

# The Relationship between Coronavirus Anxiety, Resilience, and Islamic Beliefs in Hemodialysis Patients during the Pandemic: A Survey in Iran

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## Abstract

The corona virus disease has been converted into one of the greatest present public health crises. Patients with chronic diseases, including people with kidney failure undergoing hemodialysis treatment, are one of the main groups at risk of corona virus. The present study aimed at investigating the relationship between corona virus anxiety, resilience, and religious beliefs in hemodialysis patients during the Covid-19 pandemic in Iran. A total of 160 patients undergoing hemodialysis participated in this cross-sectional study. The data was collected by convenient sampling from three hemodialysis centers during April 15 to May 15, 2022 in Northern Khorasan province. Patients completed four questionnaires: demographic information questionnaires, Corona Disease Anxiety Scale (CDAS), Connor-Davidson Resilience Scale (CD-RISC) and Golriz and Baraheni's Religious Attitude (2013). Data were analyzed using Stata14. The findings showed that 98.8% of the participants had mild anxiety and 1.2% had moderate anxiety. Anxiety (the physical component) had an inverse relationship with resilience (control component) ( $p < .05$ ); also, resilience and its components had a direct correlation with religion ( $p < .05$ ). Resilience and religious beliefs are related to corona anxiety in hemodialysis patients, and targeting these two components through psychological treatments can be effective in reducing corona anxiety.

## INTRODUCTION

In December 2019, the spread of a viral disease was reported in the city of Wuhan, China (He et al., 2020). The cause of this disease was a new type of genetically mutated virus from the corona virus family called SARS-CoV-2, which was named Covid-19 disease. Covid-19 spread rapidly throughout China and the world (Zhu et al., 2020). The World Health Organization declared Covid-19 as the sixth health emergency of international concern. More than 203 countries, regions or territories were affected (Moghanibashi-Mansourieh, 2020). So far, more than 180 million people have been diagnosed with Covid-19, and about 4 million people worldwide have lost their lives as a result of affliction with coronavirus (Silver et al., 2021).

The virus can cause symptoms such as fever, dyspnea, cough, and invasive lesions in both lungs of patients; it can also spread to the lower respiratory tract and cause viral pneumonia (Zhu et al., 2020). This disease has a high virulence and the result of this great pandemic was

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the occupation of hospital beds, excessive fatigue and burnout of treatment teams and home quarantine of people, which has caused negative psychological effects at the community level (Wu & McGoogan, 2020). Chronic kidney disease (CKD) is a global health problem (Yang et al., 2021). This disease progresses in a five-stage course to end-stage renal failure, which is called end-stage renal disease (ESRD). At this stage, the patient needs kidney replacement treatments, i.e. dialysis (hemodialysis or peritoneal dialysis) or even kidney transplant to continue living (Hoang et al., 2018). According to statistics, by the end of 2017, there were 697.5 million patients with chronic kidney disease in the world (Bikbov et al., 2020) and this amount is expected to increase to 5.4 million people by 2030 (Bikbov et al., 2020; Liyanage et al., 2015).

This study will focus on hemodialysis, i.e., the most common treatment option. Living with dialysis is a constant challenge for these patients due to the need to follow the treatment plan, dietary restrictions, and changes in function (Cukor et al., 2006; Jafari et al., 2018). In addition to the physical disorders caused by the disease and its complications, ESRD patients have a high prevalence of psychiatric problems (Yang et al., 2021). The psychological health of ESRD patients has been a concern for many years since the beginning of dialysis treatment (Cukor et al., 2006).

Loss of kidney function and urinary excretion can cause a severe emotional crisis in the patient (DePasquale et al., 2012). The life expectancy of dialysis patients is one-third to one-sixth of the general population of the United States (Cukor et al., 2006). Considering this background, the investigation of psycho-social factors affecting hemodialysis patients gives us the necessary knowledge to identify and manage mental problems in this population. One of the most common psychological consequences of the stressful situation caused by the Corona virus is anxiety and the lack of information on how to effectively deal with it (Stankovska et al., 2020).

Anxiety is a feeling of tension, apprehension and physical changes such as increased blood pressure, diaphoresis, tremors, vertigo or tachycardia (Feng, 2022). When anxiety is higher than normal, it weakens the body's immune system, and as a result, the risk of catching the virus increases (Moghanibashi-Mansourieh, 2020). Corona anxiety is the anxiety caused by fear of affliction with corona virus (Bajema et al., 2020). It seems that the reason for corona anxiety is mostly the unknown nature of the virus and cognitive ambiguity, lack of definitive treatment, forced quarantines and economic problems caused by the epidemic (Bajema et al., 2020; Ferreira et al., 2021). The results of studies have shown that psychological factors such as disease anxiety make a person vulnerable to this virus (Stankovska et al., 2020). For this purpose, it is necessary to extract and examine variables correlated to Corona anxiety so that its negative consequences can be controlled and reduced.

Resilience is a potential human psycho-social ability that can reduce negative emotions and promote adaptation to adversity; it is a dynamic process whereby people exhibit positive adaptive behaviors when faced with adversity (Chon et al., 2020; Morse et al., 2021). Individuals with strong resilience adapt to conditions faster, have the ability to plan for long-term goals, recover from injury more quickly, and become less anxious and disturbed when faced with it (Everly et al., 2012; Rezaei et al., 2018).

Resilience has been considered as an important process in the experience and management of chronic diseases. This adaptive response can be an important determinant in treatment adherence (Freire de Medeiros et al., 2017). It can also be used as a therapeutic method to reduce patients' anxiety (Lupe et al., 2020). Hence, research on resilience is carried out with the aim of preventing the occurrence of problems by strengthening the individual's resilience. Besides, a high level of psychological resilience significantly reduces the risk of anxiety (Poudel-Tandukar et al., 2019). Consequently, in the corona virus pandemic, the tenacity of resilient people can be an effective factor in controlling anxiogenic conditions. In

its latest statements, the World Health Organization has examined health from the perspective of four basic physical, mental, social and spiritual dimensions (Organization, 2005). The emphasis on the fourth dimension, that is, spirituality, which is one of the components of religious belief, displays the awareness of the authorities and mental health professionals about this issue and their emphasis on the importance of spirituality in the lives of people in community (Kowalczyk et al., 2020; Milner et al., 2020).

Religious beliefs are a religious motivation that originates from human nature (Allport, 1966). In this way, a person feels a motivation in the depths of his being that makes him research about the creator of the universe, worship Him, find solutions, and take refuge in Him (Zahirikhah et al., 2018). When disease is concerned, the discussion of seeking healing and subsequently, religious beliefs and hope for the life of the patients are also raised (Estakhri et al., 2017).

It is emphasized in the religious teachings of Islam that, based on the cause-and-effect system governing the world and the universe, if someone does not provide the necessary conditions to face natural events and diseases, s/he will be vulnerable and subject to events and diseases. In such cases, the disease cannot be attributed to God, because He is Just and Kind and does not oppress anyone (Mahmoodi et al., 2022).

### **Rationale of the Study**

New studies have shown that in the issue of mental health, differences in religious attitudes are more important than differences in religious practices (Francis et al., 2004). Some studies confirmed the positive effects of religious attitude on mental health and revealed that with increasing religious attitude, mental health also increases (Koenig, 2012; Sadeghi et al., 2010). In recent years, some studies have been conducted on the mental health of people suffering from chronic diseases, including hemodialysis patients, and psychosocial factors affecting them; nevertheless, with the spread of the coronavirus pandemic and its significant impact on mental health, lack of research about these people and factors correlated to their mental health is clearly visible. Considering the point that mental health is one of the axes of evaluating the health of different societies and given that the spread of a viral pandemic with high virulence has a great impact on the mental health of people suffering from chronic diseases, including people undergoing hemodialysis treatment.

### **Objectives**

In the present study, we are looking for an answer to the question of whether there is a relationship between corona disease anxiety, resilience, and religious beliefs in hemodialysis patients during the corona pandemic. Considering the importance of the mentioned variables, in the existing research background, no study has been conducted so far to identify the relationships between these three variables.

## **METHODS**

### **Study Design and Setting**

This was a cross-sectional and descriptive-analytical study. The research setting was three hemodialysis centers (Imam Ali Hospital, Iran Mehr Clinic in Bojnourd, and Imam Khomeini Hospital in Shirvan) affiliated to Northern Khorasan University of Medical Sciences. Imam Ali Hospital with 18 beds, Iran Mehr Specialized Clinic with 11 beds, and Imam Khomeini Hospital in Shirvan with 15 beds admit patients in two shifts (morning and evening).

### **Sample Size and Sampling**

The statistical population of this research consisted of all hemodialysis patients referred to selected hospitals of Northern Khorasan province in 2022. Patients who met the inclusion

criteria were considered eligible to participate in the research. Inclusion criteria were: being treated with hemodialysis, having the ability to read and write, and having a desire to participate in the study. Exclusion criteria were: psychological and physiological instability during sampling, and failure to complete more than 10% of each of the questionnaires. The following formula was used to determine the statistical sample size.

$$\frac{z^2 \times \rho(1 - \rho)}{e^2}$$

The sample volume was calculated to be 160 patients with a confidence level of 95%, a population ratio of .5, a degree of accuracy of .08, and considering 6% attrition rate. Convenient sampling method was used.

## Instruments

### ***Demographic Information Questionnaire***

This questionnaire includes 13 items about gender, age, marital status, number of children, education, occupation, income (sufficient or insufficient), health insurance, duration of kidney disease, duration of hemodialysis treatment, number of dialysis sessions per week, corona virus vaccination, and affliction with corona virus.

### ***The Corona Disease Anxiety Scale (CDAS)***

This tool was prepared and validated to measure the anxiety caused by the spread of the Corona virus in Iran (Alipour et al., 2020). The final version of this instrument entails 18 items and 2 components (factors). Items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical symptoms. This tool is scored on a 4-point Likert scale (never=0, sometimes=1, most of the time=2, and always=3); Therefore, the highest and lowest scores obtained by respondents in this questionnaire vary between 0 and 54. High scores in this questionnaire indicate a higher level of anxiety in people. The CDAS displayed an appropriate internal consistency. Its Cronbach's  $\alpha$  was estimated at 0.91 for samples who were aged 18–60 years. The CDAS shows a convergent validity with General Health Questionnaire-28 [GHQ-280 ( $r = .48, p = .01$ )]. Besides, the CDAS enjoys GFI according to confirmatory factor analysis (CFA) (Alipour et al., 2020). In this research, the Cronbach's  $\alpha$  of CDAS equaled .86.

### ***Connor-Davidson Resilience Scale (CD-RISC)***

This questionnaire was presented by Connor-Davidson in 2003 (Connor & Davidson, 2003). It contains 25 items and its purpose is to measure the level of resilience based on the components of competence/personal strength (24, 12, 11, 25, 10, 23, 17, 16), trust in personal instincts (6, 15, 18, 20, 7, 19, 14), tolerance of negative emotions (1, 4, 5, 2, 8), restraint (21, 13, 22) and spirituality in different people (9, 3). This instrument is scored on a 5-point Likert scale (ranging from completely false to completely true). The score will range from 0 to 100. The cut-off point for this questionnaire is 50 points. In other words, a score higher than 50, would indicate people who have resilience. The higher this score is above 50, the higher the intensity of the person's resilience will be, and vice versa. Khoshouei reported in a study with resilience implementation on 323 college students aged 19-34 years that the coefficients of reliability ( $\alpha$ ) were all properly high to secure confidence in reporting the scores (Achievement motive = .83, Self-confidence = .91, Tenacity = .79, and Adaptability = .78). The test–retest correlations were also essential in providing confidence in the consistency of the measure of resilience (Achievement motive = .78, Self-confidence = .85, Tenacity = .88, and Adaptability = .81) (Khoshouei, 2009). In the present study, the reliability of the resilience scale was calculated at .85 using the Cronbach's alpha method.

### ***Golriz and Baraheni's Religious Attitude Questionnaire (1974)***

This instrument was developed by Baraheni and Golriz (1974). It entails 25 items and each item has five points and may have a score of 0-4 based on a 4-point Likert scale. Its total score will be 100. Allocation of scores in the range of 0-100 is based on three scales, respectively, high, mild and low, which were classified in the form of a score of 76-100 as high religious attitude, (25-75) as mild, and (25 to low) as low religious attitudes. The validity of this instrument was estimated by correlation coefficient with "Allport, Vernon & Lyndzy" test (1960) and was equal to .80. This tool has been evaluated again in recent times. Its reliability was calculated by Spearman Brown formula as equal to .63. Its validity equaled .248 (Pourkord et al., 2021; Sadeghi et al., 2010).

### **Data Collection Procedure and Statistical Analysis**

After receiving permission from the Ethics Committee of Northern Khorasan University of Medical Sciences, the researchers presented to the medical centers in person. Then, the researchers referred to the hemodialysis ward, and provided the necessary explanations about the research method and objectives to the hemodialysis patients. After obtaining written consent for participating in the research, they provided the questionnaires to the patients. Questionnaires were completed by the patients in the period before the start of dialysis (device preparation time). The data was collected during two months (from April 15 to June 15, 2022). The gleaned data were analyzed with Stata14 using frequency, percentage, median, and interquartile range to describe sample characteristics, CDAS score, resilience, and religious attitude. Spearman's correlation coefficient was used to evaluate the relationship between study variables ( $p = .05$ ).

### **Ethical Considerations**

The code of ethics (IR.NKUMS.REC.1400.158) was bestowed by the Ethics Committee of Northern Khorasan University of Medical Sciences. In this research, the purpose of the research was fully explained to the participants who could withdraw from the study at any time. It was explained to them that participating in or withdrawing from the study would not affect their course of treatment, and all their information would remain confidential.

## **RESULTS AND DISCUSSION**

### **Results**

The sample consisted of 160 participants. The covariates included age (<40, 40-49, 50-59, and 60+ years old), gender, marital status (single vs. married), education (less than secondary vs. graduate), number of children, employment (unemployed vs. employed), self-assessed income (insufficient vs. sufficient), insurance coverage (no vs. yes), renal disease duration ( $\leq 3$  vs.  $> 3$  years), dialysis duration ( $\leq 3$  vs.  $> 3$  years), number of dialysis sessions per week ( $< 3$  vs.  $\geq 3$ ), COVID vaccination (no vs. yes), and COVID infection (no vs. yes).

The variables of interest included anxiety and its mental and physical components, resilience and its components (personal competence, trust in one's instincts, positive acceptance of change, control, and spiritual influences), and religion. Moreover, the anxiety scores  $< 40$ ,  $40 \leq \leq 60$ , and  $> 60$  were considered as low, mild, and severe cases, respectively. Likewise, the resilience scores  $> 50$  were labeled as high resilience. Finally, the religion scores  $< 25$ ,  $25 \leq \leq 75$ , and  $> 75$  were considered as low, mild, and high scores, respectively.

The categorical variables were described using number (percent). The variables of interest were described using median (interquartile range (IQR)), due to remarkable deviations from normality assumption, and were compared between the strata using the nonparametric test for comparing the medians. The Spearman correlation coefficient was used to assess the associations between the variables of interest. This measure ranges between -1 and +1, indicating reverse and direct relationships, respectively. There was no missed data.

Table 1. A description of the covariates and variables of interest in hemodialysis patients

Covariate		Number (%)	Median (IQR*)
Age	<40 years	41 (25.6 %)	
	40-49 years	39 (24.4 %)	
	50-59 years	42 (26.2 %)	
	60+ years	38 (23.8 %)	
Sex	(male)	89 (55.6 %)	
Marital status	(married)	112 (70.0 %)	
Education	(graduate)	32 (20.0 %)	
Number of children	0	38 (23.8 %)	
	1-3	76 (47.5 %)	
	>3	46 (28.7 %)	
Employment	(employed)	92 (57.5 %)	
Income	(insufficient)	133 (83.1 %)	
Insurance coverage	(yes)	141 (88.1 %)	
Renal disease duration	>3 years	91 (56.9 %)	
Dialysis duration	>3 years	79 (49.4 %)	
Number of dialysis sessions per week	≥3	142 (88.8 %)	
COVID vaccination	(yes)	142 (88.8 %)	
COVID infection	(yes)	56 (35.0 %)	
Anxiety			7.5 (2-14.5)
	mental component		7 (2-11)
Resilience	physical component		0 (0-2)
	personal competence		82 (68-90)
	trust in one's instincts		25 (21-29)
	positive acceptance of change		22 (17-25)
	Control		17 (15-19)
	spiritual influences		10 (8-12)
Religion			78 (73-85)
	≥75	110 (68.7 %)	

\*IQR: interquartile range

Table 2. The Spearman correlations between the variables of interest in hemodialysis patients

Variables	1	1.1	1.2	2	2.1	2.2	2.3	2.4	2.5	3
1 Anxiety	1									
1.1 Mental		1								
1.2 Physical			1							
2 Resilience	-.05	-.01	-.10	1						
2.1 Component 1	-.11	-.09	-.14		1					
2.2 Component 2	.05	.08	.01			1				
2.3 Component 3	-.04	-.01	-.08				1			
2.4 Component 4	-.18	-.14	-.18					1		
2.5 Component 5	.02	.07	-.09						1	
3 Religion	.11	.08	.17	.39	.26	.44	.34	.16	.29	1

As the main variables of interest, anxiety scores ranged between 0 to 41, 98.8 and 1.2% of persons had low and mild anxiety levels; resilience scores ranged between 28 to 98 and 95.0% of participants were highly resilient, and religion scores ranged between 63 to 108, 35.0 and 65.0% of people were found to have mild and high religion scores. The covariates and variables of interest are fully described in Table 1. As it can be observed in Table 1, most of the patients (2.26%) were in the age range of 59-50 years. The minimum age of the participants in the research was 19 and the maximum was 77 years. Moreover, most of the participants were male, married and educated, and had a history of affliction with corona virus and corona vaccination. Besides, the Spearman correlation coefficients between the variables of interest (and their components) are reported in Table 2, the significant ones (having p-values lower than .05) are shown in boldface letters. Accordingly, anxiety and its physical component had reverse

correlations with the resilience component of control. Moreover, resilience and its components had direct correlations with religion. Finally, the distributions of variables of interest over the strata of age, gender, and education are presented in Table 3, expressed as median (IQR) and compared between the strata using the nonparametric test for comparing the medians. As observed in the table 3, the older people are more anxious and more resilient (both with a borderline P-value) and more religious, the two genders are not significantly different, and the more educated people are less resilient and less religious.

## Discussion

The outbreak of Corona virus (Covid-19) imposed a fundamental challenge on the world in various dimensions. One of these challenges is put forward in the psychological aspect (Lee et al., 2020). In the adverse circumstances of Covid-19, it is very important to investigate the factors related to this disease and try to diminish the long-term psychological burden; so, this study was conducted with the aim of determining the relationship between corona virus anxiety, resilience, and religious beliefs in hemodialysis patients. Due to the lack of normal distribution of research variables, the median and interquartile range of Corona anxiety was 7.5 (2-14.5). In the present study, most of the participants (8.98%) suffered from mild anxiety and a few (2.1%) had moderate anxiety.

In line with the current research, Haqbin et al. by studying breast cancer patients, reported the anxiety level of these patients to be lower than the average level, and among the components of anxiety, the average score of psychological symptoms was reported to be higher than physical symptoms (Haghbin et al., 2020). In the study by Dorman- Ilan et al., who investigated the symptoms of anxiety and depression in isolated patients with Covid-19 and their relatives, both patients and relatives had high levels of anxiety and worries related to the corona pandemic (Dorman-Ilan et al., 2020). In this regard, the study by Lai et al., which was conducted on doctors and nurses at a hospital in Wuhan, China, during the spread of the Covid-19 disease, suggests that medical care workers experienced a high degree of anxiety and depression symptoms (Lai et al., 2020). These findings are not consistent with the results of the present study. Perhaps one of the reasons for the reduction of anxiety in the present study compared to previous studies may be attributed to the fact that more than two years have passed since the onset of this disease. This is because of extensive research and education to the community, which has led people to gain a lot of information about transmission methods and self-care. As mentioned earlier, Corona anxiety is partly due to the unknown nature of this disease and ignorance of how to take care of oneself (Alipour et al., 2020).

Table 3. The distributions of variables of interest over the strata of age, gender, and education

Variables	Anxiety	Resilience	Religion
Age			
<40	4 (1,10)	79 (73,86)	78 (70,81)
40-49	6 (1,15)	80 (67,88)	76 (72,80)
50-59	8 (4,18)	83.5 (67,92)	78 (73,89)
60+	9 (4,20)	85.5 (68,90)	81 (78,90)
P-value	.092	.087	.006
Sex			
Male	8 (2,14)	82 (70,89)	79 (72,85)
Female	7 (2,16)	83 (63,91)	78 (74,81)
P-value	.630	.764	.633
Education			
Less than secondary	7 (2,16)	83.5 (72.0,9.0)	79 (74.5,88.5)
Graduate	8 (4,9.5)	70 (56.5,82.5)	74 (72.0,79.0)
P-value	.693	.002	.006

Expressed as median (IQR); IQR: interquartile range; p-values from nonparametric test for comparing the medians.

Additionally, widespread vaccination in the community has been effective in reducing people's anxiety (Karayürek et al., 2021; Leach et al., 2022). Given the non-normal distribution of the research variables, the median and interquartile range of resilience and religious beliefs were 82 (68-90) and 78 (73-85), respectively. Our findings in this study demonstrated that 95% of the participants were very resilient (score above 50), 35% had moderate religious beliefs (between 25-75), and 65.0% had high religious scores (above 75). Duran et al.'s study on hemodialysis patients reported high levels of spiritual well-being and moderate levels of mental resilience (Duran et al., 2020).

According to Musa et al.'s study, on average, hemodialysis patients had relatively low levels of spiritual health, severe anxiety, and mild to moderate stress (Musa et al., 2018). In the study by Ebrahimi et al., 5 (8.3%) patients had low, 81 (3.62%) had average, and 44 (8.33%) had high spiritual health. The mean score of spiritual health was  $80.87 \pm 12.21$  and was at an average level. Besides, 6 (6.4%) patients had low resilience, 95 (1.73%) had average resilience, and 29 (3.22%) had high resilience. The mean total resilience score was  $63.86 \pm 19.48$ , being at an average level (Ebrahimi et al., 2021). The difference in the results of previous studies compared to the present study can be attributed to various reasons, including the difference in the quality of care, the amount of social support received, and the economic situation in the research units, etc.

One of the important issues in observing public health measures is the influence of culture, spirituality, and religion on lifestyle and the impact of religiosity on the level of observance of health issues. Many religions and schools have always recommended the observance of hygiene. This is especially true in Islamic law, which has many health recommendations such as performing ablution, where hands and face are washed at least five times a day for ablution (Haeri, 2021). One of the most important issues in Islamic rules and regulations is to maintain and promote health and emphasize the priority and preference of prevention over treatment. The Prophet Mohammad (PBUH) considers a life without health and well-being as a life without goodness and blessings (Mahmoodi et al., 2022). Resilience and high religious beliefs obtained in the Muslim population studied in this research can be influenced by individuals' religion and religious beliefs. Examining societies with different religions can provide more accurate results in this regard.

Our findings showed that anxiety (the physical component) had an inverse relationship with resilience (control component). Zhang et al. reported an inverse and significant relationship between resilience, anxiety, and depression in patients with mild symptoms of COVID-19 and found resilience to be a protective factor against anxiety and depression in these patients (Zhang et al., 2020). Furthermore, in Hou et al.'s study, all resilience components had an inverse relationship with potential anxiety (Hou et al., 2021). Other studies have reported similar results (Djalante et al., 2020; Shaw, 2020). We must point out that resilience is a personality trait and resilient people have a trait that makes them able to positively endure stressful events and create less disasters; therefore, they are able to recover from negative and stressful events (Shaw, 2020). Instead of catastrophizing, these people use harmonious coping methods such as coping to find a solution to their problems; they also get help from others when necessary. Consequently, it is logical that the level of corona anxiety in hemodialysis patients will decrease with an increase in tolerance. Another part of our findings indicated that resilience and its components are directly related to religion. In this regard, Fradelos et al. investigated the relationship between religiosity, mental health, and psychological resilience in breast cancer patients and showed that there is a significant positive relationship between religiosity and resilience (Fradelos et al., 2018).

The results of Duran et al.'s study in Turkey on hemodialysis patients showed that there is a positive relationship between spiritual well-being and psychological resilience (Duran et al., 2020). Other studies reported similar findings (Al Eid et al., 2020; Ebrahimi et al., 2021).

Thus, it can be asserted that religiosity has a positive effect on adaptation, promoting mental health, and reducing distress. Studies in different groups support the existence of a positive relationship between religious beliefs and resilience; therefore, religious belief can be used as a factor to moderate difficulties and problems. It is suggested to help speed up the recovery process by increasing the resilience of hemodialysis patients. Besides, considering the importance of spiritual care, it is better for nurses to respect the patient's beliefs and values in addition to considering the physical and mental aspects of the patient.

In exploring the relationship between demographic variables and research variables, our findings showed that older people are more anxious, flexible, and religious; also, no difference was observed based on gender, and people with higher education are more flexible and less religious. Li et al., by surveying patients with Covid-19 who were hospitalized during the epidemic outbreak in Wuhan, reported that there was no significant difference in anxiety or depression symptoms between men and women (Li et al., 2021).

Furthermore, Orrù et al. reported that Corona anxiety tends to increase with age, and elderly people have a higher anxiety score than younger people (Orrù et al., 2021). Duran et al.'s study showed further that level of education is a significant variable affecting psychological resilience in hemodialysis patients. In this study, it was found that as the level of education increases, the psychological resilience of patients also increases (Duran et al., 2020). These and other studies are in line with the current research (Dane & Olgun, 2016; Karadag et al., 2019).

In contrast, contradictory studies were also found in the literature review. Moghanibashi-Mansourieh (2020), in examining the level of anxiety in the general population of Iran, reported that the level of anxiety was higher among women. Heidari et al., in the survey of Mashhad citizens' anxiety in the spring of 2020, found that women had significantly more corona anxiety than men; moreover, corona anxiety was more common in people with a diploma or lower education; in terms of the prevalence of corona anxiety in different ages, there was no significant difference (Heidari et al., 2020).

In a study on hemodialysis patients, AvANJI et al. stated that self-care and resilience have a negative correlation with age, so that self-care and resilience decrease with increasing age among people (AvANJI et al., 2021). In explaining these results, it can be said that most anxiety disorders, such as generalized anxiety disorder, panic, and phobia, which are characterized by anxiety, are more common at a younger age and decrease with increasing age (Heidari et al., 2020); nonetheless, since Corona anxiety is caused by the disease itself, it is different from the general tension and anxiety created in the society.

The newness and unknown nature of the disease can contribute to the aggravation of anxiety (Alipour et al., 2020). Another important point to be mentioned regarding the difference between the results of this study and previous studies lies at the time of the study. It can be predicted that the studies conducted at the beginning of the corona crisis will have different findings compared to the new studies after universal vaccination and the reduction of infection and mortality rates. Generally speaking, the reported findings regarding demographic variables prevent strong conclusions to be drawn due to numerous contradictions and require further investigation.

### **Clinical Implications**

Our findings suggested that anxiety has an inverse relationship with resilience; also, resilience and its components have a direct relationship with religion. Therefore, interventions focused on these components are an important protective factor in preventing hemodialysis patients from suffering from anxiety caused by corona. Based on the obtained results, the achievements of this research can be presented at a practical level. In this way, the findings of this research can be used to develop programs, educational workshops, and therapeutic interventions (such as teaching interventions based on resilience and the importance of religious

beliefs). This ought to be done to reduce the anxiety of hemodialysis patients. Moreover, public and private organizations of the country that fulfill the task of improving the mental health of society can use the results of this research to improve the mental health of the society during the epidemic of Covid-19.

One of the strong points of this study pertained to examining the relationship between variables in specific contextual conditions. The communication response of the variables in critical situations like Corona-virus gives a decisive direction to the application of the proposed variables and determines a specific task for the health planners in the field of prevention and treatment.

### **Limitations of the Study**

Every research activity suffers from shortcomings and limitations during implementation, and this study was not an exception to this rule. Among the limitations of this research is the lack of cooperation of some people in completing the questionnaires. Also, the research sample was limited to people living in Northern Khorasan province. Another limitation was the lack of random sampling due to the limitation of the statistical population of the province. Moreover, the age range of the participants in the research was limited.

Additionally, the use of questionnaire was another limitation of this research because there is a possibility of bias in self-reporting tools. To the best of our knowledge, this is the first study to have examined the relationship between corona disease anxiety, resilience, and religious beliefs in hemodialysis patients during the corona pandemic in Iran. Based on the aforementioned limitations and the final findings of this study, it is suggested that future research projects be conducted to clarify the relationship between these variables in statistical populations and other age groups. As a result, considering these limitations, the generalization of the results should be done with sufficient caution.

### **CONCLUSION**

The findings of this study suggested that resilience and religious beliefs are related to corona anxiety in hemodialysis patients; thus, targeting these two components via psychological treatments can be effective in reducing corona anxiety. It is recommended to reinforce the spirit and life expectancy in individuals to diminish their anxiety of coronavirus using comprehensive programs. Besides, trainings and programs that emphasize strengthening religious beliefs and resilience in individuals can help to increase adaptability to the critical conditions of the coronavirus pandemic. It is further suggested that counselors and psychologists consider the influence of religious beliefs and resilience in the diagnosis, etiology, and treatment of anxiety disorders of patients during such epidemics and improve the effectiveness of their services by involving these factors.

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### **AUTHORS CONTRIBUTION STATEMENT**

Conceptualization was done by SH and RM. Data curation was performed by SH, RM, FH, and AR. Formal analysis was carried out by SH and RM. Investigation was conducted by SH, FH, and AR. Methodology was designed by SH. RM was responsible for project administration. SH and RM supervised the project. SH performed validation, while visualization was done by SH. RM wrote the original draft, and RM also contributed to writing, reviewing, and editing.

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