



Status of Spiritual Health and Its Associated Factors Among Patients Undergoing Hemodialysis

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ABSTRACT

Spiritual health, as an essential dimension of quality of life among patients undergoing hemodialysis, plays a critical role in coping with the challenges associated with acute and chronic illnesses and long-term treatment. Assessing spiritual health is crucial for designing effective interventions aimed at enhancing patients' overall well-being. Therefore, this study aimed to investigate the status of spiritual health among patients undergoing hemodialysis. This descriptive cross-sectional study was conducted in 2021–2022 in hospitals affiliated with Hamadan University of Medical Sciences, including Shahid Beheshti Hospital and Besat Hospital. Participants were selected using proportionate stratified sampling, and 170 hemodialysis patients who met the inclusion criteria were enrolled. Data were collected using the Paloutzian and Ellison Spiritual Well-Being Scale. The mean spiritual health score among hemodialysis patients was 84.25 (SD = 14.65), indicating a moderate level of spiritual well-being. Older age and marital status were positively associated with spiritual health, whereas diabetes mellitus as the primary cause of hemodialysis was negatively associated with patients' spiritual health. Based on these findings, the development of spiritual and psychological support programs is recommended, particularly for older patients and those requiring greater psychosocial support. Furthermore, effective management of diabetes mellitus may help mitigate its adverse effects on spiritual well-being. These results provide valuable insights for future research on spiritual health among hemodialysis patients and highlight the importance of identifying and addressing factors influencing spiritual well-being in this population.

Keywords: Spirituality; Patients, Hemodialysis; Chronic Kidney Disease

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Introduction

Spiritual health, as one of the fundamental yet relatively underexplored dimensions of health, plays an important role in enhancing the quality of life and facilitating individuals' adaptation to the challenges

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associated with acute and chronic illnesses. This dimension encompasses concepts such as meaning and purpose in life, inner peace, emotional balance, and a sense of connection with oneself, others, and a transcendent power [1, 2]. Among patients with life-threatening conditions, particularly those requiring long-term and continuous treatments, such as hemodialysis [3], spiritual health may serve as an important psychological and social resource that facilitates coping with the physical, emotional, and social burdens of chronic illness [4, 5].

Patients undergoing hemodialysis experience numerous physical complications associated with both kidney disease and its treatment, including chronic fatigue, decreased energy levels, dietary restrictions, and sleep disturbance. In addition, these patients commonly encounter psychological and social challenges such as anxiety, depression, social isolation, and impaired interpersonal relationships [6-8]. In this context, spiritual health has been recognized as a potentially influential factor that may assist patients in adapting more effectively to these challenges by promoting positive illness experiences, reducing psychological distress, and improving overall life satisfaction [9]. Previous studies have indicated that patients with higher levels of spiritual health are more likely to demonstrate better coping abilities and report an improved quality of life [10].

Conversely, poor spiritual health may be associated with unfavorable outcomes among patients undergoing hemodialysis, including increased psychological distress, feelings of hopelessness, reduced motivation for treatment continuation, impaired adjustment to illness, and lower quality of life. These challenges may negatively influence patients' engagement with treatment regimens, cooperation with healthcare providers, and utilization of healthcare resources [11].

In contrast, adequate levels of spiritual health may provide several benefits to individuals undergoing hemodialysis. These include greater acceptance of illness-related challenges, improved coping with symptoms such as fatigue and pain, enhanced hope, stronger social and family support, and greater overall life satisfaction. Furthermore, spiritual health may function as a protective resource by strengthening resilience and supporting psychological adaptation to the ongoing physical and emotional demands of chronic disease management [9, 12-14].

The findings of the present study indicate that older age and marital status were positively associated with spiritual health among patients undergoing hemodialysis, whereas diabetes mellitus as the underlying cause of dialysis was negatively associated

with spiritual health. Identifying the factors associated with spiritual health may help healthcare providers, particularly nurses and researchers, develop more targeted interventions based on patients' psychosocial and spiritual needs. Such interventions may contribute to improving the quality of care, reducing the psychological and social burdens associated with chronic illness, and promoting better health outcomes in this population [9, 15].

Although spiritual health among patients undergoing hemodialysis has been investigated in previous studies, further research is needed to clarify the variations in spiritual well-being and identify the factors associated with spiritual health in this population. A limited understanding of these factors may hinder healthcare providers' ability to recognize patients at risk of poor spiritual well-being and implement appropriate supportive strategies. Therefore, identifying the determinants of spiritual health among individuals undergoing hemodialysis is essential for developing patient-centered interventions and improving supportive care services. Accordingly, the present study aimed to assess the level of spiritual health and identify its associated factors among patients undergoing hemodialysis.

Materials and Methods

Study Design and Setting

This descriptive cross-sectional study was conducted from November 11, 2021, to November 3, 2022, in the hemodialysis wards of Shahid Beheshti and Besat Hospitals, both affiliated with the Hamadan University of Medical Sciences, Hamadan, Iran. Shahid Beheshti Hospital is one of the major hemodialysis referral centers in the region and includes three hemodialysis units, each with approximately 25–35 active beds, providing services to approximately 200–250 patients undergoing hemodialysis annually. The Besat Hospital includes one hemodialysis unit with 30–40 active beds and provides hemodialysis services to approximately 70–100 patients. Both centers provide routine hemodialysis care for patients with chronic kidney disease and serve as major referral facilities for individuals requiring long-term renal-replacement therapy.

Sample Size Calculation

The required sample size was calculated using the power package in R software version 5.3.1. Considering a significance level of 0.05, a statistical power of 95%, and a correlation coefficient of $r = 0.37$ based on the findings of Mardanian Dehkordi et al.

[16], the minimum required sample size was estimated to be 88 participants. However, to increase the precision of the estimates and considering the availability of eligible participants, 170 patients undergoing hemodialysis were ultimately included in the study.

In this study, 170 patients were recruited using proportionate stratified random sampling method. Initially, a complete list of patients receiving hemodialysis services at the two participating hospitals was obtained from the hospitals' information technology units. The lists were then reviewed to identify eligible participants based on predefined inclusion criteria. The required number of participants from each hospital was determined according to the proportion of eligible patients receiving hemodialysis at each center. Subsequently, each eligible patient was assigned a unique identification number, and the participants were selected using a random number table. The selected participants were approached during their routine hemodialysis sessions in hospital hemodialysis wards.

The inclusion criteria were as follows: a confirmed diagnosis of chronic kidney disease requiring hemodialysis according to a nephrologist's assessment; receiving hemodialysis for at least three months; undergoing dialysis at least twice per week; absence of cognitive or psychiatric disorders affecting participation; willingness to participate in the study; and the ability to read and write. The exclusion criteria were as follows: incomplete completion of the questionnaires, withdrawal of consent at any stage of the study, and inability to complete the questionnaire due to clinical instability or other circumstances interfering with participation.

Data Collection Procedure

In this study, three members of the research team visited Shahid Beheshti Hospital and Besat Hospital and identified the hemodialysis wards where eligible patients received treatment. On a daily basis, a list of patients receiving hemodialysis services in these wards was obtained from the hospitals' information technology units. Patients who met the eligibility criteria were identified and entered into a separate list. Subsequently, eligible participants were selected using a random number table. The researchers then reviewed the patient records at the nursing stations of the respective wards to verify the selected participants and ensure accurate identification. To maintain consistency in the data collection process, all participants were approached by the same researcher. After establishing rapport with each patient, the researcher explained the study objectives, procedures, and voluntary nature of participation. Written informed consent was obtained from all participants

before data collection, including consent for anonymous and aggregated reporting of study findings.

After obtaining consent, the researcher provided instructions on how to complete the questionnaires. The participants completed the questionnaires through self-reporting in approximately 20–30 minutes. For participants who had difficulty reading the questions, a family member or companion assisted them by reading the items aloud and recording their responses. Participants were encouraged to ask the researcher for clarification if they encountered any uncertainties while completing the questionnaires.

To minimize the influence of patients' physical condition on their responses, questionnaire completion was postponed when participants experienced fatigue, nausea, clinical instability, received nursing care, or were involved in medical consultations. Data collection was scheduled at a time when the participants were physically stable and comfortable.

Data Collection Instruments

Data were collected using a two-part questionnaire.

Part I: The demographic and clinical characteristics form consisted of nine items assessing age, sex, educational level, marital status, occupation, insurance status, smoking history, frequency of hemodialysis sessions, and the underlying cause of dialysis. The face validity of this form was evaluated and confirmed by ten faculty members from the Faculty of Nursing and Midwifery.

Part II: Spiritual well-being was assessed using the Spiritual Well-Being Scale (SWBS), developed by Paloutzian and Ellison in 1983 [17]. This 20-item scale consists of two subscales: religious (10 items) and existential (10 items) well-being. Odd-numbered items assess religious well-being, whereas even-numbered items assess existential well-being. Each item is rated on a six-point Likert scale ranging from 1 ("strongly disagree") to 6 ("strongly agree"). The total score ranges from 20 to 120, with higher scores indicating greater spiritual well-being. Based on the original classification, scores of 20–40, 41–99, and 100–120 represent low, moderate, and high levels of spiritual well-being, respectively. The SWBS has been widely applied in national and international studies, and its psychometric properties have been confirmed. In the original study, Paloutzian and Ellison reported Cronbach's alpha coefficients of 0.91 for both religious and existential well-being subscales and 0.93 for the overall scale [18]. The Persian version of the SWBS was translated and validated by Seyed Fatemi et al. in 2003, demonstrating acceptable content validity

and internal consistency, with a reported Cronbach's alpha coefficient of 0.82 [19]. Previous studies by Elahbakhshian et al. and Rezaei et al. have also supported the validity and reliability of the Persian version of this instrument [18, 20]. In the present study, the content validity of the SWBS was evaluated by an expert panel, resulting in a content validity index (CVI) of 0.91 and a content validity ratio (CVR) of 0.84. The internal consistency reliability of the scale was assessed using Cronbach's alpha coefficient, which was 0.819 for overall spiritual well-being, 0.806 for religious well-being, and 0.825 for existential well-being, indicating satisfactory reliability of the instrument.

Data Analysis

Data were analyzed using SPSS software (version 21). Descriptive statistics, including the mean, standard deviation, frequency, and percentage, were

used to summarize the participants' characteristics and study variables. The normality of the data distribution was assessed using the Kolmogorov–Smirnov test. Inferential analyses included Pearson's correlation coefficient, independent t-test, one-way analysis of variance (ANOVA), Bonferroni post hoc test, and multiple linear regression analysis to identify the factors associated with spiritual health. Statistical significance was set at $p < 0.05$.

Results

Among the 170 participants, the majority were married, female, and had no university education. Hypertension was the most common underlying cause of hemodialysis, and most participants received hemodialysis three times per week (Table 1).

Table 1. Demographic and clinical characteristics of hemodialysis patients and their relationship with spiritual health

Variables		n (%)	Spiritual Health Mean (SD)	Statistics
Marital status	Single	34 (20%)	78.41 (15.18)	P =
	Married	136 (80%)	85.71 (14.19)	0.009*
Sex	Male	79 (46.5%)	84.78 (14.74)	t = -2.645
	Female	91 (53.5%)	83.79 (14.64)	P =
Education	Non-university	147 (86.5%)	85.29 (14.81)	0.661*
	University	23 (13.5%)	77.56 (11.80)	t = 0.440
Smoking	Yes	37 (21.8%)	80.83 (14.24)	P =
	No	133 (78.2%)	85.20 (14.67)	0.109*
Cause of hemodialysis	Hypertension	90 (52.9%)	87.05 (15.21)	t = -1.610
	Diabetes mellitus	40 (23.5%)	80.47 (15.51) H	P =
	Underlying diseases	14 (8.2%)	87.50 (4.60)	0.014**
	Other causes	26 (15.3%)	78.61 (12.28)	F = 3.661
Frequency of dialysis/week	Twice weekly	15 (8.8%)	79.00 (9.22)	P =
	Three times weekly	114 (67.1%)	84.15 (14.78)	0.242**
	More than three times weekly	41 (24.1%)	86.43 (15.65)	F = 1.430
Occupation	Student	5 (2.9%)	66.00 (12.54)	
	Unemployed	27 (15.9%)	85.92 (17.17) S	P =
	Self-employed	50 (29.4%)	83.46 (13.79)	0.031**
	Government employee	19 (11.2%)	81.15 (11.62)	F = 2.737
Insurance type	Housewife	69 (40.6%)	86.34 (14.32) S	
	Social Security	55 (32.4%)	84.43 (14.33)	P =
	Rural Insurance	31 (18.2%)	88.12 (13.39)	0.128**
	Health Insurance	55 (32.4%)	80.47 (14.83)	F = 1.741
	Armed Forces	9 (5.3%)	81.77 (13.89)	
	Supplemental Insurance	5 (2.9%)	91.00 (10.95)	
Age (years) Mean (SD)	Medical Services	15 (8.8%)	88.66 (17.01)	
	Age (years)		54.50 (15.61)	P < 0.001 r = 0.274

*: Independent samples t-test; **: One-way ANOVA; H: Significant difference in mean values with hypertension (Bonferroni post hoc test); S: Significant difference in mean values with students (Bonferroni post hoc test).

Table 2. Mean and standard deviation of spiritual health scores among hemodialysis patients

Variables	Mean	SD	Minimum	Maximum
Spiritual health	84.25	14.65	50	112
Religious well-being	45.07	6.98	27	55
Existential well-being	39.18	9.01	18	59

Table 3. Levels of spiritual health among hemodialysis patients

Levels	n	%
Moderate	140	82.4
High	30	17.6

Table 4. Multiple regression analysis of predictors of spiritual health among hemodialysis patients

Variables	B	SE	β	t	P value	95% CI	R ²
Age	0.169	0.075	0.180	2.263	0.025	0.022 to 0.316	0.15
Education (non-university)	-4.048	3.220	-0.095	-1.257	0.210	-10.406 to 2.310	
Marital status (single)	5.512	2.790	0.151	1.976	0.049	0.004 to 11.021	
Cause of dialysis: Hypertension (Reference)							
Cause of dialysis: Diabetes mellitus	-6.168	2.623	-0.179	-2.351	0.020	-11.347 to -0.988	
Cause of dialysis: Underlying diseases	1.561	4.002	0.029	0.390	0.697	-6.341 to 9.462	0.15
Cause of dialysis: Other causes	-6.354	3.146	-0.157	-2.020	0.045	-12.565 to -0.142	

The mean total spiritual health score among patients undergoing hemodialysis was 84.25 (SD = 14.65), indicating a moderate level of spiritual well-being (Table 2). Most participants were classified as having a moderate level of spiritual health, while none of the participants were categorized in the low spiritual health group (Table 3).

Bivariate analyses showed that spiritual health was significantly associated with age ($P < 0.001$), marital status ($P = 0.009$), educational level ($P = 0.008$), underlying cause of hemodialysis ($P = 0.014$), and occupation ($P = 0.031$). The mean age of participants was 54.50 (SD = 15.61) years. Furthermore, age demonstrated a significant positive correlation with spiritual health scores ($r = 0.274$, $P < 0.001$), indicating that older participants tended to report higher levels of spiritual well-being (Table 1).

Multiple linear regression analysis was performed to determine the factors associated with spiritual health after controlling for potential confounding variables. The results showed that each one-year increase in age was associated with a 0.169-point increase in spiritual health scores. In addition, married participants had, on average, 5.512 points higher spiritual health scores compared with single participants. Conversely, participants whose underlying cause of hemodialysis was diabetes mellitus or other causes had significantly lower spiritual health scores compared with those whose dialysis was attributed to hypertension, with reductions of 6.168 and 6.354 points, respectively.

The strongest factors associated with spiritual health were age ($\beta = 0.180$, $P = 0.025$), diabetes mellitus as the underlying cause of dialysis ($\beta = -0.179$, $P =$

0.020), other causes of dialysis ($\beta = -0.157$, $P = 0.045$), and marital status ($\beta = 0.151$, $P = 0.049$). Collectively, these variables explained 15% of the variance in spiritual health scores among patients undergoing hemodialysis (Table 4).

Discussion

This study aimed to assess the level of spiritual health and identify its associated factors among patients undergoing hemodialysis. The findings indicated that the participants' mean level of spiritual health was moderate. This finding is consistent with the results of Ebrahimi et al. (who reported that most patients undergoing hemodialysis had moderate spiritual health [21]). Similarly, Mardanian and Shahgholian found moderate spiritual well-being among hemodialysis patients and reported that married individuals had higher levels of spiritual health [22]. In agreement with these findings, Borji et al. also demonstrated that most patients undergoing hemodialysis experienced moderate levels of spiritual health [23].

The current findings are further supported by Janati et al., who reported moderate spiritual well-being among most hemodialysis patients [24]. Likewise, Dehbashi et al. found that approximately 75% of patients undergoing dialysis had moderate spiritual health and identified a significant association between spiritual health and marital status [25]. However, the findings of the present study differ from those reported by Tavassoli et al., who observed high levels of spiritual health among patients undergoing dialysis and found no significant differences based on marital status or occupation [26]. These discrepancies may be

explained by differences in sample characteristics, cultural backgrounds, measurement conditions, and methodological approaches across studies.

In contrast, studies conducted by Fradelos et al. and Musa et al. reported lower levels of spiritual health among most hemodialysis patients [27, 28]. These inconsistencies may be related to cultural variations, differences in religious and spiritual beliefs, and variations in patients' coping strategies and social support systems. The findings suggest that spiritual health among patients undergoing hemodialysis is influenced by multiple interacting personal, social, psychological, and cultural factors.

The moderate level of spiritual health observed in the present study may be related to the substantial challenges associated with CKD and long-term hemodialysis treatment. Hemodialysis requires considerable lifestyle adjustments, including dietary restrictions, frequent attendance at dialysis centers, dependence on dialysis equipment and medications, and reduced independence in daily activities. These challenges may influence patients' perceived autonomy, sense of control, and overall quality of life, which may subsequently be associated with their spiritual well-being [29]. Furthermore, chronic illness progression and the long-term nature of dialysis may be accompanied by uncertainty about the future, feelings of hopelessness, physical limitations, persistent fatigue, pain, and sleep disturbances, all of which may negatively affect patients' psychological and spiritual experiences [7, 8, 30].

Previous studies have also indicated that psychological difficulties, including depression, anxiety, and sleep disorders, are common in individuals undergoing hemodialysis. These conditions may be associated with reduced hope, lower life satisfaction, and diminished perceptions of meaning and purpose [7]. Moreover, chronic kidney disease and dependence on long-term dialysis may affect patients' social relationships, potentially leading to social isolation and reduced access to emotional support. Limited social interaction and inadequate support networks may further influence spiritual well-being [31]. Moreover, concerns about mortality and uncertainty regarding the future have been identified as important psychological challenges among patients undergoing hemodialysis that may be associated with poorer spiritual health [3]. Other relevant factors, including social support, religious beliefs, resilience, and coping strategies, may also contribute to variations in spiritual well-being in this population [11].

Overall, the moderate level of spiritual health identified in this study highlights the complex nature

of spiritual well-being in patients undergoing hemodialysis. Therefore, promoting spiritual health requires a multidimensional approach that considers patients' physical symptoms, psychological status, social relationships, and personal spiritual resources.

The present study further demonstrated that older age and marital status were positively associated with spiritual health, whereas diabetes mellitus as the underlying cause of kidney failure was negatively associated with spiritual health among patients undergoing hemodialysis. These findings are consistent with those of previous studies [9, 32-34] and provide additional insights into the factors related to spiritual well-being in patients with chronic kidney disease.

Previous research has suggested that older individuals may report higher levels of spiritual health due to greater life experience, increased acceptance of life circumstances, and stronger abilities to find meaning and purpose in challenging situations [9, 35, 36]. Older adults with chronic illnesses may develop more adaptive coping strategies and greater psychological resilience over time, enabling them to better integrate their illness experiences into their life perspectives. The findings of the present study support the importance of considering age-related characteristics when designing spiritual-care interventions.

Marital status has also been identified as an important social factor associated with spiritual well-being. Emotional support, companionship, and shared coping experiences provided by a spouse may enhance feelings of hope, security, and connectedness among patients with chronic illnesses [22, 25]. Similarly, the present findings suggest that supportive interpersonal relationships may be an important resource for maintaining spiritual health in individuals undergoing hemodialysis.

Conversely, patients whose underlying cause of kidney failure was diabetes mellitus demonstrated lower spiritual health. This finding may be related to the additional challenges associated with diabetes management, including continuous monitoring of blood glucose, risk of long-term complications such as neuropathy and visual impairment, and limitations in daily functioning [37]. The cumulative burden of managing multiple chronic conditions may reduce patients' sense of control, increase psychological distress, and negatively influence their perceptions of the meaning and purpose of life. Similar associations between diabetes-related challenges and poor spiritual well-being have been reported in previous studies [38].

These findings suggest that older adults may draw upon their accumulated life experiences and

established spiritual beliefs as resources for coping with chronic illnesses [39]. Furthermore, supportive relationships, particularly spousal support, may reduce feelings of loneliness and strengthen social connectedness, thereby contributing to improved spiritual well-being. In contrast, the combined burden of diabetes mellitus and chronic kidney disease may increase concerns regarding future complications and treatment challenges, potentially affecting patients' hope and sense of meaning [40].

The findings of this study have important implications for nursing practice. Nurses play a central role in providing holistic care for patients undergoing hemodialysis and may help identify individuals at greater risk of reduced spiritual health, particularly those with diabetes mellitus as the underlying cause of kidney failure. Providing individualized spiritual and psychological support, facilitating family involvement, and strengthening social support networks may contribute to improving patients' spiritual well-being. Additionally, incorporating older patients' life experiences and personal beliefs into care planning may enhance the effectiveness of spiritual care interventions. Furthermore, nursing education programs should emphasize the importance of spiritual health assessment and promotion and provide nurses with the skills required to deliver spiritually sensitive care. Training in approaches such as active listening, exploring patients' sources of meaning, and facilitating meaning-centered care may enhance nurses' ability to address spiritual needs. Developing individualized care plans based on patients' demographic characteristics, comorbidities, and psychosocial circumstances may further improve the quality of supportive care. Overall, these findings highlight the essential role of nurses in promoting spiritual health and improving the quality of life among patients undergoing hemodialysis.

Conclusion

The present study demonstrated that patients undergoing hemodialysis had moderate spiritual health, highlighting the importance of considering spiritual dimensions in the holistic care of this population. Older age and marital status were positively associated with spiritual health, suggesting that individual and social factors may play important roles in patients' spiritual well-being. These findings may contribute to a better understanding of the spiritual and psychosocial needs of individuals undergoing hemodialysis and support the development of targeted interventions.

Conversely, diabetes mellitus, the underlying cause of kidney failure, was negatively associated with spiritual health. This finding highlights the additional challenges faced by patients with diabetes-related kidney disease and emphasizes the importance of providing greater psychosocial and spiritual support to individuals at risk of lower spiritual well-being. Therefore, supportive interventions should focus on patients with diabetes mellitus who require dialysis and those with limited social support, including unmarried patients. Furthermore, strengthening diabetes management programs and providing patient-centered counseling may help address the broader psychosocial and spiritual challenges associated with diabetes mellitus.

Study Limitations

This study had several limitations. First, data were collected using self-reported questionnaires; therefore, participants' emotional and psychological conditions at the time of assessment may have influenced their responses. To minimize this potential bias, questionnaires were completed under appropriate and stable conditions whenever possible. Second, due to the cross-sectional design of the study, causal relationships between spiritual health and associated factors could not be determined. Future longitudinal and interventional studies are recommended to further investigate temporal relationships and causal mechanisms. The regression model explained 15% of the variance in spiritual health scores, indicating that other relevant factors may be associated with spiritual health. Variables such as quality of life, depression, social support, duration of hemodialysis, and religiosity were not assessed in this study and should be considered in future research.

Recommendations for Future Research

The findings of this study provide a foundation for further research on spiritual health among patients undergoing hemodialysis. Future studies should explore additional psychological, social, clinical, and spiritual determinants of spiritual well-being in this population. Moreover, the development and evaluation of evidence-based spiritual care and psychosocial interventions are recommended to determine effective strategies for enhancing spiritual health and improving quality of life among individuals receiving hemodialysis.

Authorship contribution statement

All authors have reviewed and approved the final version of the manuscript. P. M, S. AB & V. Y conducted the study and collected the data; S R. B, B.

A & V. Y performed the data analysis and interpretation.

Ethical Considerations

This secondary analysis was conducted on data derived from a larger research project entitled “Investigating the Relationship Between Spiritual Health and Lifestyle Among Patients Referred to Hemodialysis Centers of Teaching Hospitals in Hamadan, Iran, in 2021.” The parent study was approved by the Ethics Committee of Hamadan University of Medical Sciences (Ethics approval code: IR.UMSHA.REC.1400.549). Before data collection, the study objectives and procedures were explained to all participants. Written informed consent was obtained from each participant prior to enrollment. Participants were assured of the confidentiality of their information and informed that they could withdraw from the study at any time without experiencing any negative consequences.

Conflict of interest statement

No conflict of interest has been declared

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Data Availability

The data supporting the findings of this study are available from the corresponding authors upon reasonable request.

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Declaration of Generative AI

The authors declare that they have not used any type of generative artificial intelligence for the writing of this manuscript, nor for the creation of tables, or their corresponding captions.

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