
Primary	41	16.4	
Middle	49	19.6	
Matric	89	35.6	
Intermediate	41	16.4	
Graduation	26	10.4	
Post-graduate	4	1.6	

Note. *n* = no. of participants; *%* = percentage; *M* = Mean, *SD* = Standard Deviation

Instruments

Coping Style Scale (CSS). Problem-focused coping was measured through Coping Style Scale (CSS), which was developed by Zaman and Ali (2015) in the Urdu language. CSS is a self-report scale having 21 items, it is a 5-point Likert scale and the score ranges from 5 (*always*) to 1 (*not at all*). Each item is scored on a five-point Likert scale to indicate the extent to which the items are true for the participant. It has two subscales, i.e., problem-focused coping (PFC), and emotion-focused coping (EFC). In the present study, only one subscale PFC was used. Originally alpha level of PFC is .87 (Zaman & Ali, 2015).

Suicide risk (SRSM). The suicide Risk Scale for Medical inpatients (SRSM) was developed by Park et al., (2018). In the current study Urdu version of SRSM is used having an Alpha reliability of 0.65. It contains 7 items and a 4-point Likert scale with a score range from 0 to 3 (0; *strongly disagree*, 1; *disagree*, 2; *agree*, and 3; *strongly agree*). The proposed cut-off score SRSM is 5. SRSM has high internal consistency (Chronbach's alpha 0.91). It has a statistically significant concurrent validity with the Hospital Anxiety and Depression scale (HADS), Beck hopelessness Scale (BHS), and Beck scale for suicide ideation (BSI) (Park et al., 2018).

The intrinsic religiosity Subscale of the Muslim Religiosity Scale (MRS) was developed by Khan (2014). MRS is a 26-item scale that is based on two subscales, one is intrinsic religiosity (IR) and the other one is extrinsic religiosity (ER). It states that an individual who is intrinsically motivated lives with religion, and the extrinsically motivated one, only uses religion. In the current study, only one subscale intrinsic religiosity (having 13 items) was used to measure intrinsic religiosity in individuals. It is a five-point rating scale with response options 1= *strongly disagree*, 2= *disagree*, 3= *don't know*, 4= *agree* and 5= *strongly agree*. The value of Cronbach's alpha's coefficient of the Intrinsic Religiosity subscale was .72 (Khan, 2014).

Procedure

Formal permission for the instruments used in the present study was sought from the authors. The informed consent was signed by the participants of the study. Moreover, confidentiality and anonymity of their responses were also assured. In this process, all researched based ethical considerations were maintained

Results

Hypotheses of the present study were tested through descriptive statistics, correlation, regression, and moderation analysis. Descriptive analysis was done to analyze the trends in data. To find the relationship between variables, correlation analysis was used. Regression analysis was used to examine the causal relationship between the variables. The data were analyzed through Statistical Package for Social Sciences (IBM-SPSS Version 25). For moderation analysis, Hayes's (2013) 2.16 version was used.

Table 2

Descriptive statistics and Inter-scale Correlation coefficients for problem-focused coping, suicide risk, and intrinsic religiosity among individuals with renal failure (N=250).

Variables	*M*	*SD*	1	2	3
1. PFC	*24.2*	*4.4*	-		
2.SRMI	*15.7*	*2.4*	*-.09*	-	
3.IR	*50.5*	*4.0*	*.28***	*-.19***	-

Note. ***p*<.01; PFC= Problem focused coping, SRSMI= suicide risk scale for medical inpatients, IR=intrinsic religiosity

Table 2 demonstrated the correlation analysis to examine the association between PFC, suicide risk, and intrinsic religiosity. Results indicated that PFC has a weak negative correlation with suicidal risk and

intrinsic religiosity is positively and significantly correlated with problem-focused coping and negatively correlated with suicidal risk.

Table 3

The moderating role of Intrinsic Religiosity on the relationship between problem-focused coping and suicide risk among individuals with renal failures (N=250).

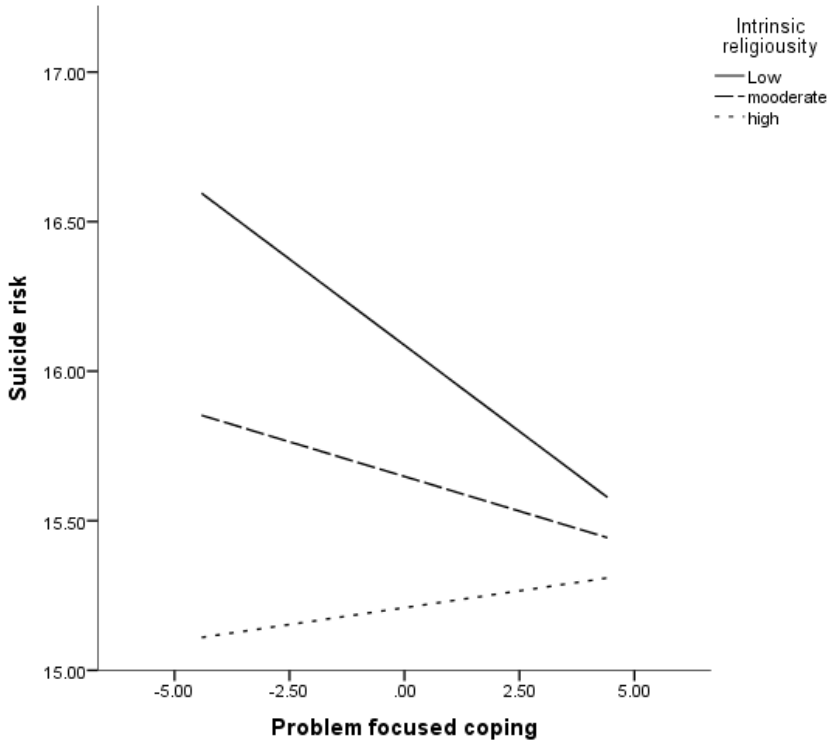
Predictors	Suicidal Risk		95% *CI*	
	B	*ΔR* ²	*LL*	*UL*
Step 1				
Constant	15.65***		15.34	15.94
Intrinsic religiosity	-.11**		-.19	-.03
Problem-focused coping	- .05		-.12	.03
Step 2				
Intrinsic religiosity x Problem-focused coping	.02*	.02*	.00	.03
Total R^2	.06			

Note. CI = Confidence Interval: LL = Lower limit: UL = Upper limit, *p<.05, **p<.01, ***p<.001

Table 3 shows the moderation analysis among study variables. Results revealed the relationship between PFC and suicide risk is significantly moderated by intrinsic religiosity. Intrinsic religiosity is adding a 6% variance in the relationship between PFC and intrinsic religiosity. The moderation model represents, that if the patients with

renal failure are intrinsically religious and use PFC, then they have less suicide risk. Further slop was computed and a mod graph was established

Figure 2.
The moderating role of intrinsic religiosity on problem focus coping and suicidal risk in renal failure patient



In Figure 2, the graph represents the moderating relationship of intrinsic religiosity between problem-solving coping and suicidal risk whilst, whereas renal patients with a high level of intrinsic religiosity have greater problem-focused coping and lower suicidal risks.

Table 4

t-test analysis between men and women on the variables of problem-focused coping, suicide risk, and intrinsic religiosity among individuals with renal failure (N=250).

	Men N= 165		Women N= 85				*95%CI*		
	M	SD	M	SD	t	p	LL	UL	Cohen's *d*
PFC	24.68	4.64	23.36	3.80	2.2	.03	.16	2.5	0.3
SR	15.63	2.44	15.93	2.35	-.93	.35	-.93	.34	0.1
IR	50.51	3.98	50.44	4.10	.14	.89	-.99	1.1	0.0

Note. PEF= Problem-focused coping, SRIMI= suicide risk for medical inpatients, IR=intrinsic religiosity.

Table 4 shows the t-test analysis and the results revealed a significant difference between men's and women's use of problem-focused coping. Men have higher problem-focused coping as compared to women with renal failure (M=24.68, SD=4.64), (M=23.36, SD=3.80).

Table5

The difference across various groups of education about problem-focused coping, suicide risk, and intrinsic religiosity among individuals with renal failures (N=250).

Variables	Primary (N=41)		Middle (N=49)		Matric (N=89)		Intermediate (N=41)		Graduate (N=26)		Post-graduate (N=4)		F	p	*η2*
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*			
PFC	22.29	3.73	23.41	3.58	23.96	4.04	26.07	5.04	25.81	4.76	31.25	4.34	6.82	.00	0.12
SRSMI	16.51	1.77	16.43	2.15	15.44	2.54	15.24	2.63	14.88	2.33	16.25	3.30	3.07	.01	0.06
IR	50.24	4.17	48.65	2.68	50.70	3.90	51.49	4.28	451.35	4.35	54.75	6.39	3.99	.00	0.08

Note. η2= Eta Squared, PEF= Problem-focused coping, SRIMI= suicide risk for medical inpatients, IR=intrinsic religiosity

Analysis of variance (ANOVA) revealed significant differences among patients due to their education levels concerning PFC, suicide risk, and intrinsic religiosity. Problem-focused coping is found to be higher in post-graduates as compared to other educational groups (primary, middle, matric, intermediate, graduate). There is a slight difference identified among various groups of education in terms of suicidal risk and intrinsic religiosity among renal failure patients.

Discussion

The purpose of this study was to demonstrate the framework for patients with renal failure and to test the pathway leading to suicidal risks. In the present study, the relationship between problem-focused coping (PFC), suicidal risks, and intrinsic religiosity among patients with renal failure was explored. Furthermore, the moderating role of intrinsic religiosity in the relationship between PFC and suicidal risk was also examined.

The results obtained from the current study support the first hypothesis which stated that Problem-focused coping will negatively predict suicide risk and intrinsic religiosity will positively predict problem-focused coping and negatively correlate with suicide risk among individuals with renal failure. Results indicated that PFC has a weak negative correlation with suicidal risk and intrinsic religiosity is positively and significantly correlated with problem-focused coping and negatively correlated with suicidal risk (table-2). Prior studies showed that problem-focused coping and emotional-focused coping was positively associated with suicidal ideation (Megahan et al, 2010) The results are in line with previous findings that also reported a significant association between spirituality, religion, and coping strategies in hemodialysis patients (Patel et al, 2002; Sohail et al., 2019; Yodchai et al, 2017). Literature showed that suicidal ideation was negatively associated with private religiousness, total religiousness, or religious belief (Robins, & Fiske, 2009) and patients with a high level of intrinsic religiosity showed a low level of hopelessness and suicidal ideation (Karademas, 2010). When examining the prediction of suicide risk by intrinsic religiosity, the finding showed that suicide risk is negatively predicted by intrinsic religiosity. The finding of the current study is consistent with previous literature that religious attendance and intrinsic religiosity were inversely correlated to suicide risk (Mosqueiro et al., 2021).

The second hypothesis denoted that Intrinsic religiosity will moderately affect the relationship between problem-focused coping and suicide risk among individuals with renal failure. Results revealed the relationship between PFC and suicide risk is significantly moderated by

intrinsic religiosity. Intrinsic religiosity is adding a 6% variance in the relationship between PFC and intrinsic religiosity (table-3). The findings are supported by Lawrence and his colleagues (2016) who reported that religion and spirituality were associated with the protection against suicide. Moreover, Martiny and his coworkers (2011) found that patients with no religious involvement had eight times more suicide risk. Thus, involvement in religion appears to enable the sick, especially those with chronic and disabling medical illnesses, to experience psychological growth from their adverse health experiences and to cope better, instead of being defeated by their consequences (Koenig et al, 2001). Past scientific literature has pointed out religiosity as a protecting factor in both risk and occurrence of suicide (Loureiro et al.,2018).

The third hypothesis of the current study proposed that there will be differences across gender and various groups of education about problem-focused and suicidal risk. t-test analysis was done between men and women on the variables of problem-focused coping, suicide risk, and intrinsic religiosity among individuals with renal failure. Results revealed a significant difference between men's and women's use of problem-focused coping. Men have higher problem-focused coping as compared to women with renal failure (M=24.68, SD=4.64), (M=23.36, SD=3.80) (table-4). Analysis of variance (ANOVA) revealed significant differences among patients due to their education levels concerning PFC, suicide risk, and intrinsic religiosity. Problem-focused coping is found to be higher in post-graduates as compared to other educational groups (primary, middle, matric, intermediate, graduate). There is a slight difference identified among various groups of education in terms of suicidal risk and intrinsic religiosity among renal failure patients (table-5).

The findings of the current study suggest a significant difference between men and women regarding PFC. Men utilize higher PFC as compared to women. Findings are consistent with literature that women use emotion-focused and avoidance coping strategies whereas, men use PFC to deal with problems (Bazrafshan, et al, 2014; Folkman, & Lazarus, 1980; Kim, & Agrusa, 2010),

Furthermore, the analysis suggested a significant difference between education levels in relation to PFC, suicide risk, and intrinsic religiosity. PFC and intrinsic religiosity were higher in postgraduate as compared to the primary, middle, matric, intermediate, and graduate individuals with renal failure. Findings are congruent to previous literature, that a higher level of education increases the individual's capability to deal with problems efficiently (Saberi-Zafarghandi et al, 2005). Similarly, Kim and Agrusa (2010) also investigated that people with a high level of education and income mostly used PFC. Similarly, another study also found that individuals with a college education use more PFC as compared to less-educated individuals (Bazrafshan et al., 2014). Whereas suicide risk was high in primary educated patients with renal failure. Keskin and Engin (2011) revealed that both depression and suicidal ideation were significantly associated with age and lower education levels. Similarly, the findings of another study also revealed that individuals with low education levels are more involved in attempting suicide after encountering a general failure and stigma (Pompili et al., 2013).

Conclusion

The present study suggests imperative findings in the domains of mental health for individuals with chronic illness. The findings of the present study reported a significant relationship between PFC, suicide risk, and intrinsic religiosity among patients with renal failure. It was found that intrinsic religiosity has a significant moderating effect on the relationship between PFC and suicide risk, indicating the importance of religiosity and PFC to overcome the possible risk of suicide and to promote individual mental wellbeing.

Limitations & Future Recommendations

The current study has some limitations which are essential to highlight for the convenience of future researchers who can work in similar areas. Study participants were from Islamabad, Rawalpindi, and Lahore which affects its generalizability to the larger spectrum of patients with renal failure. For better generalizability future studies should include

a larger sample from multiple cities across the country. As it was a quantitative study, further qualitative or mixed-method is also recommended. More studies need to be done on different populations like non-clinical populations and concerning other possible predictors for further validation. As the measures used in the current study were self-reported, it might cause social desirability. So it is suggested for future researchers add some measure of social desirability to control this element.

The current study is beneficial with sound strengths like; it may help in developing intervention programs to enhance PFC and overcome possible suicide risks among these patients. This study can provide better awareness to the health professionals regarding patients' stress during treatment as well as a possible suicide risk. It is an effort to understand whether intrinsic religiosity helps to prevent suicidal risk among patients. Moreover, it can provide guidelines to the policymakers regarding the importance of the mental health of renal failure patients. The present study can be beneficial to provide awareness to the family, caregivers, and medical staff regarding the distress of individuals with renal failure so that they can assist them accordingly. Lastly, it can be helpful to provide awareness at the societal level to highlight the importance of religion to promote hope and inner peace.

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