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Cross-Sectional Study

Meaning in Life, Death Anxiety, and Spiritual Care Competence: A Cross-Sectional Study of Chinese Nursing Interns

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Abstract

In Chinese culture, discussions surrounding mortality are frequently viewed as taboo, which can exacerbate death anxiety among nursing interns confronted with end-of-life care. This anxiety may subsequently impair their capacity to deliver spiritual care, though the underlying pathways driving this relationship remain to be fully clarified. This study sought to evaluate the relationships between meaning in life, death anxiety, and spiritual care competence among nursing interns, while specifically investigating the potential mediating role played by death anxiety. A cross-sectional design was utilized for this investigation. A survey was administered to a whole-cohort sample of 737 final-year vocational nursing interns at a medical college in China. Data analysis was executed using SPSS version 25.0, utilizing t-tests, ANOVA, Pearson correlation coefficients, and mediation analysis via Hayes' PROCESS macro. Statistically significant relationships were identified among meaning in life, death anxiety, and spiritual care competence. Meaning in life demonstrated a positive correlation with spiritual care competence ($r = 0.520$, $P < 0.001$) and a weak negative correlation with death anxiety ($r = -0.077$, $P = 0.036$). Conversely, death anxiety was negatively correlated with spiritual care competence ($r = -0.196$, $P < 0.001$). Mediation analysis indicated that death anxiety partially mediated the link between meaning in life and spiritual care competence, yielding an indirect effect of 0.019 (95% CI: 0.001–0.041), which accounted for 2.24% of the total effect. Death anxiety serves as a partial mediator in the relationship between meaning in life and spiritual care competence, demonstrating an indirect effect that is small yet statistically significant. These outcomes indicate that mitigating concerns about mortality and promoting the construction of existential meaning within nursing curricula could enhance the development of spiritual care competence. This aligns with theoretical frameworks that emphasize the protective and buffering capacities of existential resources.

Keywords: Nursing students, Nursing education, Spirituality, Death anxiety, Meaning in life

Introduction

Spiritual care in nursing entails identifying and addressing patients′ spiritual requirements within a holistic framework of healthcare [1], thereby acknowledging that health is inherently multidimensional. Even so, the existing literature indicates that nursing students frequently feel underprepared to provide spiritual support, underscoring the critical need to strengthen spiritual care competence (SCC) within professional nursing curricula [2]. Insufficient preparation can diminish students' readiness to deliver effective spiritual interventions within clinical environments.

The cultural landscape of China introduces distinct variables for evaluating SCC. Deeply rooted in Confucianism, Taoism, and Buddhism, traditional Chinese society frequently treats the topic of death with sensitivity or outright

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avoidance [3], which can increase distress when nursing interns are confronted with end-of-life clinical scenarios. Furthermore, the construct of meaning in life (MIL) within the Chinese framework is heavily influenced by collectivist principles that prioritize familial harmony, societal obligations, and the continuity of generations [4]. These distinct cultural factors may influence how nursing interns develop professional purpose and navigate the stressors associated with patient mortality.

Within this specific context, SCC may be determined by a combination of existential and psychological variables. Engaging in spiritual care often requires practitioners to confront suffering, bereavement, and mortality, suggesting that a nurse's personal existential framework can influence professional capabilities. MIL can serve as a vital psychological asset that fosters resilience and professional commitment. On the other hand, routine exposure to dying patients can trigger death anxiety (DA), potentially compromising a student's confidence and willingness to provide spiritually sensitive interventions.

Grounded in Terror Management Theory, which posits that awareness of one's mortality significantly influences psychological processes and behavioral choices, this investigation posits that MIL shares a positive relationship with SCC and that DA partially mediates this link. Investigating these dynamics within the Chinese cultural paradigm can facilitate a more culturally adapted understanding of how spiritual care capabilities are developed in nursing education.

From a pedagogical perspective, nursing students regularly face death-related events during their clinical rotations, often without sufficient psychological preparation. Increased levels of DA can disrupt effective communication with terminal patients and impede the execution of spiritual care. In contrast, a more robust sense of MIL can alleviate existential pain and reinforce professional dedication. Despite these conceptual connections, empirical data on the precise interrelationships among MIL, DA, and SCC among nursing interns remain sparse. Resolving this gap in the literature is vital to shaping educational approaches that fortify SCC.

Background

SCC entails identifying and responding to the requirements of the human spirit during periods of trauma, severe illness, or bereavement [5]. Documented evidence indicates that a nurse's capacity to offer spiritual care is dictated not merely by their technical training, but also by their personal spiritual assets [6]. Elevated levels of personal spirituality have been linked to heightened sensitivity to patients' existential distress and greater self-assurance when delivering spiritual care interventions [7].

Spirituality is frequently conceptualized as an individual's drive to find meaning, purpose, and connection, particularly when navigating suffering and mortality. Within these conceptual boundaries, MIL serves as a foundational existential asset [8]. MIL refers to the degree to which people view their existence as purposeful and structurally coherent [9]. Empirical investigations consistently show that a more robust perception of meaning is associated with greater psychological resilience when individuals face adversity and mortality.

Crucially, MIL has been connected to diminished levels of DA. Persons who view their lives as filled with purpose generally report less existential panic when considering mortality [10]. By contrast, death anxiety—characterized as a negative emotional reaction brought about by the awareness of mortality—has been linked to psychological distress and professional burnout among clinical staff [11]. Taken together, these insights demonstrate that existential assets can buffer fears of death.

Because the provision of spiritual care regularly requires close interaction with critically ill or dying individuals, the personal MIL and DA levels of nursing interns may dictate their resulting SCC. Under the tenets of Terror Management Theory, the awareness of mortality threatens an individual's existential security; nonetheless, robust frameworks of personal meaning can mitigate this threat and suppress anxiety reactions. Consequently, DA may serve as the psychological pathway through which MIL exerts an effect on SCC.

While SCC has garnered growing interest in nursing education, the psychological impediments to its acquisition remain understudied. DA is a common experience for nursing students during clinical placements and can shape their willingness to engage in dialogues about suffering, purpose, and death. Students experiencing elevated DA might actively avoid emotionally intense interactions, thereby restricting their opportunities to cultivate SCC. Regardless, empirical studies validating DA as a potential mediating pathway between MIL and SCC remain uncommon.

Within the structure of Chinese higher education, final-year students completing three-year vocational nursing diploma tracks who have completed their full-time clinical rotations occupy a transitional phase between formal schooling and entry into professional nursing practice. In this study, these individuals are designated as "nursing interns." To date, no empirical studies have evaluated whether DA mediates the path between MIL and SCC in this specific cohort.

Consequently, this investigation intends to:

(1) Appraise the baseline levels of MIL, DA, and SCC present among junior nursing interns; and

(2) Investigate whether DA functions as a mediator in the relationship connecting MIL to SCC within this population.

Hypothesized model

This investigation is conceptualized within the framework of Terror Management Theory (TMT). TMT dictates that the awareness of unavoidable mortality gives rise to latent existential dread, which individuals mitigate by anchoring themselves in cultural worldviews and existential sources of purpose that offer psychological safety and a sense of symbolic permanence [12].

When translated to the nursing domain, a robust sense of MIL can operate as a vital psychological asset that serves to buffer fears surrounding death. For nursing interns, an elevated level of MIL may correspond to diminished DA when they confront patient suffering and clinical mortality during their hospital rotations. Reduced levels of DA may, in turn, preserve the cognitive and emotional bandwidth needed to engage with patients' spiritual and existential concerns, thereby fostering the cultivation of SCC. Extant empirical evidence aligns with this conceptual framework. Previous studies have indicated that a higher degree of MIL is linked to diminished DA [13] as well as more constructive outlooks regarding death [14].

Within clinical care settings, orientations toward death have also been connected to personal spirituality and the delivery of spiritual care [15]. Synthesizing TMT with the current state of the literature, this study tests the following hypotheses:

(1) MIL shares a positive correlation with SCC

(2) DA shares a negative correlation with SCC

(3) DA serves as a mediating mechanism within the relationship linking MIL to SCC

The conceptual model under investigation is illustrated in **Figure 1**.

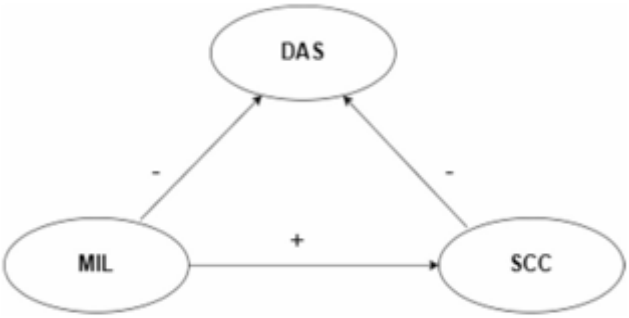

Figure 1. Hypothesized model

Materials and Methods

Design, setting, and participants

A convenience sampling strategy was applied. The investigation was conducted at a vocational medical training college in Heilongjiang Province, Northeast China, from November to December 2023. All 22 classes comprising the final-year nursing cohort were invited to enroll, capturing the full graduating class at the institution during the data collection window. A total of 810 students met the initial eligibility criteria.

The eligible sample consisted of final-year students enrolled in a three-year vocational college nursing diploma track who had completed their mandatory, full-time clinical rotations before graduation (hereafter, "nursing interns"). Students who had formally withdrawn from the track or were on an official leave of absence were excluded from analysis.

During the data collection period, hospice care, spiritual interventions, and death education were not part of the college's mandatory, standalone course offerings within its standardized curriculum. Consequently, any training experiences reported by the participants denoted voluntary or elective educational pursuits.

Instruments

Demographic information

Participants provided details regarding their background attributes and educational histories, which encompassed gender, geographic household classification, sibling status, religious affiliations, student leadership backgrounds, motivations for pursuing nursing, whether nursing was their initial major choice, membership in student associations, professional contentment, post-graduation career objectives, and any previous educational exposure to hospice care, spiritual care, or death education.

The Chinese version of the Meaning in Life Questionnaire (C-MLQ)

Existential meaning was measured using the Meaning in Life Questionnaire (MLQ) formulated by Steger *et al.* [16]. The MLQ constitutes a 10-item instrument divided into two 5-item subscales: the presence of meaning and the search for meaning. Items are scored on a 7-point Likert metric, extending from 1 (absolutely untrue) to 7

(absolutely true). The baseline validation study demonstrated Cronbach's α coefficients of 0.84 for the presence subscale and 0.85 for the search subscale. In this study, the integrated scale exhibited excellent internal consistency, yielding a Cronbach's α of 0.846. Total aggregate scores range from 10 to 70, where higher scores signify a more robust sense of MIL.

The Chinese version of the Templer Death Anxiety Scale (CT-DAS)

Fears surrounding mortality were captured using the Chinese translation of the Templer Death Anxiety Scale (CT-DAS), originally developed by Templer [17]. The CT-DAS is a 15-item unidimensional instrument. Responses use a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Aggregate scores range from 15 to 75, with higher values indicating more pronounced DA. The foundational validation work established a Cronbach's α coefficient of 0.71. In the current sample, the total scale demonstrated good internal consistency (Cronbach's α = 0.843).

The Chinese version of the Spiritual Care Competence Scale (C-SCCS)

Spiritual care capacities were evaluated via the Spiritual Care Competence Scale (SCCS) established by van Leeuwen *et al*. [18]. The SCCS is a 27-item instrument reflecting three primary domains: assessment and implementation of spiritual care, professionalization and quality improvement, and personal support and patient counseling. Evaluation uses a 5-point Likert format from 1 (strongly disagree) to 5 (strongly agree), yielding a total score range from 27 to 135. Higher scores represent more advanced levels of SCC. The initial validation trial yielded Cronbach's α coefficients of 0.93, 0.92, and 0.89 across the three domains. In this study, the total scale showed excellent internal consistency, with a Cronbach's α of 0.852.

Ethical considerations

The research protocol received formal clearance from the Ethics Committee of Heilongjiang University of Traditional Chinese Medicine (clearance protocol number: KY2023-066). Additionally, participating nursing interns were required to provide explicit informed consent before accessing the digital data-collection instruments. The information sheets distributed to each student detailed the underlying objectives, procedural steps, anticipated benefits, and potential risks associated with participation. Students retained the right to opt out at any point during the process, and enrollment was completely voluntary. Participant confidentiality was rigorously maintained, and no personally identifiable details were collected.

Data collection

The value and core objectives of this cross-sectional study were detailed on an electronic web-based platform (https://www.wjx.cn/vm/OFwglp5.aspx) and an associated smartphone application. Students were prompted to either accept or decline the survey after reading the orientation text. Anonymity and data protection were explicitly guaranteed. A pilot group of 26 nursing interns completed a pre-survey trial before full-scale administration, demonstrating a completion window of 4–6 min. The survey items were structured sequentially, and the underlying subject matter was conveyed unambiguously.

Before launching the study, the investigators coordinated with institutional instructors or counselors to facilitate distribution of the survey link (Additional File 1). The system was configured to restrict users to a single submission. After excluding 73 invalid responses (characterized by flagrant logical contradictions or unfeasibly brief completion times), 737 questionnaires were retained for analysis, yielding an effective response rate of 92%.

Data analysis

All analytical processing was carried out via IBM SPSS Statistics version 25.0. Descriptive statistics were compiled for all baseline parameters. Categorical attributes were expressed through absolute frequencies and percentages, whereas continuous dimensions were reported as means ± standard deviations following normality evaluation.

Independent-samples t-tests and one-way analysis of variance (ANOVA) were executed to determine variations in SCC across different categorical groupings. Interrelations among MIL, DA, and SCC were computed using Pearson correlation coefficients. The magnitude of correlation effects was categorized as weak ($r = 0.10–0.29$), moderate ($r = 0.30–0.49$), or strong ($r \geq 0.50$).

To test the hypothesized mediating function of DA, mediation analysis was conducted using Hayes' PROCESS macro (Model 4). The mathematical significance of the indirect pathways was verified utilizing the bootstrapping technique with 5,000 replications to compute 95% confidence intervals (CIs). An indirect pathway was deemed statistically significant if its 95% CI did not include zero. All hypothesis tests used two-tailed p-values, with significance defined at $P < 0.05$.

Results and Discussion

Participant profiles and demographics

Table 1 outlines the baseline personal characteristics of the surveyed vocational nursing interns. The sample was predominantly female, accounting for 82.8% of the total cohort, and nearly half of the respondents (48.4%) reported growing up as single children without any siblings **(Table 1)**.

Table 1. Data on demographic characteristics of the participants. From: The mediating role of death anxiety between meaning in life and spiritual care competence among Chinese nursing interns: implications for healthcare training.

Demographic characteristic	Category	%	N
Sex	Male	17.2	127
	Female	82.8	610
Place of residence	Urban area	54.5	402
	Rural area	45.5	335
Sibling status	No siblings	48.4	357
	One or more siblings	51.6	380
Religious affiliation	Yes	2.2	16
	No	97.8	721
Student leadership experience	Participated	28.2	208
	Not participated	71.8	529
Reason for choosing nursing as a profession	Personal choice and self-motivation	54.3	400
	Influence of family members or teachers	36.6	270
	Transfer from another specialty	2.7	20
	Other motivations	6.4	47
Nursing as the first choice in university entrance application	Yes	79.9	589
	No	20.1	148
Participation in student organizations or clubs	Yes	9.5	70
	No	90.5	667
Level of interest in the nursing profession	Strongly like	28.6	211
	Somewhat like	52.8	389
	Undecided	13.8	102
	Somewhat dislike	3.7	27
	Strongly dislike	1.1	8
Intention to work in nursing in the future	Very strong intention	33.2	245
	Strong intention	44.1	325
	Uncertain	18.5	136
	Reduced intention	3.1	23
	Very reluctant	1.1	8
Previous training in hospice, spiritual care, hospice care, or death education	Received training	42.1	310
	No training received	57.9	427

Influence of baseline characteristics on interns' SCC scores

Statistical analyses revealed that holding student leadership positions significantly altered interns' self-reported SCC ($t = 2.391$, $P = 0.017$). Distinct variations in competency scores were also driven by students' initial motivations for entering the nursing profession ($F = 9.337$, $P < 0.001$), their current level of vocational satisfaction ($F = 19.774$, $P < 0.001$), and their long-term career aspirations ($F = 17.988$, $P < 0.001$). Furthermore, individuals who had previously participated in elective training or workshops focused on hospice care, spiritual interventions, or death education achieved significantly higher SCC scores than their untrained counterparts ($t = 4.932$, $P < 0.001$).

According to post-hoc tests, interns who chose the nursing track based on personal autonomy scored significantly higher on the SCC scale than those who enrolled due to external pressures (such as family or teacher advice) or other miscellaneous reasons. Additionally, a strong passion for the discipline and a clear intent to remain in the nursing workforce were associated with higher SCC scores. In contrast, students who felt indifferent or uncertain about their career path scored significantly lower **(Table 2)**.

Table 2. Comparison of SCC scores with different characteristics (n = 737, Mean ± SD). From: The mediating role of death anxiety between meaning in life and spiritual care competence among Chinese nursing interns: implications for healthcare training.

Variable	Category	P-value	Test statistic (t/F)	SCC (Mean ± SD)
Gender	Male	0.066	t = 2.155	97.71 ± 15.73
	Female			94.91 ± 13.99
Residential area	Urban	0.086	t = -1.719	94.60 ± 14.10
	Rural			96.42 ± 14.58
Sibling status	No siblings	0.523	t = 0.639	95.77 ± 14.48
	One or more siblings			95.10 ± 14.22
Religious affiliation	Yes	0.436	t = 0.779	98.19 ± 17.51
	No			95.36 ± 14.27
Participation in student leadership positions	Yes	0.017*	t = 2.391	97.43 ± 13.92
	No			94.64 ± 14.44
Involvement in clubs or organizations	Yes	0.197	t = 1.291	97.53 ± 13.59
	No			95.20 ± 14.41
Nursing was chosen as a first-choice major in the college entrance examination	Yes	0.212	t = 1.250	95.76 ± 14.41
	No			94.11 ± 14.03
Reason for choosing the nursing profession	Personal interest and voluntary choice[a]	< 0.001	F = 9.337	97.89 ± 14.47
	Family or teacher recommendation[b]			92.90 ± 13.76
	Transfer from another specialty[bc]			91.75 ± 12.81
	Other motivations[c]			90.49 ± 13.43
Degree of interest in nursing	Strongly interested[a]	< 0.001	F = 19.774	101.32 ± 16.05
	Moderately interested[b]			94.44 ± 12.56
	Undecided[bc]			90.75 ± 13.35
	Moderately uninterested[cd]			86.74 ± 10.97
	Strongly uninterested[d]			76.75 ± 4.95
Intention to work in nursing after graduation	Very strong intention[a]	< 0.001	F = 17.988	101.04 ± 16.24
	Strong intention[b]			93.18 ± 12.16
	Uncertain[bc]			92.51 ± 12.64
	Low intention[bc]			90.70 ± 12.56
	Very low intention[c]			77.75 ± 8.29
Receipt of hospice, spiritual care, death education, or related training (e.g., courses, videos, lectures)	Yes	< 0.001	t = 4.932	98.44 ± 14.92
	No			93.24 ± 13.91

Post-hoc analyses were conducted for significant multi-group variables. Tukey HSD tests were applied when the assumption of homogeneity of variance was met. When Levene's test indicated unequal variances (P < 0.05), Games-Howell post-hoc tests were used. Groups sharing the same superscript letter are not significantly different at P < 0.05
SCC = Spiritual care competence
*P < 0.05

Bivariate Correlations between MIL, DA, and SCC

The descriptive statistics displayed in **Table 3** show that the mean scores for SCC, DA, and MIL were 95.42 ± 14.34, 44.54 ± 14.34, and 52.30 ± 9.26, respectively. Based on Pearson correlation analyses, DA was inversely related to both MIL (r = -0.077, P < 0.001) and SCC (r = -0.196, P < 0.001). Conversely, a positive relationship was observed between MIL and SCC (r = 0.520, P < 0.001). While the negative association between MIL and DA was statistically verified, its exceptionally small effect size denotes negligible practical importance. The correlation tracking DA and SCC was similarly modest, whereas the linkage mapping MIL to SCC proved to be moderate-to-strong.

Table 3. Means and correlation among MIL, DA, and SCC (n = 737). From: The mediating role of death anxiety between meaning in life and spiritual care competence among Chinese nursing interns: implications for healthcare training.

Variables		DA	SCC	MIL
MIL	52.30 ± 9.26	-0.077***	0.520***	1
SCC	95.42 ± 14.34	-0.196***	1	0.520***
DA	44.54 ± 14.34	1	−0.196***	-0.077***

Pearson correlation coefficients are reported.
Abbreviations: MIL = Meaning in life, DA = Death anxiety, and SCC = Spiritual care competence.
*** P < 0.001

Mediation pathway analysis: DA as a mechanism between MIL and SCC

As documented in **Tables 4 and 5**, bootstrapping mediation modeling demonstrated that MIL functioned as an inverse predictor of DA (β = -0.077, 95% CI = -0.146, -0.005, t = -2.096, P = 0.036) and a positive predictor of SCC (β = 0.805, 95% CI = 0.709, 0.901, t = 16.488, P < 0.001). Simultaneously, increased DA predicted lower SCC scores (β = -0.249, 95% CI = -0.346, -0.152, t = -5.052, P < 0.001). The direct regression pathway from MIL to SCC remained statistically meaningful even after accounting for the mediator (β = 0.786, 95% CI = 0.691, 0.880, t = 16.322, P < 0.001), confirming a pattern of partial mediation. Although statistically significant, the indirect effect of MIL on SCC operating via DA was quite small (β = 0.019, 95% CI = 0.001, 0.041), accounting for just 2.24% of the total recorded impact. These statistics confirm that DA partially accounts for the connection between MIL and SCC, though the pathway's minimal magnitude warrants a highly conservative interpretation **(Figure 2)**.

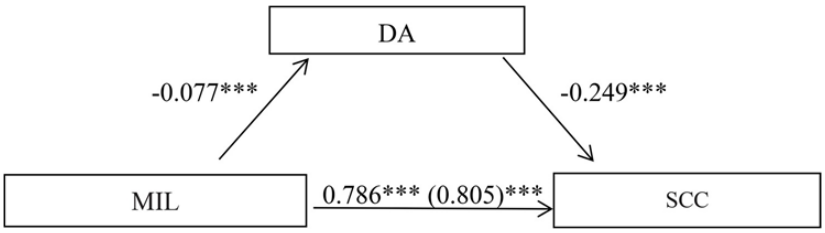

Figure 2. Path analysis diagram for the prediction of SCC (mediation effect). Notes ***P < 0.001. Path coefficients (β) are standardized regression coefficients. Solid lines indicate significant paths; dashed lines indicate non-significant paths. Abbreviations: MIL = meaning in life, DA = death anxiety, and SCC = spiritual care competence.

Table 4. Mediating effects of DA on the relationship between MIL and SCC (MIL → DA → SCC, n = 737). From: The mediating role of death anxiety between meaning in life and spiritual care competence among Chinese nursing interns: implications for healthcare training.

Path	95% CI.	P	t	SE	β
MIL → DA	-0.146, -0.005	0.036*	-2.096	0.036	-0.077
MIL → SCC	0.709, 0.901	< 0.001	16.488	0.049	0.805
DA → SCC	-0.346, -0.152	< 0.001	-5.052	0.049	-0.249
MIL, DA → SCC	0.691, 0.880	< 0.001	16.322	0.048	0.786

P < 0.05**

Table 5. Indirect effect of MIL on SCC via DA. From: The mediating role of death anxiety between meaning in life and spiritual care competence among Chinese nursing interns: implications for healthcare training.

	Effect size	ULCI	LLCI	SE	Effect
Total effects		0.901	0.709	0.049	0.805
Direct effects	97.64%	0.881	0.691	0.048	0.786
Indirect effects	2.24%	0.041	0.001	0.010	0.019

The SCC of nursing interns

This investigation demonstrated that nursing interns possess an intermediate level of SCC, generating a mean score of 95.42 ± 14.34. This score sits above the scale's midpoint (27–135) and aligns closely with earlier clinical literature [19], though it falls marginally below baseline levels observed among certified registered nurses in China [20]. This discrepancy is expected given the transitional phase of internship, during which students are actively developing clinical acumen, professional identities, and relational assurance. The clinical environment serves as

a transformative learning ecosystem, offering hands-on opportunities to integrate theoretical frameworks with the reflective and relational skills vital to comprehensive, holistic healthcare.

Holding student leadership positions was associated with a positive relationship and heightened SCC. Interns with leadership backgrounds reported higher competence levels, indicating that participation in extracurricular professional roles can accelerate skill acquisition. Such responsibilities routinely cultivate accountability, emotional resonance, communication expertise, and teamwork—traits that directly underpin the relational requirements of spiritual intervention. From the perspective of identity development, leadership responsibilities may solidify professional self-efficacy and internalize professional roles, thereby heightening a student's readiness to participate in complex, spiritually delicate clinical encounters.

Internal professional drive also surfaced as a critical predictive factor. Students who autonomously elected to pursue nursing and reported high occupational dedication exhibited superior SCC performance. These insights highlight how deeply internalized professional values shape overall competence. When nursing is framed as an intrinsically meaningful and personally chosen vocation, students are more likely to participate in reflective clinical practice and emotionally attuned patient care. Consequently, academic interventions such as structured mentorship, early clinical orientation, and programmatic career counseling represent vital pathways for cultivating durable vocational commitment and expanding spiritual care capacities.

Furthermore, engagement with structured death education and spiritual care modules corresponded with elevated SCC metrics. Structured training programs do more than deliver fundamental concepts; they cultivate self-reflection, bolster emotional readiness, and refine the communicative nuances needed to address patients' existential concerns. Incorporating organized spiritual care and end-of-life training within standardized nursing programs appears crucial for maximizing proficiency in this specific domain.

Mediating effects of DA on MIL and SCC

This research explored the functional role of DA as a mediator between MIL and SCC. Corresponding with our conceptual assumptions, MIL demonstrated a positive association with SCC and an inverse relationship with DA. Path analysis verified that DA functions as a partial mediator within this interaction. Although this indirect pathway accounted for only a relatively minor portion of the total recorded effect (2.24%), it remained statistically significant.

The modest scale of this indirect pathway demonstrates that DA represents a distinct, identifiable existential variable connecting personal meaning to professional capability, rather than the primary mechanism driving the relationship. The link connecting MIL to SCC is undoubtedly multifactorial. A well-developed sense of meaning likely enhances personal empathy, ethical sensitivity, and professional confidence [21], thereby opening pathways for deeper engagement with patients' spiritual struggles. Furthermore, existential meaning can reinforce psychological resilience and foster compassion satisfaction [22], empowering nursing interns to navigate the emotional burdens of spiritually demanding clinical settings successfully.

The small but significant mediating path indicates that DA is an identifiable existential mechanism linking personal meaning and professional competence, though it is not the dominant pathway. Multiple concurrent factors likely drive the correlation between MIL and SCC.

Crucially, the minor effect size of this indirect pathway does not invalidate its theoretical importance. Evaluated through Terror Management Theory, existential anxiety-buffering operations routinely take place alongside various other psychological dynamics. These results imply that the anxiety-mitigating utility of personal meaning frameworks reaches beyond basic psychological adjustment, directly modifying professional proficiency in clinical environments dominated by suffering and death. Within this paradigm, existential resources determine not only how nursing interns process personal fears of death, but also how successfully they offer empathetic spiritual care to patients.

From a practical perspective, these findings justify a multi-tiered educational framework. Educational interventions aimed at maximizing SCC would benefit from simultaneously strengthening personal existential resources and mitigating death-related distress. Meaning-focused reflective workshops can solidify a sense of professional objective and internal coherence, whereas formal death education can de-stigmatize mortality dialogues and introduce adaptive psychological coping mechanisms. While DA accounted for only a modest share of the global association, targeting this anxiety can facilitate the conversion of personal existential meaning into proficient, compassionate bedside care.

Limitations

Several limitations bound this investigation. First, because the data collection was restricted to a single educational institution rather than using a multi-regional randomized sampling frame, the generalizability of these outcomes to the broader population of Chinese nursing interns remains unverified. Second, individual spiritual backgrounds were not measured, despite the potential for these personal experiences to alter baseline SCC. Third, the study relied entirely on subjective self-report scales rather than integrating behavioral observations or clinical

evaluations of MIL, DA, and SCC, which could have yielded more detached, objective metrics. Fourth, the cross-sectional nature of the data limits definitive causal claims and prevents the assessment of longitudinal variation. Additionally, given the robust sample size, certain statistically significant results—most notably the mediating pathway of DA—showed small overall effect sizes. Consequently, these specific data points require a conservative interpretation regarding their immediate educational or practical impact. Future investigations utilizing longitudinal tracking, experimental designs, or integrated mixed-methods frameworks are required to substantiate and expand these models. Similarly, qualitative methodologies could offer clearer insights into the lived realities that govern relationships among MIL, DA, and SCC.

Conclusion

In conclusion, this study demonstrates that MIL shows a positive association with SCC among Chinese nursing interns, with DA functioning as a statistically significant, though modest, mediating mechanism. These results highlight that mastering SCC requires more than executing technical and clinical tasks; it is deeply rooted in the underlying psychological and existential constructs that support holistic healthcare delivery.

To operationalize these observations within educational environments, several structural adjustments can be integrated into nursing programs. First, embedding formalized death education can help normalize conversations about mortality and strengthen communication skills in palliative environments. Second, meaning-oriented educational modules, such as reflective seminars or group counseling sessions, can help students discover and solidify their individual professional purpose. Third, expanding hands-on experiential learning in spiritual care—utilizing simulation labs, standardized patient interactions, and mentored clinical practice—can reinforce student capabilities in spiritual assessment and supportive communication.

Blended, these integrated pedagogical methodologies can optimize the preparation of nursing students for the spiritual requirements of healthcare delivery. However, given the cross-sectional constraints and modest effect sizes identified here, future prospective cohort studies and interventional trials are vital to map these causal trajectories and measure the long-term viability of these educational strategies. Future research should also investigate alternative mediating variables, such as empathy and self-efficacy, to optimize conceptual models of SCC development.

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Conflict of interest: None

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Ethics statement: The study was performed in accordance with the Declaration of Helsinki and approved by the Ethics Committee of Heilongjiang University of Traditional Chinese Medicine (Approval Number: KY2023-066). After the introduction of the study purpose, the nursing interns were asked whether they would like to participate in the survey. The official survey interface would be entered after clicking “Agree to participate”. All nursing students signed the electronic informed consent via the Internet Questionnaire. Informed consent was obtained from all participants.

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