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Spiritual health and death anxiety in nursing students during COVID-19 pandemic: A cross-sectional study

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Abstract

This study aimed to evaluate spiritual health and death anxiety in nursing students during the COVID-19 pandemic. This investigation adopts a cross-sectional design, involving the examination of a cohort comprising 270 individuals selected through convenience sampling. The participants were drawn from the third and fourth-year nursing students enrolled at Hamadan universities, specifically the Faculty of Nursing and the Islamic Azad University of Hamadan, during the 2021. The data collection instruments utilized in this study encompass three distinct questionnaires: students' demographic characteristics, Poltzin and Ellison's (1982) spiritual health, and Templer's death anxiety. The mean score for spiritual health in this study was 89.9 (SD=16.5), with the religious dimension averaging at 46.81 (SD=9.00), the existential dimension at 43.07 (SD=8.9), and death anxiety at 6.83 (SD=3.61). The majority of students exhibited spiritual health at an average level, while death anxiety was generally at a mild level. A statistical analysis revealed no significant relationship between spiritual health and death anxiety ($P<0.05$). However, a noteworthy association was found between spiritual health and income ($P=0.04$), as well as between death anxiety and employment status ($P=0.02$). The findings of this study underscore the significance of spiritual health as a crucial factor in mitigating death anxiety. Consequently, there is a compelling need to devote efforts to enhancing the spiritual well-being of students, recognizing its pivotal role in sustaining mental well-being.

Keywords: Spiritual Health, Death Anxiety, Pandemic, COVID-19, Nursing Students.

1 │ Introduction

The COVID-19 pandemic, originating in Wuhan, China at the end of 2019, has posed a significant global health threat, leading to uncertainties regarding the source and transmission of the virus [1, 2]. The rapid and widespread nature of the virus resulted in a swift escalation of positive cases worldwide, including in Iran, leading to a substantial loss of lives [3]. The World Health Organization has estimated a mortality rate of approximately 2%, contributing to heightened death anxiety among individuals affected by the virus [4] as death, being an inevitable aspect of human existence, induces existential concerns [5, 6].

Death anxiety is a complex, multi-dimensional concept, characterized by an unconventional fear of one's mortality and that of others, as death challenges the fundamental meaning of existence and signifies the cessation of well-being [7-10]. Nursing students, already grappling with high psychological stress and constrained decision-making in their profession, face additional stressors during events such as the COVID-19 pandemic, exacerbating their challenges [11-13]. Globally, studies indicate that 7.4% of nurses are absent weekly due to exhaustion or incapacity, with death anxiety accounting for 80% more instances than in other occupational groups. The repercussions of death anxiety in nurses manifest in physical illnesses, accidents, and work-related errors [14].

In Iran, more than half of hospital employees reported elevated levels of death anxiety, emphasizing the pressing need for attention to this issue [15].

Recognizing spiritual health as a pivotal dimension of overall well-being, the World Health Organization underscores its influence on physical, mental, and social health [16-18]. Spirituality, encompassing religious and existential dimensions, is posited as a mitigating factor in reducing the fear of death [19, 20]. Spiritual health entails a sense of acceptance, positive emotions, morality, and positive connections with a higher power, others, and oneself [19]. Extant literature posits that spirituality plays a crucial role in adaptive coping with mental disorders, fostering a holistic approach to life and enabling individuals to navigate challenges with an open and flexible mindset [21-23]. Indeed, spiritual health is construed as a conduit for surmounting spiritual, psychological, and physical challenges, including diseases [24]. Chiang et al., (2016) assert that the spiritual health of nurses constitutes a fundamental component of their values and beliefs, profoundly influencing their attitudes, performance in patient care, and professional commitment [25]. This facet of health can be influenced by various factors, including anxiety, depression, and life satisfaction [26]. Amidst the limited research in this domain, this study aims to elucidate the relationship between spiritual health and death anxiety among nursing students during the COVID-19 pandemic.

2 │ Methods

2.1 │ Study design and subjects

This investigation adopts a cross-sectional design, involving the examination of a cohort comprising 270 individuals selected through convenience sampling. The participants were drawn from the third and fourth-year nursing students enrolled at Hamadan universities, specifically the Faculty of Nursing and the Islamic Azad University of Hamadan, during the 2021. The inclusion criteria stipulated those individuals eligible for this study were those in the third and fourth year of their nursing program, engaged in internship activities during the 2021, and were present during the fifth peak of the COVID-19 pandemic. Participation in the study was contingent upon the student's willingness to provide informed consent during two separate visits conducted by the researcher. The rationale behind selecting this particular subset of students lies in their heightened familiarity and comprehension of the hospital environment, extensive interaction with patients, and increased exposure to instances of patient mortality attributable to COVID-19. This targeted approach ensures a cohort with a more nuanced understanding of the healthcare setting and

a greater likelihood of encountering situations involving the demise of patients due to the aforementioned pandemic.

2.2 │ Ethics consideration

Following the reception of approval from the university's ethics committee (IR.UMSHA.REC.1400.518) and securing a letter of introduction from the Faculty of Nursing and Midwifery, as well as relevant authorities, the researchers approached all third and fourth-year nursing students in Hamadan city who were currently undertaking internship units in the 2021. Upon introduction and clarification of the research objectives, confidentiality assurances were provided regarding the handling of personal information. Subsequently, written consent was obtained from each participant, followed by an explanation of the procedure for completing the comprehensive questionnaire in a self-report format. For students affiliated with the Islamic Azad University, Hamadan branch, a parallel process involved introducing the research to the esteemed president of the Islamic Azad University, Hamadan branch, during the university's research endeavors.

2.3 │ Data collection

The data collection instruments utilized in this study encompass three distinct questionnaires: students' demographic characteristics, Poltzin and Ellison's (1982) spiritual health, and Templer's death anxiety. The demographic questionnaire captures student-specific details, including age, gender, marital status, semester of study, occupation, income status, and province of residence, among others [21, 27, 28]. Poltzin and Ellison's spiritual health questionnaire (1983) is structured with 20 items distributed across three dimensions: cognition, emotions, and action, further delineated into two subscales. The instrument comprises 10 religious health queries designated to odd-numbered statements and 10 existential health queries allocated to even-numbered statements, utilizing a 6-point Likert scale ranging from "completely disagree" to "completely agree" [21, 27, 28]. The cumulative spiritual health score, derived from these subgroups, falls within the range of 20-120, with classifications of low (20-40), medium (41-99), and high (100-120) spiritual health categories. A study by Seyedfatemi et al., (2006) have previously confirmed the content validity of this questionnaire in an Iranian context and established its reliability through Cronbach's alpha coefficient of 0.82 [29]. In the present study, the instrument's reliability was assessed, yielding a Cronbach's alpha coefficient of 0.91. The Death Anxiety Questionnaire, developed by Templer in 1970, assesses participants' attitudes toward death and stands as one of the most widely utilized tools of its kind [30]. Comprising 15 yes-no questions, this self-administered scale assigns a score of one or

zero based on the presence or absence of death anxiety, respectively. Cumulative scores, ranging from 0 to 15, denote varying levels of death anxiety, with higher scores indicative of increased anxiety. The three designated levels are mild anxiety (0-6), moderate (6-7), and severe (8-15) [31]. Brewer, in evaluating the reliability of this questionnaire, reported a retest reliability of 0.76 and internal consistency of 0.83 [32]. The tool's reliability and validity in an Iranian context were explored by Rajabi & Bohrani (2001), revealing a classification reliability coefficient of 0.62 and an internal consistency coefficient of 0.73 [33]. In the current study, the tool's reliability was ascertained through Cronbach's alpha coefficient, yielding a value of 0.8, thereby establishing good internal consistency.

2.4 │ Statistical analysis

The statistical analyses for this study were performed using the SPSS software package (version 16.0, SPSS Inc., Chicago, IL, USA). Descriptive statistics were employed to articulate continuous variables through the mean and standard deviation (SD), while categorical variables were delineated in terms of frequency and percentage. To investigate relationships between variables, the Pearson's correlation coefficient and Mann-Whitney U tests were applied. All statistical analyses were conducted as two-sided assessments, with a predetermined significance level set at 0.05.

3 │ Results

3.1 │ Participants' characteristics

In this research, a total of 270 nursing students were included as participants, as delineated in Table 1. The mean age of the participants was 23.2 (SD=2.47) years. Among the cohort, 65.6% were female and 86.3% were single. Notably, 39.3% were enrolled in the 7th semester of their nursing program. Furthermore, the majority of participants, specifically 97.8%, resided in rural areas, and 82.2% were exclusively engaged in nursing without any additional employment. A significant proportion (82.2%) of the participants lacked clinical experience, and 69.3% reported no income. Additionally, 58.8% of the participants resided in a dormitory. In terms of health-related factors, 53.7% of the participants had a history of COVID-19, while 71.1% did not disclose any relevant familial background binary. A high compliance rate of 98.1% was observed for COVID-19 vaccination. Moreover, 61.9% of the participants did not have the distressing experience of losing dependents to COVID-19.

3.2 │ Spiritual health and death anxiety in nursing students

As indicated in Table 2, the mean score for spiritual health among nursing students was 89.9 (SD=16.5), while the scores for religious health, existential health, and death anxiety were 46.81 (SD=9.00), 43.07 (SD=8.90), and 6.83 (SD=3.61), respectively. A substantial majority of the study participants exhibited spiritual health (68.1%), religious health dimensions (54.4%), and existential health (73.7%). Upon application of Pearson's correlation coefficient, the findings revealed a lack of statistically significant associations between spiritual health and its respective dimensions (i.e., religious and existential health) as well as death anxiety in the surveyed nursing student population (P>0.05).

3.3 │ Relationship between spiritual health and death anxiety with demographic variables in nursing students

As presented in Table 3, the findings underscore a noteworthy discrepancy in the mean scores of spiritual health concerning the marital status of nursing students (P=0.006). Specifically, the mean score for single individuals was 88.86 (SD=16.75), while married individuals exhibited an average score of 96.37 (SD=18.56). Furthermore, the results of Pearson's correlation test unveiled a statistically significant relationship between spiritual health and income (P=0.04), albeit characterized by a weak positive correlation (r=0.12). No significant differences were observed between spiritual health and other demographic variables (P>0.05). Similarly, a significant difference in the mean ratings of death anxiety was discerned based on gender (P<0.005) and employment status (P=0.02) among nursing students. Specifically, women exhibited an average score of 7.46 (SD=3.56), whereas men displayed a mean score of 5.63 (SD=3.41). Furthermore, students with employment demonstrated an average score of 5.9 (SD=3.8), in contrast to those without employment, who had a mean score of 7.08 (SD=3.52). Nonetheless, no significant disparities were noted between the mean ratings of death anxiety and other demographic variables (P>0.05).

4 │ Discussion

The findings of the current investigation indicate that the average spiritual health score among nursing students in Hamadan city, along with its dimensions, falls within a moderate range. Corroborating this, Rahimi et al., (2016) reported a comparable average level of spiritual health among students [34]. In a congruent vein, Raghavendra & Lokesh (2020) found that the majority of students in their Indian study exhibited moderate spiritual health

[35]. Conversely, Nikjou et al., (2018) observed an average range of spiritual health scores among Ardabil midwifery nursing students [28]. Shamsizadeh et al., (2020) documented an average spiritual health score of 70.94 (SD=9.56) among nursing students at Hamadan University of Medical Sciences [36]. Divergent findings were noted in Behboodi et al.'s (2019) study, where most midwifery students at Karaj University of Medical Sciences demonstrated relatively good spiritual health [37]. Similarly, Nasrollahi et al., (2018) reported low spiritual health in a different student population [38]. Discrepancies in results may arise from variations in questionnaire types and the distinct societal and environmental contexts of the studies.

Table 1. Demographic characteristics of nursing students (N=270).

	Frequency (%) or Mean (SD)
Age	23.2 (SD=2.47)
Gender	
Male	93 (34.4)
Female	177 (65.6)
Marital status	
Single	233 (86.3)
Married	37 (13.7)
Semester	
5th	80 (29.6)
6th	64 (23.7)
7th	106 (39.3)
8th	20 (7.4)
Place of residence	
City	264 (97.8)
Village	6 (2.2)
Another job	
Yes	48 (17.8)
No	222 (82.2)
Clinical work	
Yes	48 (17.80)
No	222 (82.2)
Income (Tooman)	
0	178 (69.3)
<500,000	7 (3)
>500,000	76 (28)
Province of residence	
Hamadan	140 (51.9)
Other	130 (48.1)
Living	
With family	112 (41.5)
Dormitory or alone	158 (58.5)
University type	
Medical sciences	105 (38.9)
Azad	165 (61.1)
Getting infected with COVID-19	
Yes	145 (53.7)
No	125 (46.3)
Underlying disease in the family	
Yes	78 (28.9)
No	192 (71.1)
Vaccination	
Yes	265 (98.1)
No	5 (1.9)
The death of dependents due to COVID-19	
Yes	103 (38.1)
No	167 (61.9)

Values are given as Mean (SD) for continuous variables and frequency (%) for categorical variables.

Table 2. The relationship between spiritual health and death anxiety in nursing students (N=270).

	Mean±SD	Death anxiety	
		r	P-value
Spiritual health	89.9 (SD=16.5)	-0.02	0.72
Religious dimension	46.81 (SD=9.00)	0.01	0.84
Existential dimension	43.07 (SD=8.90)	-0.05	0.38

P-value was obtained with a Pearson's correlation test.

Table 3. The relationship between spiritual health and death anxiety with demographic variables in nursing students (N=270).

	Spiritual health (mean±SD)	P-value	Death anxiety (mean±SD)	P-value
Gender				
Female	89.37 (SD=15.29)	0.28	7.46 (SD=3.56)	<0.005
Male	90.87 (SD=18.56)		5.63 (SD=3.41)	
Marital status				
Single	88.86 (SD=16.75)	0.006	6.77 (SD=3.62)	0.4
Married	96.37 (SD=13.00)		7.18 (SD=3.60)	
Job				
Yes	89.55 (SD=15.92)	0.67	5.9 (SD=3.80)	0.02
No	89.98 (SD=16.65)		7.08 (SD=3.52)	
Clinical work				
Yes	93.52 (SD=13.10)	0.21	6.80 (SD=3.66)	0.93
No	89.10 (SD=17.30)		6.84 (SD=3.60)	
Province of residence				
Hamadan	90.47 (SD=15.7)	0.77	6.99 (SD=3.55)	0.46
Other	89.26 (SD=17.3)		6.66 (SD=3.67)	
Place of residence				
City	90.06 (SD=16.53)	0.14	6.81 (SD=3.58)	0.7
Village	82.16 (SD=11.78)		7.66 (SD=4.96)	
Living				
With family	90.07 (SD=15.86)	0.9	6.82 (SD=3.43)	0.98
Dormitory or alone	89.76 (SD=16.93)		6.84 (SD=3.74)	
University type				
University of Medical Sciences	91.45 (SD=15.65)	0.35	6.65 (SD=3.68)	0.39
Village	88.89 (SD=16.94)		6.94 (SD=3.57)	
Infected with COVID-19				
Yes	88.28 (SD=17.43)	0.12	7.00 (SD=3.77)	0.64
No	91.70 (SD=15.31)		6.62 (SD=3.43)	
Underlying disease in the family				
Yes	86.88 (SD=17.35)	0.11	7.30 (SD=3.50)	0.17
No	91.11 (SD=16.00)		6.60 (SD=3.60)	
Vaccination				
Yes	89.46 (SD=16.48)	0.05	6.78 (SD=3.62)	0.07
No	103.00 (SD=9.27)		9.40 (SD=2.07)	
The death of dependents due to COVID-19				
Yes	89.17 (SD=17.13)	0.83	7.30 (SD=3.56)	0.12
No	90.33 (SD=16.08)		6.55 (SD=3.62)	

Values are given as Mean (SD).
P-value was obtained with a Mann-Whitney U test.

Moreover, the study disclosed that 49.3% of participants reported mild death anxiety. In contrast, Farokhnezhad Afshar et al., (2021) found a higher prevalence of high death anxiety among nurses [39]. Cheng et al., (2021) reported an elevated average death anxiety among nursing students during the COVID-19 epidemic [40]. Conversely, Aghajani et al., (2010) reported moderate death anxiety in most nurses, in contrast to the present study [18]. Differences in environmental factors and statistical populations may account for these variations.

Notably, the study revealed no statistically significant relationship between spiritual health and its dimensions with death anxiety. This observation is explained by the potential role of spiritual health as a robust factor in crises, potentially reducing individuals' death anxiety during events such as the COVID-19 pandemic [41]. The study's incongruence with Nouhi et al., (2020), indicating an inverse and significant relationship between spiritual health and death anxiety, may be attributed to differences in environmental conditions and statistical populations [42]. Sim-

ilarly, unrelated studies by Chung et al., (2015) [27], Moham-madizadeh et al., (2016) [43], Pahlevan Sharif et al., (2021) [44], and Shukla & Rishi (2014) [45] presented different research conditions. The unique circumstances of virtualized universities and reduced death rates due to vaccination during sampling in these conditions may contribute to the observed results.

Additionally, the study identified no statistically significant relationship between spiritual health and quantitative demographic variables such as age and academic semester. This is consistent with Behboodi et al., (2019) [37] and Nasrollahi et al., (2018) [38]. However, Rahimi et al., (2016) reported gender and educational level effects on the score of spiritual health in contrast to the present study [34].

Furthermore, the investigation indicated no statistically significant relationship between death anxiety and quantitative demographic variables such as age, semester of education, and income. Similar findings were reported by Rouhi et al., (2015) [46], Tavakkoli et al., (2021) [47], and Aghajani et al., (2010) [18]. In contrast, Nobahar et al.,'s (2021) study demonstrated a relationship between death anxiety and age contrary to the present study [48].

Moreover, the study revealed a statistically significant relationship between death anxiety and qualitative demographic variables, specifically gender, consistent with Tavakkoli et al., (2021) [47]. Rababa et al., (2021) found that women exhibited lower anxiety levels about the coronavirus than men, contrary to the present study [7]. This discrepancy may stem from differences in the age of study subjects, cultural influences, and the research environment. No statistically significant relationships were found between death anxiety and other qualitative demographic variables, including marital status, education level, and the occurrence of a family member's earth's disease, aligning with the findings of Nobahar et al., (2021) [48]. The study underscores the importance of training, evaluating the effectiveness of educational processes, and conducting needs assessments to enhance the quality-of-care services [5].

4.1 │ Limitations

One limitation of the study pertained to the reluctance of certain participants to engage, citing mental distress induced by the prevailing pandemic conditions. Additionally, the positive COVID-19 test results of some students led to non-participation in the assigned tasks, resulting in the loss of a portion of the sample.

4.2 │ Recommendations for future research

Upon evaluating the resemblances and disparities between the outcomes of the referenced studies and the current investigation,

it becomes evident that comparable variables exhibit diverse effects across distinct environments. The observed effects are contingent upon numerous factors, underscoring the need for further comprehensive research. In light of the findings of this study, it is recommended to explore this thematic area in alternate societies, incorporating different variables or employing alternative methodological approaches. Additional investigations could contribute to a more nuanced understanding of the intricate interplay of factors influencing the outcomes observed in diverse settings.

5 │ Conclusions

The findings of this study underscore the significance of spiritual health as a crucial factor in mitigating death anxiety. Consequently, there is a compelling need to devote efforts to enhancing the spiritual well-being of students, recognizing its pivotal role in sustaining mental well-being. Achieving this objective is plausible through educational interventions integrated into the academic curriculum. Furthermore, advocating for additional research aligned with the current investigation across diverse demographic groups is imperative to deepen our understanding of the subject matter. Furthermore, in consideration of the demographic variables influencing both spiritual health and death anxiety, targeted interventions can be strategically implemented based on these identified variables. This tailored approach allows for a more nuanced and effective intervention strategy, addressing the unique needs of specific demographic groups.

introduction from the Faculty of Nursing and Midwifery, as well as relevant authorities, the researchers approached all third and fourth-year nursing students in Hamadan city who were currently undertaking internship units in the 2021. Verbal informed consent was obtained from participants.

Competing interests

We do not have potential conflicts of interest with respect to the research, authorship, and publication of this article.

Availability of data and materials

The datasets used during the current study are available from the corresponding author on request.

Using artificial intelligent chatbots

None.

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