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ORIGINAL PAPER

Cross-sectional study of attitudes toward death among Hungarian nurses

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Abstract

Aim: The study aimed to examine how socio-demographic factors, age, nursing specialty, and the frequency of end-of-life care provision influence nurses' attitudes toward death and fear of death. *Design:* A cross-sectional quantitative study. *Methods:* Data analysis was conducted on a sample of 250 nurses. Attitudes toward death were measured with the Death Attitude Profile-Revised (DAP-R) and the Multidimensional Fear of Death Scale (MFODS). Statistical analyses were performed using SPSS 23.0, applying descriptive statistics, the Shapiro-Wilk test, the Mann-Whitney U test, the Kruskal-Wallis test, Spearman's rank correlation, and linear regression analysis. *Results:* No significant differences in fear of death were found between young (18–40 years) and middle-aged (41–65 years) nurses (DAP-R: $p = 0.89$; MFODS: $p = 0.18$). No significant correlations with age were observed (DAP-R: $\rho = -0.004$; $p = 0.95$; MFODS: $\rho = 0.11$; $p = 0.09$). The frequency of end-of-life care provision correlated significantly with fear of death on the DAP-R ($\rho = 0.19$; $p = 0.003$) and was negatively correlated with the MFODS ($\rho = -0.15$; $p = 0.02$). *Conclusion:* Fear of death showed no significant differences across age groups or clinical settings, except in relation to the frequency of exposure to dying patients.

Keywords: DAP-R, death attitude, fear of death, MFODS, nurses.

Introduction

Birth and death are the two most critical and inevitable universal phenomena of human existence, fundamentally shaping the course of our lives (Gurdogan et al., 2017). Although death is a universal human experience, cultural and societal perceptions of it differ considerably, and, in many contexts, it continues to be regarded as a taboo (Lazarus et al., 2025). However, recent studies indicate that labelling death as taboo reflects a social perception rather than an actual lived experience (Wilson et al., 2024). According to the latest available reports, nearly 68 million people die worldwide each year (World Health Organization [WHO], 2024). This figure is not merely demographic data; it also reflects the sociocultural dimensions of death, which carries social meanings and is expressed through social acts (Ahmed et al., 2022).

Approaches to death are subject to constant change and are largely influenced by the cultural context, that is, the values, norms, and beliefs of a particular culture (Domonkos, 2022). Ongoing social and structural changes, as well as economic transformation – including the challenges of population aging and the increasing prevalence of chronic diseases – significantly influence concepts of death (Zana, 2009).

Various social and cultural factors underlie negative responses to and avoidance of the topic of death. Urbanization, wars, and the media have contributed to the irrationalization and commercialization of death (Karaoglu et al., 2021). The decline of traditional religion has reduced the role of spirituality (Helembai, 2012). Nevertheless, spirituality continues to play a crucial role, fostering acceptance, promoting positive attitudes, and reducing fear of death (Sarpdağı et al., 2025). Scientific and technological progress, along with modern therapeutic methods, has fundamentally altered perceptions of the inevitability of death and contributed to its medicalization (Zana, 2009). Death has increasingly become hospitalized and depersonalized: most dying patients receive hospital care and often experience isolation, while mourning rituals, essential for coping with loss, have

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become increasingly inaccessible to families and caregivers (Voultsos et al., 2022). At the same time, studies demonstrate that intellectualization, used to mitigate the stress associated with loss, provides only temporary relief (Di Giuseppe et al., 2021; Helembai, 2012).

Several studies involving nurses highlight, amongst factors influencing relationship dynamics, negative impacts associated with a strong fear of death (Üstükuş & Eskimez, 2021), while other studies emphasise the role of age, religion, experience gained in palliative care, and personal death attitudes (Miranda-Martínez, 2024). However, the fact that these studies draw particular attention to improving research instruments for a more thorough examination of nurses' attitudes toward death can be seen as a clear and valuable outcome of the sometimes contradictory findings (Aradi, 2022).

The International Council of Nurses (ICN) Code of Ethics for Nurses (revised 2021) clearly states that nurses must provide care that is responsive to individual patient needs and respectful of their human rights, values, and beliefs (Baldacchino, 2015; International Council for Nurses [ICN], 2021). It is therefore essential to understand nurses' personal attitudes and fears in care work, as their attitudes and fears directly affect their interactions with dying patients (Gurdogan et al., 2017). In addition to macro indicators, it is essential to examine nurses' perceptions and emotions regarding the phenomenon, as these influence the coping strategies they are able to mobilize (Helembai, 2021), ultimately affecting the professional quality of patient care (Norouzi et al., 2024). Several factors, such as individual attitudes, professional preparedness, organizational support, the characteristics of nursing specialties, and the frequency of end-of-life care provision, significantly influence attitudes toward death and fear of death (Zana & Hegedűs, 2009). All these factors highlight that analyzing nurses' attitudes toward death is indispensable from both a practical and a scientific perspective. Given the limited number of studies conducted in Hungary on this subject, the present research aims to promote a more comprehensive understanding of the issue and to address the existing research gap by analyzing nurses' attitudes across different care levels and regions.

Aim

The primary aim of this study was to investigate nurses' attitudes toward death, using instruments widely accepted in the field. In addition, the research examined the influence of nurses' age, nursing specialties (intensive care, chronic internal medicine, and hospice care), and the frequency of end-of-life care provision. Finally, the study tested hypotheses concerning the effects of these variables on fear of death and attitudes toward death.

Methods

Design

The study used a cross-sectional research design, suitable for assessing variables at a single point in time and was reported in accordance with the STROBE checklist.

Sample

Nurses over the age of 18 from Hungary were included in the study sample (N = 250). The majority of respondents were employed in inpatient and outpatient care at high-volume regional clinical centers (Budapest, Szeged, Pécs, and Debrecen). The sample also included staff from eighty-five hospice and home nursing care services coordinated by the Hungarian Hospice Palliative Association and members of the Chamber of Hungarian Health Care Professionals. The sample covered all regions and levels of health care in Hungary and may therefore be regarded as broadly representative of the national nurse population in terms of region and level of care.

Sampling and Data Preparation

Our initial database comprised 381 fully completed and valid questionnaires from respondents who had explicitly consented to the use of their data for research purposes. Respondents indicated their willingness to participate by agreeing to the privacy notice embedded in the questionnaire. Recruitment was conducted online through the intranet systems and official communication channels of the participating institutions. All adults who provided informed consent and met the general ethical requirements were included in the study, with no further inclusion or exclusion criteria applied during or after data collection. The full dataset (N = 381) was retained as the study database, from which the analytical subsample was derived. All descriptive and inferential analyses reported in this manuscript are based on the analytical subsample (N = 250).

For the analyses reported in this manuscript, we defined the analytical subsample using simple random sampling without replacement to ensure unbiased case selection and to use a single, consistent analytical dataset across all models (Lohr, 2021; Msaouel et al., 2023). This procedure provides

unbiased selection but does not guarantee subgroup-level balancing. Subsampling was motivated by the uneven distribution of responses across institutional units, levels of care, and regions, which could increase heterogeneity and allow overrepresented institutional clusters to exert disproportionate influence in the planned rank-based and non-parametric analyses. A target sample size was selected as a pragmatic compromise between stable estimation and limiting heterogeneity.

The analytical subsample was selected using a randomization procedure (Good, 2005). We compared the subsample with the full dataset on major background characteristics, and the distributions did not differ meaningfully, suggesting that the random selection did not introduce substantial bias. The analytical subsample was created solely for methodological purposes, and all respondents remained part of the full study dataset.

Data collection

Data were collected using an electronic questionnaire between November 2024 and March 2025. Participation in the study was entirely voluntary. Responses were collected anonymously and could thus not be traced back to any individual during statistical processing. Data protection was fully ensured throughout the study.

Instruments

Our survey was based on a researcher-developed questionnaire supplemented with two theme-specific assessment tools. This instrument consisted of 26 items organized into thematic sections, focusing on socio-demographic characteristics, workplace type, and frequency of caring for dying patients. The development of the questionnaire was informed by previous international studies (Lazarus et al., 2025; Nienaber & Goedereis, 2015; Zahran et al., 2022).

The Hungarian adaptation of the Death Attitude Profile-Revised (DAP-R) was used to assess respondents' attitudes to death. The DAP-R was developed and published by Wong, Reker, and Gesser. The revised version consists of 32 items across five subscales – death avoidance, approach acceptance, escape acceptance, fear of death, and neutral acceptance – designed to measure attitudes toward death (Wong et al., 1994). The Hungarian version was validated in a Hungarian population by the academic staff of Eötvös Lóránd University, adhering to the factor structure established by the original authors. Respondents were asked to rate their level of agreement on a seven-point Likert scale (Varga et al., 2009).

The Multidimensional Fear of Death Scale (MFODS) was used to assess fear of death. The instrument was originally developed by Hoelter (1979) and was later revised and substantially modified by Neimeyer and Moore (Neimeyer, 1995). The Hungarian version was verified by the working group of the Institute of Behavioral Sciences of Semmelweis University. The scale consists of 42 items across eight fear-of-death dimensions. The factors are as follows: 1. fear of the dying process; 2. fear of the dead; 3. fear of being destroyed; 4. fear for significant others; 5. fear of the unknown; 6. fear of conscious death; 7. fear for the body after death; and 8. fear of premature death. The questionnaire is designed to assess conscious fear of death using a five-point rating scale. Our working group decided to use reverse scoring, meaning that lower scores indicate higher fear of death (Zana et al., 2006).

Before testing the hypotheses, the reliability of the study instruments' scales was verified. For the DAP-R, the Cronbach's alpha values ranged from 0.68 (neutral acceptance) to 0.89 (approach acceptance), with all other subscales exceeding 0.71, indicating acceptable reliability. For the MFODS, the Fear of the Unknown dimension showed low internal consistency (Cronbach's $\alpha = 0.45$), whereas the other subscales had values of 0.67 or higher, with a maximum of 0.81 for the Fear for Significant Others subscale.

During the preparation of the research, a pilot test with a small sample ($N = 25$) was conducted to assess feasibility, which is consistent with recommended sample sizes for questionnaire pretesting. The results confirmed that the instrument was adequate for the study objectives, recalling death-related experiences posed no undue burden, and the response scale was appropriate for differentiating between attitudes.

Data analysis

Data entry was performed in Microsoft Excel 2019, and statistical analyses were carried out using SPSS Statistics version 23.0. Descriptive statistics were used to summarize the sample characteristics. The Shapiro-Wilk test was used to assess distributional assumptions. Relationships between variables were analyzed using Spearman's rank correlation and regression models, while group differences were assessed with the Kruskal-Wallis and Mann-Whitney U tests. Statistical significance was set at $p < 0.05$.

Results

Analyses were conducted on a representative subsample of 250 respondents selected from the full database, and these data were used for all subsequent statistical analyses. Respondents represented 23 clinical specialty areas, covering a broad range of inpatient, outpatient, community, and hospice care settings. The respondents' mean age was 41.56 years (range: 20–81 years). With regard to sex, the majority of respondents were female (83.2%), while males accounted for 16.8% of the sample. This distribution reflects the sex ratio of nurses reported in the 2023 National Basic Register of Healthcare Professionals in Hungary (Szabó & Domonkos, 2024). Key socio-demographic variables relevant to hypothesis testing are summarized in Table 1.

Table 1 Demographic characteristics of the surveyed sample (N = 250)

	N (%)	Mean (SD; range)
Age (years)		41.56 (12.72; 20–81)
Work experience (years)		17.84 (13.033; 1–45)
End-of-life nursing education (number of hours) (N = 91)		36.62 (40.87; 2–300)
Sex		
female	208 (83.2)	
male	42 (16.8)	
Marital status		
unmarried	51 (20.4)	
married or in cohabitation	122 (48.8)	
divorced	26 (10.4)	
widowed	51 (20.4)	
Place of residence		
village	28 (11.2)	
town	222 (88.8)	
Education		
secondary education (LPN [licenced practical nurse])	114 (45.6)	
BSc in nursing	107 (42.8)	
MSc in nursing	27 (10.8)	
PhD in nursing	2 (0.8)	

SD – standard deviation

Fear of death and death attitudes in relation to age among nurses: group differences and associations

Respondents were first grouped into age categories according to Erik H. Erikson's stages of psychosocial development, drawing on studies addressing age-related developmental processes (Sekowski, 2022). Since four participants were older than 65 years and fell outside this categorization, the analysis included 246 respondents divided into two groups: young adults (18–40 years; N = 118) and middle-aged adults (41–65 years; N = 128). The classification was designed for empirical analysis, ensuring distinct and non-overlapping groups. Previous research on psychosocial and developmental processes has discussed comparable adult life phases and attitudes toward death, which provided a conceptual basis for the present categorization (Boonyananth & Swords, 2025). This age division also corresponds to cut-points applied in prior psychological and health behavioral studies employing the same age thresholds (Morrissey et al., 2022; Tse et al., 2014; Yu et al., 2023). The applied classification aligns with lifespan developmental perspectives, according to which attitudes toward death evolve along with psychosocial and life-stage transitions. Notably, such age periodization has mainly been used in studies of older adults' attitudes toward death, while younger and middle-aged groups remain less frequently examined (Sekowski, 2022).

The scores on the DAP-R fear of death subscale and the total score on the MFODS were examined according to the age groups thus identified.

For the DAP-R, descriptive statistics indicated no significant difference in fear of death between young adults (median = 2.71; IQR = 2.11) and middle-aged adults (median = 2.86; IQR = 2.14). Regarding the MFODS total score, no significant difference in fear of death was detected between young adults (median = 3.00; IQR = 0.74) and middle-aged adults (median = 3.19; IQR = 0.79).

As the sample significantly deviated from a normal distribution ($p < 0.05$), Mann-Whitney U tests were applied for group comparisons. The results confirmed that young adults and middle-aged adults did not differ significantly on the DAP-R fear of death subscale ($U = 7630.5$; $p = 0.89$), and no significant difference was observed between the groups

with respect to the MFODS total score (U = 6796.5; p = 0.18). The results are presented in Table 2.

In addition to assessing differences between age groups, the correlations between age (as a continuous variable) and the main indicators of fear of death and attitudes toward death were examined in the total sample (N = 250). Spearman's rank correlation was used to examine the relationship between the DAP-R fear of death subscale and the total score of the MFODS. No significant correlation was found for the DAP-R fear of death subscale (ρ = -0.004; p = 0.95), while a weak positive trend was observed for the total score of the MFODS (ρ = 0.109; p = 0.09), which also did not reach statistical significance.

The results of linear regression analysis confirmed that age was not a significant predictor of either fear of death or attitudes toward death. Regarding the DAP-R fear of death subscale, age explained only 0.03% of the variance (β = -0.002; p = 0.78; R^2 = 0.0003). A weak positive, but not significant, trend was observed for the total MFODS score (β = 0.006; p = 0.06; R^2 = 0.014), with age explaining 1.4% of the variance.

Table 2 Group differences in fear of death and death attitude scores by age (N = 246)

Scale	Life stage	Median	IQR	Min.	Max.	U*	p-value
DAP-R fear of death	Young adulthood (N = 118)	2.71	2.11	1	7	7630.5	0.89
	Middle adulthood (N = 128)	2.86	2.14	1	7		
MFODS	Young adulthood (N = 118)	3.00	0.74	1.55	4.48	6796.5	0.18
	Middle adulthood (N = 128)	3.19	0.79	1.76	4.64		

*DAP-R – Death Attitude Profile-Revised; MFODS – Neimeyer-Moore Multidimensional Fear of Death Scale; IQR – Interquartile Range; *U – Mann-Whitney U test*

Differences in fear of death across nursing specialties

The responses of nurses working in intensive care units, oncology departments, and chronic internal medicine departments (N = 112) were analyzed separately to identify department-specific characteristics, and their scores on the DAP-R fear of death subscale and total scores on the MFODS were compared with those of nurses working in other specialties (N = 138).

The Mann-Whitney U test was applied, taking into account the distribution of variables (Shapiro-Wilk test, p < 0.05). The results are shown in Table 3.

The statistical tests showed no significant differences between the two groups for the DAP-R fear of death subscale scores (U = 7463.0; p = 0.64) and for the MFODS total score (U = 8021.0; p = 0.61). Based on the descriptive statistics, similar median values and interquartile ranges were observed for both groups. Regarding the DAP-R fear of death subscale scores, no significant difference was found between nurses working in intensive care units, oncology departments, and chronic internal medicine departments (median = 2.79; IQR = 2.00) and those working in other departments (median = 2.79; IQR = 2.29). Similar results were found for the MFODS total score (median = 3.19; IQR = 0.75) in the intensive care, oncology, and internal medicine group and (median = 3.11; IQR = 0.76) in the other specialties group.

Examination of fear of death and death attitudes based on frequency of caring for dying patients

Fear of death was examined in relation to the frequency of caring for dying patients in the full sample based on the scores obtained from the two instruments.

Table 3 Scores for the fear of death scales by work specialty (N = 250)

Scale	Department or unit	Median	IQR	Min.	Max.	U*	p-value
DAP-R fear of death	Intensive care unit, oncology department, and chronic internal medicine department (N = 112)	2.79	2.00	1	7	7463.0	0.64
	Other departments (N = 138)	2.79	2.29	1	7		
MFODS	Intensive care unit, oncology department, and chronic internal medicine department (N = 112)	3.19	0.75	1.88	4.69	8021.0	0.61
	Other departments (N = 138)	3.11	0.76	1.60	4.36		

*DAP-R – Death Attitude Profile-Revised; MFODS – Neimeyer-Moore Multidimensional Fear of Death Scale; IQR – Interquartile Range; *U – Mann-Whitney U test*

Five frequency categories – never, daily, once per week, once per month, and a few times per year – were defined based on the responses. The variables were compared with the DAP-R fear of death subscale scores and the MFODS total score. The Shapiro-Wilk test showed that the distribution of several scales deviated from normality ($p < 0.05$); therefore, group scores were analyzed using the Kruskal-Wallis test. The results indicated a statistically significant difference for the DAP-R fear of death subscale ($H = 12.12$; $p = 0.01$), whereas no significant difference was found for the MFODS total score ($H = 6.61$; $p = 0.17$). For the DAP-R, post hoc pairwise comparisons (Mann-Whitney U test) revealed that, although the differences between the once-per-week vs. once-per-month groups ($p = 0.008$) and once-per-month vs. few-times-per-year groups ($p = 0.005$) were initially significant, they lost significance after Bonferroni correction ($p = 0.082$; $p = 0.051$). The results are shown in Table 4.

Table 4 Differences in fear of death by the frequency of caring for dying patients (N = 250)

Frequency of caring for dying patients		Median	IQR	Min.	Max.	H*	p-value
MFODS	Never (N = 8)	3.15	0.40	1.64	3.83	6.61	0.17
	Daily (N = 51)	3.26	0.98	2.14	4.43		
	Once per week (N = 59)	3.10	0.70	2.02	4.48		
	Once per month (N = 72)	3.12	0.88	1.88	4.31		
	Few times per year (N = 60)	3.02	0.86	1.55	4.64		
DAP-R fear of death	Never (N = 8)	2.57	3.07	1.00	6.00	12.12	0.01**
	Daily (N = 51)	2.43	2.14	1.00	6.57		
	Once per week (N = 59)	2.29	1.64	1.00	5.14		
	Once per month (N = 72)	3.07	1.89	1.00	7.00		
	Few times per year (N = 60)	3.29	2.07	1.00	7.00		

*MFODS – Neimeyer-Moore Multidimensional Fear of Death Scale; DAP-R – Death Attitude Profile-Revised; IQR – Interquartile Range; *H – Kruskal-Wallis test; **p < 0.05*

Nurses who provided end-of-life care on a daily basis achieved the highest MFODS scores (median = 3.26; IQR = 0.98). According to the scoring system applied, higher values indicate lower fear of death. The lowest scores on the DAP-R fear of death subscale were observed among respondents who cared for dying patients on a weekly basis (median = 2.29; IQR = 1.64).

The frequency of end-of-life care provision was also analyzed for the two groups (nurses working in intensive care units, oncology departments, and chronic internal medicine departments: N = 112; and nurses working in other departments: N = 138) in relation to the scales used.

Spearman's rank correlation was used to examine the relationship between fear of death and the frequency of end-of-life care provision in the aggregate sample. According to the results, the frequency of caring for dying patients significantly correlated with the scores on the DAP-R fear of death subscale ($\rho = 0.19$; $p = 0.003$) and the total score on the MFODS ($\rho = -0.15$; $p = 0.02$). This suggests that frequent experiences of caring for dying patients may influence emotional responses, although the direction and strength of this relationship vary depending on the instrument used.

Death attitudes of intensive care nurses and hospice nurses

The attitudes of health workers toward death and dying were examined by comparing intensive care nurses (N = 44) and hospice nurses (N = 16). The analysis focused on the four DAP-R subscales (death avoidance, approach acceptance, escape acceptance, and neutral acceptance), excluding the fear of death subscale. As the variables did not follow a normal distribution (Shapiro-Wilk, $p < 0.001$), group differences were assessed using the Mann-Whitney U test.

On the basis of the results of the statistical tests, the subscales of death avoidance ($U = 304.5$; $p = 0.43$), approach acceptance ($U = 416.5$; $p = 0.28$), escape acceptance ($U = 428.5$; $p = 0.20$), and neutral acceptance ($U = 367.5$; $p = 0.80$) displayed no significant differences between the two nursing specialty groups. The comparison of the two groups has limited validity owing to the unequal group sizes and the relatively small size of this subsample.

No significant difference was observed between intensive care nurses (median = 2.10; IQR = 2.05) and hospice nurses (median = 2.60; IQR = 2.50) on the death avoidance subscale. Regarding approach acceptance, the scores of intensive care nurses

(median = 3.55; IQR = 2.33) and hospice nurses (median = 3.00; IQR = 1.75) were also comparable. A similar pattern appeared on the escape acceptance subscale: intensive care nurses (median = 3.60; IQR = 2.65) and hospice nurses (median = 4.10; IQR = 2.00) did not differ significantly. The same applied to neutral acceptance: intensive care nurses (median = 5.85; IQR = 1.40) and hospice nurses (median = 6.25; IQR = 1.15) did not differ significantly. The results are presented in Table 5.

Table 5 Descriptive statistics of the DAP-R scales by specialty (N = 60)

DAP-R subscale	Specialty	Median	IQR	Min.	Max.	U*	p-value
Death avoidance	Intensive care (N = 44)	2.10	2.05	1.00	5.60	304.5	0.43
	Hospice care (N = 16)	2.60	2.50	1.00	5.90		
Approach acceptance	Intensive care (N = 44)	3.55	2.33	1.20	6.90	416.5	0.28
	Hospice care (N = 16)	3.00	1.75	1.50	5.70		
Escape acceptance	Intensive care (N = 44)	3.60	2.65	1.00	7.00	428.5	0.20
	Hospice care (N = 16)	4.10	2.00	1.00	7.00		
Neutral acceptance	Intensive care (N = 44)	5.85	1.40	2.30	7.00	367.5	0.80
	Hospice care (N = 16)	6.25	1.15	2.00	7.00		

*DAP-R – Death Attitude Profile-Revised; IQR – Interquartile Range; *U – Mann-Whitney U test*

Discussion

This study examined nurses' fear of death and attitudes toward death, highlighting how individual and professional factors shape these dimensions. It contributes to the international literature by showing that Hungarian nurses reported moderate fear of death and predominantly neutral attitudes, findings that are broadly consistent with results from other countries.

Regarding the relationship between age and fear of death, no significant differences were detected between age groups, either on the DAP-R fear of death subscale (p = 0.89) or in the main dimensions of the MFODS (p = 0.18). However, the majority of international studies indicate the opposite trend. A study by Zana (2009) found that younger Hungarian nurses exhibited significantly higher levels of fear of death, which tended to decrease with age. A weak positive correlation was found for the total score of the MFODS (ρ = 0.109; p = 0.09). Similarly, Nienaber & Goedereis (2015) also reported weak but significant correlations between several dimensions of the MFODs and age. In addition, Chen et al. (2006) found significant negative correlations between age and fear of death on various subscales of the MFODS – specifically, fear of the dead, fear of being destroyed, fear for significant others, fear of conscious death, fear for the body after death, and fear of premature death – suggesting that fear of death tends to decrease with age. Öz et al. (2022) also reported that fear of death was lower among older nurses. The discrepancies between our results and certain international studies indicate that factors beyond age – such as cultural and organizational contexts and professional experience – may influence fear of death, a view consistent with the findings of Nia et al.'s systematic review (2016).

Study participants, comprising nurses from intensive care units, oncology, chronic internal medicine, and other departments, exhibited moderate levels of fear of death (DAP-R: median = 2.79 vs. 2.79; MFODS: 3.19 vs. 3.11). Li et al. (2021) also reported moderate levels of fear of death among oncology nurses, comparable to those observed in our sample. No significant differences were found between nurses working in intensive care units, oncology, chronic internal medicine, and other departments, in DAP-R (p = 0.64) and MFODS (p = 0.61) scores. This finding is in line with prior Hungarian research, which reported no significant differences in fear of death scores between intensive care and hospice nurses (Varga et al., 2009). Peters et al. (2013) also observed moderate fear of death among nurses working in emergency and palliative care, with no significant differences detected on the DAP-R fear of death subscale. Overall, the results of the present study are in agreement with previous research.

While moderate fear of death was observed among nurses working in intensive care units, oncology, chronic internal medicine, and other departments in our study, Arab et al. (2019) reported significantly higher fear of death among intensive care nurses compared with those in surgical and internal medicine departments. Payne et al. (1998) likewise observed that emergency nurses had higher fear of death than hospice nurses. Differences in sample

composition (which limits the direct comparison of results), study focus, measurement methods, and institutional background likely account for the observed discrepancies.

The frequency of caring for dying patients showed a positive correlation with fear of death on the basis of the results of the DAP-R ($\rho = 0.19$; $p = 0.003$). As lower scores indicate higher fear of death, this suggests that increased exposure to death (e.g., providing end-of-life care at least once per week) may help reduce fear of death. Our results are consistent with the findings of Curtis et al. (2023), which indicated that greater professional exposure to death and dying is linked to lower death anxiety: end-of-life carers scored lowest, whereas those with less exposure to death scored significantly higher. Kim & Kwon (2023) found a similar trend: nurses who had not provided end-of-life care in the past month exhibited higher death anxiety compared with those who had cared for between one to nine people, or ten or more people, during the same period. In contrast, the total score of the MFODS ($\rho = -0.15$; $p = 0.02$) showed a negative correlation with the frequency of caring for dying patients, suggesting that specific dimensions of the scale may be more sensitive to emotional overload. The two measurement tools capture different aspects: the DAP-R assesses a broader range of attitudes, including fear and various forms of acceptance, while the MFODS focuses on specific dimensions of fear of death that may more sensitively reflect risks related to emotional overload.

In our sample, no significant differences were found between hospice and intensive care nurses on the death avoidance ($p = 0.43$), approach acceptance ($p = 0.28$), escape acceptance ($p = 0.20$), and neutral acceptance ($p = 0.80$) subscales, which was also reflected in the similarity of the median and IQR values. This pattern is consistent with the findings of Varga et al. (2009), whereas Kovacevic et al. (2024) reported significant differences between these professional groups in a Serbian sample. Although this comparison provides useful descriptive insight, the unequal and relatively small subsample sizes should be considered when interpreting these results.

Limitation of study

Key limitations of our study include the use of a self-administered questionnaire, voluntary participation, and uncontrolled conditions of online survey completion, all of which may affect response reliability. In addition, uneven subgroup representation and the cultural homogeneity of respondents may limit the generalizability of our findings. The inferential analyses in this manuscript were based on a random analytical subsample of 250 cases drawn from the full dataset, which represents a methodological constraint. While the subsample was comparable to the full dataset on key background characteristics, subsampling may not fully capture institutional and regional heterogeneity. Future studies with larger, more heterogeneous samples and controlled designs are warranted to better investigate these relationships.

Conclusion

Our findings of moderate fear of death and predominantly neutral attitudes among nurses suggest that addressing death-related attitudes and anxiety may be valuable in nursing education and professional development, regardless of age or clinical specialty.

The frequency of end-of-life care provision observed in our sample underscores the emotional demands associated with caring for dying patients, emphasizing the importance of further research into effective forms of professional and psychological support.

No significant differences in attitudes were observed between intensive care and hospice nurses. Given the unequal and relatively small subsample sizes, future studies with larger and more balanced samples are warranted to clarify potential differences between clinical settings.

Previous research indicates that educational and organizational support may influence attitudes toward death. These factors were not directly examined in our study and should be explored in future interventional research.

Ethical aspects and conflict of interest

This study was approved, on the basis of the ethical principles of the Helsinki Declaration, by the Scientific and Research Ethics Committee of the Medical Research Council by its Decision BM/24869–1/2024. Data collection was authorized by the presidents of the Clinical Centers of Hungary by their declarations of acceptance. Participation in the research was anonymous and voluntary, thereby ensuring the protection of the respondents' rights and data. These measures guaranteed the compliance of the research with the ethical guidelines of the research community.

The principal researcher, a PhD student at the Doctoral School of Health Sciences, Semmelweis University, and an assistant lecturer

at the University of Szeged, Faculty of Health Sciences and Social Studies, had no prior professional relationship with the participating health care professionals, which minimized the risk of bias.

The authors declare no conflict of interest.

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Author contributions

Conception and design (ND), data analysis and interpretation (ND), manuscript draft (ND), critical revision of the manuscript (ND), final approval of the manuscript (IV).

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