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Resilience and Attitudes toward Death among Nursing Professionals: A Cross-Sectional Study

Mina Takahashi[1]*, Daichi Fujimoto[1]

[1]*Department of Nursing and Symptom Management, Faculty of Nursing, Osaka University, Osaka, Japan.*

Abstract

Nursing professionals regularly care for patients facing the end of life, yet a significant portion report feeling insufficiently equipped to handle the emotional burdens of this work. Individual orientations toward death affect both the standard of end-of-life care provided and the psychological health of the clinicians themselves. Although resilience has been posited as a key protective resource, its precise function in determining attitudes toward death among nursing staff has not been thoroughly investigated. This investigation analyzed how resilience relates to attitudes toward death and evaluated the personal and work-related variables linked to these orientations before the COVID-19 pandemic. An observational cross-sectional design was utilized, enrolling 742 nursing professionals employed within Intensive Care, Palliative Care, and Oncology units across seven public hospital facilities in Spain. Between June 2018 and April 2019, data were collected using the Death Attitude Profile-Revised, the Connor-Davidson Resilience Scale, and a custom-designed questionnaire that captured sociodemographic and professional characteristics. Statistical evaluations involved multivariate analyses of variance, correlation testing, mediation and moderation modeling, and principal component analysis. The primary orientation toward death reported by participants was Neutral-Acceptance ($M = 5.68$, $SD = 0.90$), with lower scores observed for Fear-of-Death ($M = 3.70$, $SD = 1.39$) and Death-Avoidance ($M = 3.53$, $SD = 1.59$). Clinicians' viewpoints on death were significantly associated with professional designation, chronological age, specialized education in death and bereavement, clinical department, and individual resilience levels (all $p < .05$). Resilience demonstrated a positive correlation with Neutral-Acceptance and inverse correlations with Fear-of-Death and Death-Avoidance. Furthermore, mediation testing indicated that resilience functioned as a total mediator between multiple professional variables and primary death attitudes, with suppression phenomena detected within specific models. Individual resilience and targeted education on death and dying appear to be vital components in shaping how nursing staff perceive mortality. Embedding resilience-building initiatives and structured death education within academic degrees and ongoing professional development could enhance the psychological well-being of nursing staff and raise the standard of end-of-life healthcare delivery.

Keywords: Attitude to death, Nurses, Psychological resilience, Palliative care units, End-of-life care, Death education

Introduction

Experiencing patient mortality is an intrinsic and inescapable reality of professional nursing that imposes substantial emotional and clinical strain on personnel, particularly those stationed within Intensive Care, Palliative Care, and Oncology environments. It involves an array of psychological, interpersonal, cultural, and financial factors that profoundly alter the experiences of patients, families, and formal healthcare providers [1]. In specialized palliative care departments, clinical goals prioritize mitigating distress, discovering meaning, and providing supportive presence during the final stages of life; this work requires not only clinical proficiency but

Corresponding author: Mina Takahashi
Address: Department of Nursing and Symptom Management, Faculty of Nursing, Osaka University, Osaka, Japan.
E-mail: ✉ mina.takahashi@gmail.com
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also emotional capacities and self-reflective stances on mortality to ensure empathetic, high-quality end-of-life support [2, 3].

Attitudes toward death (ATD) is a multi-faceted construct comprising cognitive, affective, behavioral, and spiritual elements. The framework established by Wong *et al*. [4] identifies five distinct dimensions: Fear-of-Death (marked by feelings of apprehension and anxiety), Death-Avoidance (the active evasion of conversations or encounters involving mortality), and three separate subcategories of death acceptance. These include Neutral-Acceptance (interpreting death as a natural, unavoidable component of human existence), Approach-Acceptance (perceiving death as a transition to a more positive spiritual afterlife), and Escape-Acceptance (viewing death as a welcome release from physical or mental torment) [5]. These internal outlooks are documented to impact both the delivery of terminal care and the broader psychological stability of healthcare workers [2, 6, 7].

Quantitative research indicates that many clinicians concurrently view death as a normal life event while harboring feelings of apprehension and avoidance, a combination that can precipitate internal tension [3, 8] alongside psychological distress, hopelessness, powerlessness, anger, or depressive symptoms [9, 10]. Conversely, greater acceptance of mortality is associated with reduced emotional strain and more adaptive professional coping mechanisms [11, 12].

Despite the evident importance of ATD, data identifying its driving factors remain contradictory. Basic demographic traits, including age and gender, show conflicting relationships with fear-centric versus acceptance-centric mindsets. Some investigations indicate that female clinicians display higher levels of fear-oriented attitudes [13, 14], whereas others show the inverse pattern [3], and still others indicate that male professionals express higher overall acceptance [8, 15]. Similarly, while some papers argue that younger clinicians demonstrate heightened levels of Death Acceptance [16], alternative data link younger age to elevated Death-Avoidance or amplified Fear-of-Death [4, 17]. These discrepancies likely reflect intricate connections among individualized life experiences, cultural perspectives, and the specific clinical scenarios encountered across different phases of an individual's career trajectory.

Occupational variables similarly generate contrasting conclusions. Nurses stationed in Intensive Care Units (ICUs) or Oncology departments, as well as those with limited tenure in the field, frequently report higher scores on fear and avoidance [3, 17, 18]. On the other hand, employment within palliative services and prolonged exposure to terminal clinical scenarios are associated with greater acceptance and greater emotional readiness [19]. Even so, contemporary investigations suggest that routine encounters with patient death do not automatically yield adaptive coping frameworks and can sometimes impair emotional processing, emphasizing the pronounced differences present across diverse clinical landscapes [15].

Specialized professional instruction regarding death and dying demonstrates a more stable association with adaptive ATD. Clinicians who have undergone formal training in terminal care exhibit higher overall acceptance, minimized fear, and strengthened emotional resilience [20], qualities that subsequently support elevated care performance and ethically sound practice [8, 21-23].

Concurrently, resilience has been recognized as a fundamental protective attribute in these demanding environments. The meta-theory of resilience outlined by Richardson [24] conceptualizes it as an evolving trajectory of biopsychospiritual reintegration following a person's disruption from stressors or hardship. Characterized as a multi-layered process driven by personal, environmental, and interpersonal assets [25, 26], resilience enables nursing staff to manage their emotional responses, process distressing clinical events, and maintain mental equilibrium when routinely encountering patient death [27-29].

In alignment with this perspective, the Psychological Immunity-Psychological Elasticity (PI-PE) model formulated by IJntema *et al*. [30] pinpoints two primary pathways: stressor-specific tolerance and the development of internal narratives. These pathways yield four potential adaptive outcomes: sustainability (resistance), recovery (rebound resilience), transformation (psychological reconfiguration), and thriving (flourishing). Higher levels of individual resilience have been linked to greater Neutral-Acceptance, reduced Fear-of-Death and Death-Avoidance [7, 31], and enhanced professional satisfaction and personal well-being [32, 33]. Furthermore, resilience may serve a mediating function connecting an individual's sense of purpose and work-related factors to their ATD, fostering healthier psychological adaptation within terminal care environments [29, 34]. Consequently, cultivating resilience and promoting reflective practices regarding mortality should be core priorities in nursing curricula and clinical mentorship programs to safeguard practitioners' health and ensure excellence in care.

While the significance of ATD and resilience within nursing practice is widely recognized, the precise pathways through which demographic and work-related elements interface with resilience to shape ATD in clinical settings before the pandemic remain unclear. Specifically, empirical proof verifying how resilience functions as a statistical mediator is both scarce and contradictory. To address these gaps, this investigation utilizes pre-pandemic data to achieve three specific aims: [1] to explore how nurses' ATD correlate with sociodemographic and employment characteristics across clinical environments characterized by high mortality rates, including Palliative Care departments; [2] to determine the association between individual resilience and specific dimensions of ATD; and [3] to establish the degree to which resilience statistically mediates the pathways between

designated occupational factors and ATD. Developing a deeper understanding of these interactions can guide the creation of targeted educational interventions and organizational support systems to protect nurses' mental health and maximize the quality of care delivered at the end of life.

Materials and Methods

Study design and participants

Data for this observational, cross-sectional investigation were gathered from a convenience sample of n = 742 nursing staff members across seven public hospitals within the Basque Health Service (Spain). The final cohort comprised Registered Nurses (RNs) with a Bachelor of Science in Nursing and Auxiliary Nursing Care Technicians (ANCTs). These professionals were stationed in three high-mortality clinical environments: Intensive Care (n = 380), Oncology (n = 237), and Palliative Care (n = 125). Individuals working in primary care sectors and undergraduate nursing students were barred from participation.

Demographically, the sample was heavily skewed toward female professionals (90.4%), with 56.9% of the cohort aged 45 or younger. Regarding educational attainment, 70.2% held a Bachelor of Nursing degree. The majority of the staff (74.1%) reported more than 5 years of clinical experience in a hospital setting, yet only 38.1% had received specialized instruction regarding death and bereavement care. The sample displayed medium-to-high baseline resilience levels (M = 28.43, SD = 6.02), and 24.7% of the participants were categorized as highly resilient. The comprehensive demographic breakdown is compiled in **Table 1**.

Table 1. Sample characteristics and descriptive statistics by subgroup.

Variable	%	N	Escape acceptance (M (SD))	Approach acceptance (M (SD))	Neutral acceptance (M (SD))	Death avoidance (M (SD))	Fear of death (M (SD))
Gender							
Male	9.6	71	3.23 (1.49)	2.59 (1.29)	5.76 (0.87)	3.2 (1.50)	3.37 (1.31)
Female	90.4	671	3.28 (1.51)	2.85 (1.42)	5.67 (0.90)	3.56 (1.59)	3.73 (1.40)
Age							
≤ 45 years	56.9	422	3.02 (1.38)	2.65 (1.31)	5.65 (0.91)	3.58 (1.59)	3.71 (1.41)
> 45 years	43.1	320	3.66 (1.59)	3.08 (1.52)	5.72 (0.89)	3.46 (1.58)	3.41 (1.37)
Professional category							
Registered nurse	70.2	521	3.20 (1.48)	2.73 (1.40)	5.70 (0.90)	3.44 (1.52)	3.7 (1.41)
ANCT	29.8	221	3.53 (1.54)	3.08 (1.44)	5.64 (0.91)	3.76 (1.71)	3.7 (1.87)
Healthcare setting							
Intensive care	51.2	380	3.25 (1.46)	2.84 (1.42)	5.66 (0.89)	3.70 (1.58)	3.79 (1.42)
Oncology	31.9	237	3.29 (1.54)	2.87 (1.50)	5.69 (0.90)	3.42 (1.52)	3.70 (1.34)
Palliative care	16.8	125	3.46 (1.59)	2.78 (1.25)	5.72 (0.92)	3.20 (1.67)	3.43 (1.36)
Years of experience							
≤ 5 years	25.9	192	3.20 (1.45)	2.82 (1.36)	5.65 (0.88)	3.6 (1.65)	3.64 (1.28)
> 5 years	74.1	550	3.33 (1.53)	2.85 (1.44)	5.69 (0.91)	3.5 (1.57)	3.77 (1.43)
Before death training							
Yes	38.1	283	3.39 (1.54)	3.01 (1.50)	5.73 (0.93)	3.34 (1.55)	3.63 (1.37)
No	61.9	459	3.24 (1.48)	2.73 (1.35)	5.65 (0.88)	3.64 (1.60)	3.74 (1.40)
Resilience level							
Low-Medium	75.3	559	3.33 (1.48)	2.77 (1.36)	5.62 (0.92)	3.61 (1.56)	3.85 (1.37)
High	24.7	183	3.15 (1.58)	3.00 (1.55)	5.89 (0.80)	3.29 (1.66)	3.24 (1.35)
Overall sample	100	742	3.28 (1.51)	2.83 (1.41)	5.68 (0.90)	3.53 (1.59)	3.70 (1.39)

From: Attitudes toward death in nursing staff: the role of resilience.
Abbreviations: ANCT = Auxiliary Nursing Care Technician, M = Mean, SD = Standard Deviation.
Resilience overall: M = 28.43, SD = 6.02.

Statistical power analysis

To establish an appropriate sample size before data collection, an a priori power analysis was executed for MANOVA modeling [35]. Based on a power threshold of 0.80, a significance level of $\alpha = 0.05$, and a moderate operational effect size of $f^2 = 0.06$, the framework specified a baseline sample size of n = 688 subjects. Our finalized enrollment (n = 742) successfully satisfied this target.

Procedure

Initial administrative access was secured by contacting the nursing directors and unit supervisors of the designated ICU, Palliative Care, and Oncology departments at each facility. Following formal authorization, eligible staff members were invited to attend 60-minute orientation meetings hosted within their respective units. Attending personnel were provided with physical questionnaire packets and envelopes to facilitate anonymous submission into secure, opaque collection boxes. To counteract the high turnover and shifting schedules of healthcare staff, these informational sessions were held biweekly. The data-gathering phase spanned from June 2018 to April 2019 and adhered to the STROBE (STrengthening the Reporting of Observational Studies in Epidemiology) reporting guidelines for observational studies.

Instruments

Sociodemographic and professional variables

An ad hoc background survey was designed to document participants' gender, chronological age, professional rank, assigned clinical unit, career longevity, and any history of coursework in death or grief counseling.

Attitudes toward death

This construct was operationalized via the Spanish-validated adaptation [36] of the Death Attitude Profile-Revised (DAP-R) scale [4]. This multidimensional instrument comprises 32 items, each rated on a 7-point Likert scale from 1 (totally disagree) to 7 (totally agree). The tool charts five specific dimensions: Fear-of-Death (7 items) and Death-Avoidance (5 items) serve as indicators of avoidant or negative mindsets, while Neutral-Acceptance (5 items), Approach-Acceptance (10 items), and Escape-Acceptance (5 items) represent constructive or positive orientations [5].

Composite profiles are determined by evaluating which subscales yield the highest relative mean scores for a given participant. Because our active database handles aggregated subscale metrics, internal consistency coefficients were drawn from the baseline Spanish validation metrics [36]. The subscales displayed acceptable-to-excellent psychometric reliability across the board: Fear-of-Death ($\alpha = 0.87$), Death-Avoidance ($\alpha = 0.84$), Neutral-Acceptance ($\alpha = 0.75$), Approach-Acceptance ($\alpha = 0.93$), and Escape-Acceptance ($\alpha = 0.81$).

Resilience

Psychological resilience was tracked using the 10-item Connor-Davidson Resilience Scale (CD-RISC-10) [37], specifically the Spanish translation verified by Notario-Pacheco *et al*. [38]. Respondents rate items on a Likert scale from 0 (totally disagree) to 4 (totally agree), yielding a total possible score range of 0–40, with higher values indicating stronger resilient traits. The internal reliability coefficient in this study reached $\alpha = 0.85$.

Data analysis

Statistical computations were performed in Python (version 3.8) using the NumPy, Pandas, SciPy, Statsmodels, and Scikit-learn packages. Missing data patterns were resolved using an iterative imputation algorithm driven by random forests. Assumptions of normality were verified by ensuring skewness remained below 2, and kurtosis remained below 7 [39, 40], an approach justified by the Central Limit Theorem given our large sample size.

Descriptive parameters were expressed through means, standard deviations, raw frequencies, and percentages. Inter-variable connections were mapped using Pearson and Spearman correlation coefficients. To properly integrate the clinical environments into the multivariate equations, the three distinct units (Intensive Care, Oncology, and Palliative Care) were converted into dummy-coded binary indicators (0 = absent from unit, 1 = active in unit). Each clinician was nested within exactly one specialized department. Our final write-up highlights the specific contrasts between Intensive Care and Palliative Care units, given their competing clinical priorities (restorative vs. comfort-oriented care) and established histories of divergent death perspectives [3, 41].

To isolate variances in death attitudes across the independent groupings (gender, age, job tier, unit assignment, tenure, educational history, and resilience), a series of one-way multivariate analyses of variance (MANOVA) was conducted, backed by Bonferroni corrections for post-hoc pairings.

Resilience scores were split at the upper quartile boundary ($Q3 = 32.00$) to yield two operational strata: a low-to-medium resilience segment ($\leq Q3$, $n = 559$, 75.3%) and a high resilience segment ($> Q3$, $n = 183$, 24.7%). Four factors guided this categorization: first, it optimizes clinical application by isolating the upper 25% of resilient personnel for targeted administrative support; second, modern theoretical models frame resilience as a categorical state rather than a continuous metric [24]; third, the baseline distribution departed significantly from a normal curve (Shapiro-Wilk $W = 0.973$, $P < .001$, skewness = -0.651, kurtosis = 0.990), hinting at discrete sub-populations [42]; and fourth, a preliminary sensitivity check confirmed high structural alignment between the continuous and split versions, as all 5 subscales maintained identical significance behaviors and equivalent effect sizes.

Mediation pathways were calculated via bootstrapping [43], with 5,000 resamples to produce 95% bias-corrected accelerated confidence intervals. These models examined whether resilience served as an intervening variable between occupational indicators and death orientations. The final models display the direct effect of the predictor on resilience (path a), the effect of resilience on the outcome (path b), and the resulting joint indirect path (a \times

b) backed by its 95% CI. A mediation path was deemed statistically significant if its confidence interval did not cross zero.

Moderation dynamics were calculated using hierarchical linear regressions with centered variables. Structural frameworks within the collective death attitudes were mapped via Principal Component Analysis (PCA), with group-level variations analyzed through independent t-tests and one-way ANOVAs paired with Tukey post-hoc adjustments. Data viability for factor extraction was verified using the Kaiser-Meyer-Olkin (KMO) index and Bartlett's test of sphericity. The collective KMO metric was 0.576 (classified as mediocre; Kaiser, 1974), with independent item KMO metrics ranging from 0.491 to 0.735. Bartlett's equation proved highly significant (\chi^2 = 667.10, df = 10, P < .001), establishing that the matrix structure deviated significantly from an identity matrix. The matrix determinant (0.405) sat comfortably above the standard 0.00001 benchmark, confirming the absence of multicollinearity. While the modest KMO supports the mathematical validity of a PCA, the findings should be framed with the caveat that the five underlying orientations retain distinct variances, consistent with the multidimensional nature of the original DAP-R tool.

The threshold for statistical significance was maintained at P < .05. Explanatory power and variance were communicated using partial eta squared (η^2) for MANOVA equations, Cohen's d for group t-tests, and R^2 parameters for regression trajectories.

Ethical considerations

The protocol for this research received formal clearance from the Basque Ethics Committee for Research, under the reference code CEIm-E PI2018066. The study operations adhered strictly to the tenets of the 1964 Declaration of Helsinki and its subsequent revisions. Data collection commenced only after each eligible participant provided signed informed consent, with strict procedural measures in place to preserve data confidentiality and individual anonymity throughout.

Results and Discussion

Descriptive analysis of attitudes toward death

The quantitative distribution of scores revealed distinct variations across the five dimensions of the Death Attitude Profile-Revised (DAP-R). Among the sampled staff, the highest overall agreement was observed for the Neutral-Acceptance dimension (M = 5.68, SD = 0.90). Avoidant or anxious mentalities occupied the intermediate tier of the data distribution, with Fear-of-Death registering a mean of 3.70 (SD = 1.39) and Death-Avoidance yielding a mean of 3.53 (SD = 1.59). Conversely, participants reported the lowest levels of alignment with Escape-Acceptance (M = 3.28, SD = 1.51) and Approach-Acceptance (M = 2.83, SD = 1.41) configurations **(Figure 1)**.

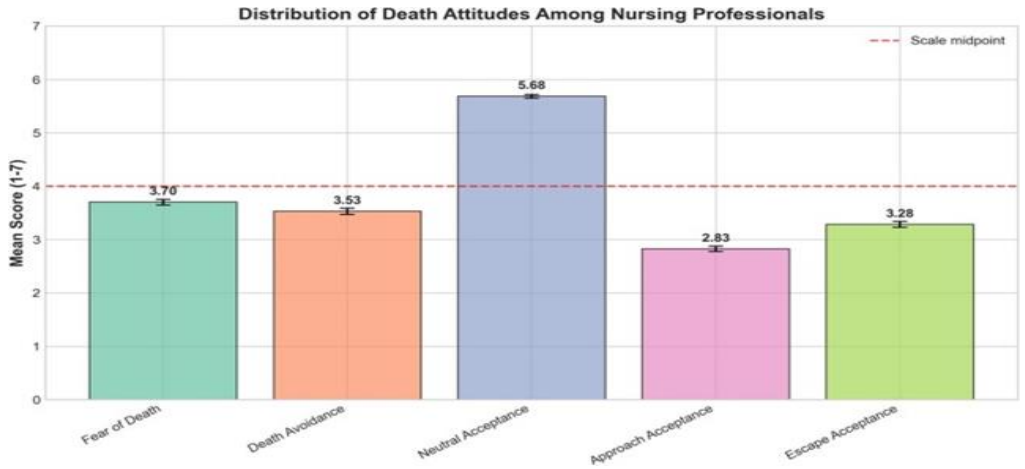

Figure 1. Distribution of attitudes toward death among nursing professionals: mean scores for the five death attitudes measured by the Death Attitude Profile-Revised scale (DAP-R). Error bars represent standard errors. Higher scores indicate stronger endorsement of the attitude (scale range: 1-7).

Correlations between variables

Bivariate correlations revealed significant relationships between individual resilience metrics (CD-RISC-10) and basic occupational profiles. For instance, staff members who presented with robust baseline resilience metrics were significantly less likely to express anxious or avoidant viewpoints; this was verified by weak but statistically viable negative correlations between resilience and Fear-of-Death (r = -.22, P < .01) as well as Death-Avoidance (r = -.14, p < .01). Mirroring this trend, resilience shared a positive association with Neutral-Acceptance (r = .16,

P < .01), reinforcing the link between high psychological capacity and an accepting stance toward the natural lifecycle **(Figure 2)**.

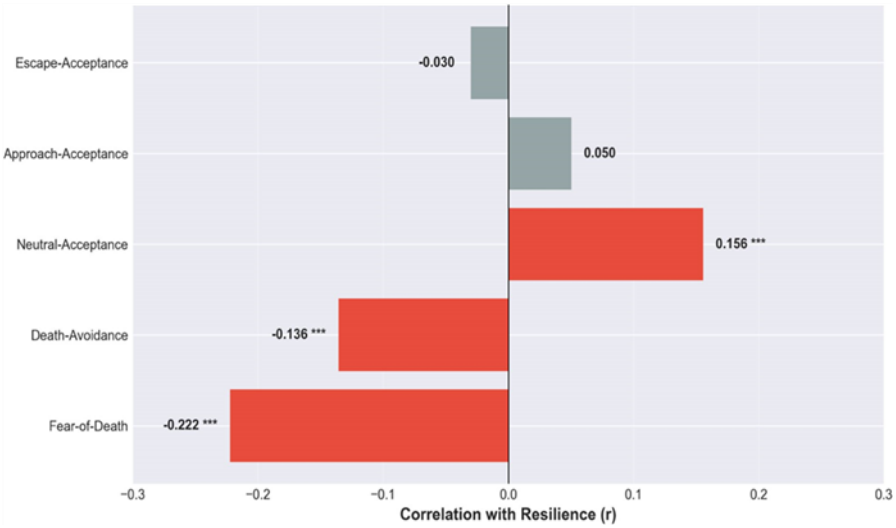

Figure 2. Correlations between resilience and attitudes toward death. Pearson correlation coefficients between resilience scores (CD-RISC-10) and the five death attitudes (DAP-R). Red bars indicate significant negative correlations; grey bars indicate non-significant correlations. *** P < .001.

When evaluating sociodemographic features, several trends emerged based on age, unit tracking, and career history:

- Age and education: Chronological age was positively linked to the endorsement of existential or spiritual meanings of mortality, correlating with both Approach-Acceptance (r = .15, P < .01) and Escape-Acceptance (r = .21, P < .01). Completing specialized coursework in death and bereavement produced a dual benefit: it shared a positive link with Approach-Acceptance (r = .10, P < .05) and an explicit inverse link with Death-Avoidance (r = -.09, P < .05).
- Occupational status: The professional categorization of the clinician was positively associated with three distinct subscales: Death-Avoidance (r = .11, P < .01), Approach-Acceptance (r = .12, P < .01), and Escape-Acceptance (r = .10, P < .01).
- Clinical Setting: Practicing within an Intensive Care Unit environment was uniquely tied to elevated scores for Death-Avoidance (r = .13, P < .01). In direct contrast, clinicians permanently assigned to Palliative Care units demonstrated significantly lower indices for both Fear-of-Death (r = -.07, P < .05) and Death-Avoidance (r = -.11, P < .01).

Inter-scale relationships between the independent DAP-R dimensions were also observed. A pronounced positive correlation linked Fear-of-Death directly to Death-Avoidance (r = .59, P < .01), while a moderate positive relationship was confirmed between Approach-Acceptance and Escape-Acceptance (r = .42, P < .01). Finally, Neutral-Acceptance shared clear inverse boundaries with both Fear-of-Death (r = -.37, P < .01) and Death-Avoidance (r = -.35, P < .01) **(Figure 3)**.

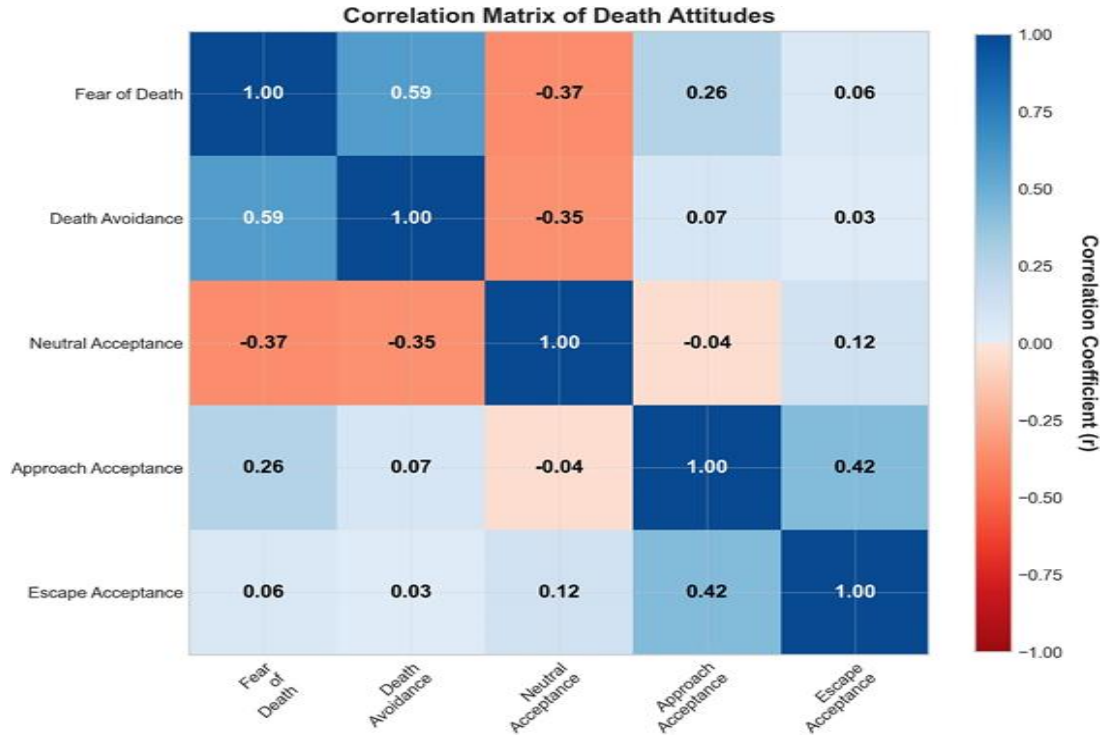

Figure 3. Correlation matrix of attitudes toward death: visual representation of the relationships between the five dimensions of death attitudes. Stronger blue indicates stronger positive correlations, while stronger red indicates stronger negative correlations.

Effects of personal and occupational factors on attitudes toward death

Multivariate analysis of variance (MANOVA) modeling demonstrated that all included independent variables significantly accounted for variances in the participants' collective outlooks on death **(Table 2)**. The statistical relevance of these main effects was confirmed for gender ($F = 2.16$, $P = .048$, $\eta^2 = 0.014$), chronological age ($F = 11.08$, $P < .001$, $\eta^2 = 0.065$), employment category ($F = 5.43$, $P = .001$, $\eta^2 = 0.034$), educational history ($F = 4.00$, $P = .006$, $\eta^2 = 0.026$), institutional clinical track ($F = 1.93$, $P = .001$, $\eta^2 = 0.025$), and resilience groupings ($F = 10.37$, $P < .001$, $\eta^2 = 0.061$).

Table 2. Multivariate effects of personal and occupational variables on attitudes toward death (MANOVA results). From: Attitudes toward death in nursing staff: the role of resilience.

Factor	Sig.	η^2	*p*	df	F	Pillai's trace
Gender	*	0.014	0.048	5	2.16	0.014
Age	***	0.065	< 0.001	5	11.08	0.07
Professional category	**	0.034	0.001	5	5.43	0.035
Prior training	**	0.026	0.006	5	4	0.026
Healthcare setting	**	0.025	0.001	10	1.93	0.025
Resilience	***	0.061	< 0.001	5	10.37	0.065

* P < .05, ** P < .01, *** P < .001

To isolate the underlying drivers of these main effects, subsequent ANOVA evaluations and post-hoc pairwise examinations were conducted **(Table 3)**:

- Demographics and status: Senior clinicians reported significantly higher indices of Escape-Acceptance and Approach-Acceptance than their less experienced, younger counterparts. Regarding job designations, individuals operating under the ANCT framework showed higher baseline levels of Death-Avoidance, Approach-Acceptance, and Escape-Acceptance than those with the RN title **(Figure 4)**.
- Clinical history: Personnel with a documented history of death education exhibited lower levels of Death-Avoidance paired with higher relative Approach-Acceptance scores. Furthermore, clinicians working within Palliative Care modules demonstrated far lower levels of Death-Avoidance than staff working in active ICUs.
- Resilience stratification: The most striking differences emerged across resilience groupings. Clinicians in the high resilience category displayed a strong adaptive profile, with significantly lower indices for Fear-of-Death and Death-Avoidance and elevated Neutral-Acceptance scores compared to peers in the low-to-medium resilience category **(Figure 5)**.

Table 3. Group comparisons of attitudes toward death by personal and occupational variables (ANOVA results). From: Attitudes toward death in nursing staff: the role of resilience.

Independent variable	Dimension of death attitude	η^2	P-value	df	F value	Group 2 (Mean ± SD)	Group 1 (Mean ± SD)	Comparison groups
Age	Approach acceptance	0.022	< 0.001	1,721	16.076	3.08 ± 1.52	2.65 ± 1.31	≤ 45 years vs. > 45 years
	Escape acceptance	0.045	< 0.001	1,721	33.633	3.66 ± 1.59	3.02 ± 1.38	≤ 45 years vs. > 45 years
Professional role	Death avoidance	0.012	0.003	1,721	8.618	3.76 ± 1.571	3.44 ± 1.52	Registered Nurse (RN) vs. Advanced Nursing Care Technician (ANCT)
	Approach acceptance	0.013	0.002	1,721	19.279	3.08 ± 1.44	2.73 ± 1.40	Registered Nurse (RN) vs. Advanced Nursing Care Technician (ANCT)
	Escape acceptance	0.010	0.008	1,721	16.03	3.53 ± 1.54	3.20 ± 1.48	Registered Nurse (RN) vs. Advanced Nursing Care Technician (ANCT)
Clinical setting	Death avoidance	0.013	0.003	2,739	9.062	3.21 ± 1.67	3.71 ± 1.58	Intensive Care Unit (ICU) vs. Palliative Care
	Fear of death	0.009	0.013	2,739	6.285	3.43 ± 1.36	3.79 ± 1.42	Intensive Care Unit (ICU) vs. Palliative Care
Previous training	Death avoidance	0.008	0.019	1,721	5.568	3.90 ± 1.50	3.34 ± 1.55	Received Training vs. No Training
	Approach acceptance	0.009	0.011	1,721	6.551	2.73 ± 1.35	3.01 ± 1.50	Received Training vs. No Training
Resilience level	Fear of death	0.036	< 0.001	1,740	27.928	3.24 ± 1.35	3.85 ± 1.37	High Resilience vs. Low–Moderate Resilience
	Death avoidance	0.007	0.019	1,740	5.556	3.29 ± 1.66	3.61 ± 1.56	High Resilience vs. Low–Moderate Resilience
	Neutral acceptance	0.017	< 0.001	1,740	12.791	5.89 ± 0.80	5.62 ± 0.92	High Resilience vs. Low–Moderate Resilience

Abbreviations: RN = Registered Nurse, ANCT = Auxiliary Nursing Care Technician, ICU = Intensive Care Units.

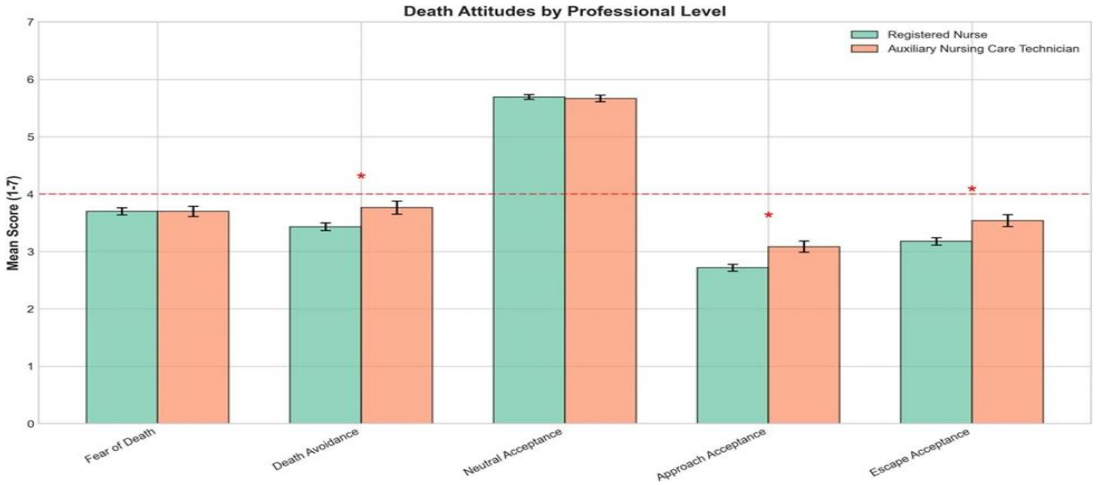

Figure 4. Attitudes toward death by professional category. Comparison of mean scores for the five death attitudes between Registered Nurses (RN, n = 521) and Auxiliary Nursing Care Technicians (ANCT, n = 221). Bars represent mean scores on a 7-point Likert scale. Error bars represent standard errors. * indicates statistically significant differences (P < .05), ANCT showed significantly higher scores in Death-Avoidance, Approach-Acceptance, and Escape-Acceptance compared to RN.

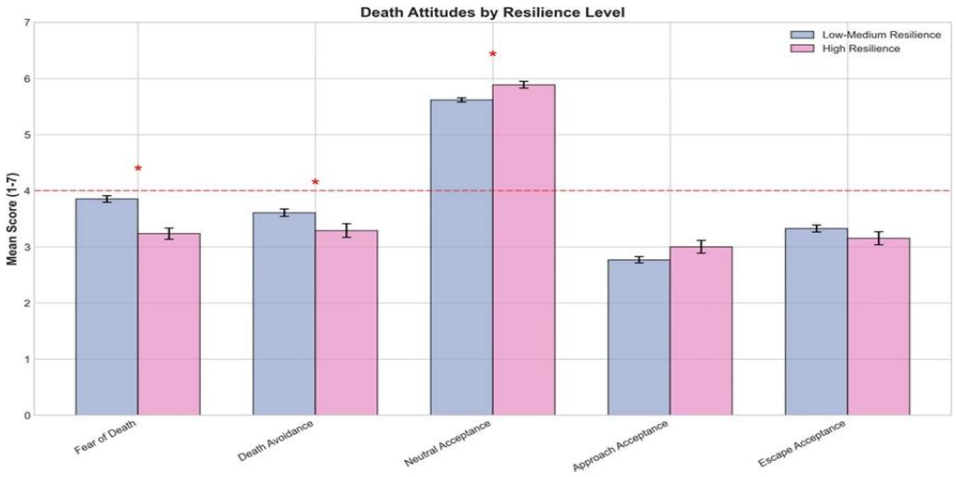

Figure 5. Attitudes toward death by resilience level: comparison between nursing professionals with low-medium resilience (n = 559) and high resilience (n = 183). Significant differences were found in Fear-of-Death, Death-Avoidance, and Neutral-Acceptance. * indicates statistically significant differences (P < .05).

Mediating role of resilience

To test whether psychological capacity served as an intervening pathway between independent professional factors and death attitudes, a bootstrap mediation analysis was conducted across 5,000 iterations. The equations identified a distinct link between job classification and resilience (a = 2.17, P < .01), with ANCT personnel exhibiting higher relative resilience. Through this pathway, resilience acted as a significant total mediator, carrying indirect effects to Fear-of-Death (\text{indirect} = -0.72, 95% CI [-1.15, -0.37]), Death-Avoidance (\text{indirect} = -0.51, 95% CI [-0.88, -0.20]), and Neutral-Acceptance (\text{indirect} = 0.26, 95% CI [0.10, 0.47]).

A second mediation model evaluated specialized education. Here, prior death education was inversely associated with resilience (a = -1.28, P < .01). This pathway yielded significant indirect effects through resilience across three dimensions: Fear-of-Death (\text{indirect} = 0.42, 95% CI [0.11, 0.79]), Death-Avoidance (\text{indirect} = 0.24, 95% CI [0.05, 0.51]), and Neutral-Acceptance indirect = -0.14, 95% CI [-0.29, -0.03]) **(Table 4)**.

Table 4. Bootstrap mediation analyses: effects of resilience on attitudes toward death. From: Attitudes toward death in nursing staff: the role of resilience

Predictor variable	Outcome variable	95% confidence interval	Indirect effect (a × b)	Direct effect (c')	Total effect (c)	Path b coefficient	Path a coefficient	Mediating effect present
Professional role category	Fear of Death	[-1.15, -0.37]	-0.72	0.43*	-0.29	-0.33**	2.17**	Yes
Professional role category	Death Avoidance	[-0.88, -0.20]	-0.51	2.44**	1.93	-0.23**	2.17**	Yes
Professional role category	Neutral Acceptance	[0.10, 0.47]	0.26	-0.39*	-0.13	0.12**	2.17**	Yes
Professional role category	Approach Acceptance	[-0.24, 0.59]	0.16	3.51**	3.67	0.07	2.17**	No
Previous training experience	Fear of Death	[0.11, 0.79]	0.42	-0.02	0.40	-0.33**	-1.28**	Yes
Previous training experience	Death Avoidance	[0.05, 0.51]	0.24	1.61**	1.85	-0.19**	-1.28**	Yes
Previous training experience	Neutral Acceptance	[-0.29, -0.03]	-0.14	-0.49*	-0.64	0.11**	-1.28**	Yes
Previous training experience	Approach Acceptance	[-0.42, 0.12]	-0.12	-2.51**	-2.63	0.10	-1.28**	No

Bootstrap method with 5,000 iterations. Path a = Independent Variable → Resilience; Path b = Resilience → Dependent Variable (controlling for IV); Total (c) = total effect of IV on DV; Direct (c') = direct effect of IV on DV controlling for resilience; Indirect (a \times b) = indirect effect through resilience; 95% CI = 95% bias-corrected accelerated confidence interval. Mediation is significant when 95% CI excludes zero. * P < .05, ** P < .01.

Moderating role of resilience

Hierarchical linear interaction modeling was deployed to evaluate if the structural relationships between background occupational factors and death views changed as a function of continuous resilience levels. The interaction models revealed a lack of widespread moderation, isolating only a single significant path: resilience moderated the association between holding an ANCT status and Escape-Acceptance. However, the true clinical

relevance of this effect was minor. Deconstruction via simple slopes showed that the positive relationship between ANCT categorization and Escape-Acceptance was only marginally stronger for individuals with high baseline resilience (B = 1.94) than for those with low resilience (B = 1.93).

Principal component analysis of attitudes toward death

An exploratory Principal Component Analysis reduced the five DAP-R subscales into two primary dimensions, accounting for 67.27% of the total variance. The first extracted component accounted for 38.91% of the variance. It was characterized by strong positive loadings from Fear-of-Death (.857) and Death-Avoidance (.797), coupled with a strong inverse loading from Neutral-Acceptance (-.619). This configuration represents a negative, avoidant paradigm toward mortality. The second extracted component explained an additional 28.35% of the variance and was defined almost entirely by positive loadings from Escape-Acceptance (.830) and Approach-Acceptance (.734), capturing a structural acceptance theme **(Figure 6)**.

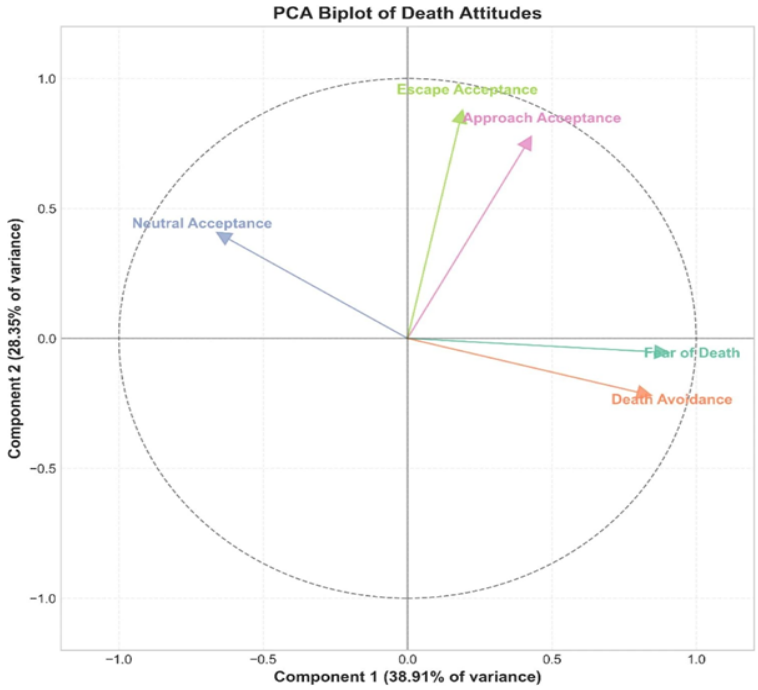

Figure 6. Principal component analysis biplot: PCA biplot shows the relationship among attitudes toward death. Component 1 (38.91% of variance) primarily represents negative attitudes toward death, while Component 2 (28.35% of variance) represents acceptance.

Using data collected before the pandemic, this investigation explored how psychological resilience, background demographics, and work-related profiles interface with orientations toward mortality among nursing professionals in high-mortality clinical environments, including palliative care. By clarifying the specific ways resilience shapes death-related views and by isolating alterable variables linked to staff wellness and end-of-life care performance, these findings expand upon the existing palliative care literature.

The data revealed that Neutral-Acceptance was the most prevalent perspective on mortality, indicating that a substantial portion of the nursing workforce views dying as an innate and unavoidable aspect of human existence. Rather than signifying full emotional comfort, this specific mode of acceptance appears to function alongside an active drive to live life with purpose [44]. Similar orientations have been documented in earlier research within oncology and palliative care settings, where acceptance-driven mindsets regularly occur alongside emotional vulnerability. For instance, Cybulska *et al.* [3] noted elevated indices for both Neutral-Acceptance and Fear-of-Death coupled with low avoidance metrics. In this investigation, Neutral-Acceptance was accompanied by intermediate scores for both Death-Avoidance and Fear-of-Death. This pattern suggests that adopting an accepting viewpoint primarily serves as a cognitive framework that supports continuous professional practice, even when an individual's unresolved emotional responses to patient mortality persist. Within highly taxing clinical landscapes, these cognitive frameworks may function as vital self-preservation mechanisms.

Building on this framework, an especially salient discovery involves Escape-Acceptance, an orientation wherein death is viewed primarily as a release from physical or psychological agony. In the exploratory Principal Component Analysis conducted here, Escape-Acceptance clustered with Approach-Acceptance on the same component, and it received higher endorsement from older nursing personnel and auxiliary nursing care

technicians. Even so, the global scores for Escape-Acceptance were low across the entire cohort, proving that this mindset was not a dominant view among the surveyed staff.

While Escape-Acceptance is historically categorized as a subtype of death acceptance, it demands careful clinical and ethical analysis within palliative care settings. On one hand, it may represent a realistic appraisal of the boundaries of aggressive medical therapies and a compassionate drive to mitigate distress. On the other hand, heightened alignment with Escape-Acceptance can be a sign of underlying moral distress or compassion fatigue, reflecting situations in which chronic exposure to patient suffering compromises empathetic capacity, emotional resilience, and professional well-being [45, 46]. From a practical standpoint, unusually high manifestations of Escape-Acceptance should prompt reflective evaluations of a professional's affective state, psychological coping mechanisms, and institutional support systems. Consequently, in palliative care environments, Escape-Acceptance should not be automatically interpreted as an inherently adaptive or healthy mindset.

The minimal alignment with Escape-Acceptance documented in this sample matches the general dominance of Neutral-Acceptance. Taken together, this configuration indicates that while the surveyed nurses viewed dying as a natural lifecycle event, they remained focused on being present, building relationships, and providing supportive accompaniment. This structural profile aligns with core palliative care philosophies, in which the mitigation of suffering is balanced with an affirmation of the inherent value of life up to the moment of death.

The coexistence of cognitive structures and emotional reactions to death fits Wong's conceptual model and finds theoretical support in both Meaning Management Theory (MMT) [44] and Terror-Management Theory (TMT) [47]. While MMT focuses on the incorporation of mortality into a coherent and purposeful personal narrative, TMT frames avoidance and denial as essential mechanisms for mitigating the anxiety and dread triggered by mortality awareness. Under TMT principles, strong levels of Approach-Acceptance can foster a sense of symbolic immortality, leading to more favorable views of death. However, participants in both this project and the study by Xu *et al*. [8] reported their lowest scores on the Approach-Acceptance subscale. This indicates that when professionals lack the protective buffer of a firm conviction in a positive afterlife, death itself becomes a primary psychological challenge. These dynamics align with the conclusions of Kraitenberger *et al*. [48], who determined that such spiritual convictions may not necessarily diminish existential dread but can occasionally heighten it. Consequently, Death-Avoidance may function as an alternate protective barrier that allows nurses to suppress painful emotions, reinforcing the core principles of TMT.

Nevertheless, successful coping within professional nursing requires strategies that extend beyond simple evasion. According to MMT, when clinicians integrate the reality of death into their broader worldviews, they are empowered to focus on life rather than purely on mortality, thereby constructing professional meaning. In this framework, higher levels of Neutral-Acceptance facilitate the delivery of superior patient-centered care and foster more successful emotional self-regulation [49].

Neither participants' gender nor employment in oncology-specific environments significantly influenced how nurses approached mortality. However, personnel stationed in specialized Palliative Care Units demonstrated lower indices of Fear-of-Death and Death-Avoidance than their colleagues in Intensive Care Units. This variance implies that establishing empathetic, supportive workplace environments can foster more open, uninhibited encounters with death [3, 13]. This difference is unlikely to stem purely from the frequency of exposure to patient mortality; instead, it likely reflects the foundational care philosophy of palliative departments, which explicitly validates open dialogue regarding dying, distress, and existential meaning. These patterns highlight the major role that organizational culture and reflective practices play in shaping personal outlooks on death.

Total career longevity did not significantly alter attitudes toward death. Conversely, older nursing professionals exhibited higher levels of both Approach-Acceptance and Escape-Acceptance. This pattern indicates that generalized life experience, rather than accumulated professional tenure, is more closely tied to deeper reflections on the quality of existence and the meaning of an afterlife. These outcomes align with findings by Gama *et al*. [13] and Cybulska *et al*. [3], suggesting that an emphasis on the quality of remaining life rather than raw longevity may be shaped by personal experiences with death, both within and outside the professional sphere [50].

Both professional classification and a history of specialized education in death and dying accounted for significant variances in death-related viewpoints. Non-degree personnel and individuals lacking targeted death education reported higher levels of Death-Avoidance relative to Registered Nurses. This finding aligns with Xu *et al*. [8], who found that nursing students who completed dedicated death education coursework exhibited higher levels of Neutral-Acceptance. Similarly, Cheong *et al*. [51] demonstrated that targeted educational workshops led to significant reductions in Fear-of-Death and Death-Avoidance after 6 weeks. These collective outcomes emphasize the need for regular integration of death education throughout nursing curricula.

Instruction regarding death and dying is linked to increased self-reflection and deeper emotional processing. While this can foster greater empathetic insight and render avoidance strategies less feasible, it does not automatically eliminate internal discomfort. Although Registered Nurses initially scored lower on Approach-Acceptance, this metric increased markedly following targeted training. This pattern suggests that a complete absence of specialized educational intervention is frequently associated with more detached, purely rational attitudes. In

contrast, comprehensive on-the-job educational training is associated with more meaningful, adaptive mindsets, mirroring prior research [8, 16, 21, 52].

Psychological resilience emerged as a primary factor associated with more adaptive orientations toward mortality, supporting the idea that distressing encounters can be reframed as opportunities for personal growth [24]. Higher baseline resilience was associated with elevated Neutral-Acceptance, alongside diminished Fear-of-Death and Death-Avoidance. No significant interaction effects emerged between demographic or occupational variables and Neutral-Acceptance, except for resilience. Resilience served as a clear protective asset for these healthcare professionals, reinforcing its conceptualization as a dynamic internal resource that supports emotional regulation and meaning-making in the face of routine exposure to patient mortality [53].

These findings are highly consistent with the Psychological-Immunity/Psychological-Elasticity (PI-PE) framework [30], which posits that stressor tolerance and narrative construction are core requirements for successfully coping with terminal patient populations. Tolerance developed via structured exposure can be highly stressor-specific; thus, an individual may cultivate tolerance toward certain professional stressors but remain vulnerable to others. Generating adaptive self-narratives is critical for processing and integrating painful clinical events, a concept that echoes the principles of Meaning Management Theory. In relation to Neutral-Acceptance, resilience provides clinicians with the psychological capacity to sustain constructive attitudes despite their proximity to illness and death, allowing them to view each moment of existence as inherently valuable [29, 44].

Statistical modeling via mediation suggested that the links between several dimensions of ATD and both prior training and professional category were statistically mediated by resilience. However, these associations demand cautious interpretation. The cross-sectional design of this study means that mediation cannot be taken as proof of temporal precedence or causal direction. Rather, these analyses point to plausible associative frameworks, indicating that resilience may act as an interconnecting variable within a wider system of occupational and individual characteristics.

Based on these data, multiple practical recommendations emerge for health organizations, nursing curricula, and clinical operations, especially within high-mortality and emotionally taxing environments like Palliative Care units. First, educational frameworks in palliative care must advance beyond simple, technical clinical competencies for the end of life. They should systematically embed opportunities for structured emotional processing, reflective practice, and narrative-based meaning-making. Providing longitudinal, experiential instruction regarding death and dying—utilizing case-based methodologies and clinical supervision—could better prepare nursing staff to build cohesive professional identities instead of depending on avoidant coping mechanisms.

Second, resilience needs to be reframed as an organizational and relational asset woven into daily clinical routines, rather than viewed strictly as an isolated personal trait. Incorporating regular ethical debriefings, structured peer-support forums, and group processing sessions immediately following patient deaths could assist nursing professionals in managing emotionally exhausting events, thereby reducing reliance on maladaptive behaviors like emotional withdrawal.

Third, the varied data configurations observed across age cohorts and professional ranks highlight the need to design inclusive, customized educational strategies that cater to the unique needs of every member of a palliative care team. Implementing interventions that account for differing degrees of baseline training, clinical experience, and decision-making independence may be highly valuable in preventing emotional burnout. This approach can also mitigate the development of maladaptive variations of death acceptance, particularly among staff members who possess less formal education or lower institutional authority.

Finally, at the institutional tier, establishing supportive professional cultures that validate affective experiences, encourage transparent discussions about mortality, and offer dedicated periods for reflection is paramount in palliative care settings where exposure to patient suffering is continuous. Creating such environments can bolster personal resilience, alleviate moral distress and compassion fatigue, and foster long-term professional wellness. Simultaneously, these systemic adjustments can reinforce the ethical sensitivity, humanity, and overall quality of end-of-life care delivered to patients and their families.

This inquiry expands the current literature, given the historical scarcity of empirical publications evaluating resilience and ATD among nursing personnel. The substantial sample, which includes clinicians from varied healthcare environments across multiple hospitals and provides broad representation across death education levels and professional job titles, supports the generalizability of these insights. The deployment of rigorous statistical evaluations yields dependable conclusions about the vital role resilience plays in nurses' coping with patient mortality. Notably, because the data collection took place before the onset of the COVID-19 pandemic, this study establishes a baseline dataset unaffected by the subsequent widespread spikes in mortality and the corresponding psychological burdens of helplessness, frustration, and systemic strain.

Conversely, multiple limitations must be considered when interpreting these findings. First, the cross-sectional framework of the study prevents the formulation of causal conclusions regarding how these variables interact. Furthermore, because of this cross-sectional approach, the mediation data must be interpreted as statistical models of covariance rather than as proof of underlying causal pathways. Consequently, longitudinal investigations are

required to track how death orientations and resilience capacities adapt over time in response to targeted interventions and ongoing professional exposure.

Second, the use of a convenience sampling approach, though necessary to enroll staff across diverse hospital units, could limit the extent to which the sample reflects the broader nursing workforce, potentially narrowing its generalizability. Even though the substantial sample size and multi-center design enhance external validity, nursing staff operating in distinct environments—such as low-mortality clinics or primary care settings—might exhibit alternative patterns of resilience and death-related perspectives. Third, several psychosocial elements that could exert an influence on these constructs were omitted from the study design, including general mental health, baseline anxiety, spiritual or religious convictions, specific personality profiles, perceived social support networks, and the subjective emotional weight or actual frequency of encountering patient deaths. These variables likely interface with resilience and could profoundly alter an individual's orientation toward mortality. Future research designs should integrate a broader psychosocial matrix to capture the multidimensional nature of death-related viewpoints better.

Additionally, because data collection relied on self-administered questionnaires, the metrics could be susceptible to social desirability bias, particularly given the emotionally sensitive nature of constructs like avoidant behaviors or fear of death. Due to institutional paradigms that prize emotional detachment, participants might have underreported personal distress or negative outlooks. Incorporating qualitative methodologies or direct observational data into upcoming research projects would yield a more detailed, contextually rich understanding of how nursing professionals encounter and navigate mortality in active clinical environments.

In summary, future investigations should replicate this research framework in a post-pandemic context to examine potential shifts in resilience-building pathways and death-related perspectives, thereby evaluating how large-scale public health crises alter long-term emotional adaptation among nurses. Implementing randomized sampling strategies, longitudinal timelines, and supplemental psychosocial measurements would clarify causal directions and document the dynamic evolution of resilience and death perspectives over time.

Conclusion

This inquiry refines our comprehension of the relationships between sociodemographic traits, occupational variables, psychological resilience, and orientations toward mortality among nursing professionals practicing in high-mortality clinical settings, including palliative care. The resulting data reveal the intricate nature of death-related mindsets in contemporary nursing operations, underscoring the joint impact of environmental and individual factors.

While definitive causal conclusions cannot be drawn from these data, both prior education in death and dying and high baseline resilience appear closely linked to more adaptive orientations toward mortality, specifically regarding enhanced levels of Neutral-Acceptance. Within palliative care settings, nurturing resilience and encouraging a reflective relationship with death can support the psychological health, ethical discernment, and capacity of nursing staff to offer empathetic end-of-life care.

These conclusions indicate a distinct need for systemic institutional initiatives that actively implement reflective death education, psychological assistance programs, and resilience-strengthening frameworks for nursing personnel. By managing emotional stressors through a collective framework rather than leaving them to the individual, medical institutions can foster an organizational culture of transparency, mutual support, and sustainable self-care. This shift ultimately benefits both healthcare practitioners and patients by elevating the ethical responsiveness, humanity, and excellence of terminal care.

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