

## Original Article

# Attitude of undergraduate nursing interns in regard to death and the influencing factors

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**Abstract:** Object: To explore the influencing factors of attitudes about death among undergraduate nursing interns. Methods: The study subjects were selected from the full-time fourth year undergraduate nursing interns in Jiangxi University of Technology from January to March 2021 by convenience sampling method. The general information questionnaire was designed by our hospital, and attitude towards death referred to the Chinese version of Death Attitude Depiction Scale (Revised) (DAP-R). Univariate and multivariate Logistic regression analysis was performed on the factors that may affect nursing interns. Results: A total of 210 nursing undergraduate interns were investigated in this study. The total score of DAP-R scale was  $(89.27 \pm 7.26)$  with a range of 72 and 112. Dimensions were ordered according to the average scores for the items of natural acceptance, escaping from death, fear, approaching acceptance and fleeing acceptance. Univariate and multivariate logistic regression analyses were conducted to analyze the factors that might affect the attitude. Items with statistical significance in univariate analysis, including religious belief, death of the patients cared for during the internship, reading the books related to death and the family's open discussion on the topic of death were entered into the regression model (all  $P < 0.05$ ). The formula of DAP-R total score prediction model was as follows:  $\text{DAP-R total score} = 62.980 + 3.056 * \text{religious belief} + 4.381 * \text{death of patients cared for during internship} + 5.727 * \text{reading books on death} + 3.531 * \text{family open discussion on the topic of death}$ . Conclusion: The undergraduate nursing interns in our school have a good attitude towards death, but still exhibit a negative attitude in fearing death.

**Keywords:** Investigation and analysis, bachelor of nursing, interns, attitude towards death, influencing factors

## Introduction

The attitude towards death is based on emotional and psychological feedback relating to death. People's attitudes towards death are complex, including both negative and positive [1]. Negative attitudes include fear, anxiety and evasion of death; positive attitudes include natural acceptance, approaching acceptance and fleeing acceptance [2]. Currently, a mature education system exists for death education in different fields and various groups in foreign countries. In addition, religious diversity enables a peaceful mind towards death [3]. In China, under the influence of traditional culture, the general education courses of Chinese medicine colleges rarely involve death-related courses. Most of the content is just theoretical knowledge about death covered in textbooks [4]. Nursing interns often encounter critically ill or even dying patients when entering clinical work. They often appear at a loss when faced

with such situations [5]. As the direct caregivers of patients, nurses' attitude towards death and professional recognition will directly or indirectly affect the medical quality, nursing quality and satisfaction with nursing of patients [6, 7]. Currently, domestic and foreign research on death attitudes and education mostly focuses on medical students and clinical nurses, while there is little research reporting undergraduate nursing students. This study analyzed the death attitude of undergraduate nursing interns and the influencing factors thus related and provided a basis for carrying out targeted death education for nursing interns and cultivating their positive attitude and outlook on life and death.

## Subjects and methods

### Research subjects

The study subjects were selected from the full-time fourth year undergraduate nursing interns in Jiangxi University of Technology from January

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to March 2021 by convenience sampling method. The study adopted a questionnaire survey and conformed to the requirements of the Declaration of Helsinki. This study was approved by the Ethics committee of Jiangxi University of Technology Institution.

### *Inclusion and exclusion criteria*

Inclusion criteria: ① Full-time fourth year undergraduate nursing students. ② Subjects that received at least 32 weeks of clinical practice. ③ Subjects that had completed the theoretical study of all medical professional courses. ④ Subjects who gave informed consent. ⑤ Subjects who can correctly understand the contents of each item in the questionnaire. ⑥ Those who planned to engage in medical work in the future. ⑦ Subjects aged 20-25 years.

Exclusion criteria: ① Over two weeks of leave time during the internship. ② Those who were unwilling to participate in this survey.

### *Research tools*

General questionnaire: The questionnaire was self-designed by the researchers, including gender, ethnicity, place of residence, religious belief, only child or not, whether family member suffered serious illness, whether they experienced the eventual death of patients they cared for during the internship, whether they attended a funeral, whether they suffered serious illness and whether their family openly discussed death.

Death Attitude Depiction Scale (Revised) (DAP-R) Chinese version: This scale was translated into Chinese and culturally adjusted by Tang Lu et al. [8] using Brislin's cross-cultural principle. This scale is used for self-assessing the subjects' attitude towards death, which includes fear of death (7 items), death avoidance (5 items), natural acceptance (5 items), approaching acceptance (10 items) and escape acceptance (5 items), with a total of 5 dimensions and 32 items. Each item is scored on a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree" with a score of 1 to 5 points. The average score of each item is adopted to estimate the subjects' death attitude. A higher total score indicates a more positive attitude towards death. Cronbach's  $\alpha$  coefficients scale was used and each dimension was between

0.908 and 0.781-0.889 respectively, indicating good reliability and validity.

### *Survey method*

The respondents filled in the questionnaire by themselves under guidance. The filling in time was limited to 10 minutes. A total of 216 questionnaires were sent out in this study, and 210 valid questionnaires were recovered.

### *Statistical analysis*

SPSS 25.0 was used for data processing and analysis. Measurement data were expressed in ( $\bar{x} \pm s$ ), while count data were expressed in percentages. The comparison of measurement data was conducted by *t*-test, and enumeration data was by  $\chi^2$  test.  $P < 0.05$  indicated that the difference was statistically significant.

## **Results**

### *General information*

A total of 210 undergraduate nursing interns were investigated in this study, and their general information is shown in **Table 1**.

### *Attitudes towards death*

The dimensions were sorted according to the average score of items, including natural acceptance, escaping from death, fear of death, approaching acceptance and fleeing acceptance (**Table 2**).

### *Influence of various factors on the attitude of nursing interns to death*

There was a significant difference in the comparison of the scores of approaching acceptance between different genders ( $P < 0.05$ ). There were significant differences in the scores of approaching acceptance with or without religious affiliation ( $P < 0.05$ ). The scores of fear of death, escape from death and natural acceptance of the interns during internship varied significantly according to the presence or absence of patient's death ( $P < 0.05$ ). The scores of fear of death and approaching acceptance had significant difference in whether they had read books related to death ( $P < 0.05$ ). There was also a significant difference in the scores of fear of death whether the family had

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**Table 1.** General information of 210 nursing interns surveyed

Item(s)	Category	Frequency (n)	Percentage (%)
Gender	Male	39	18.57
	Female	171	81.43
Nationality	Han	198	94.29
	Other	12	5.71
From single-parent-family	YES	41	19.52
	NO	169	80.48
Place of residence	Urban	87	41.43
	Village/town	73	34.76
	Rural	50	23.81
Religious beliefs	YES	46	21.90
	NO	164	78.10
Only child	YES	159	75.71
	NO	51	24.29
Have been to funerals before	YES	178	84.76
	NO	32	15.24
Whether experienced a serious illness in family member	YES	61	29.05
	NO	149	70.95
Patient cared for during internship passed away	YES	125	59.52
	NO	85	40.48
Whether suffered from a serious illness ever	YES	17	8.10
	NO	193	91.90
Whether read books about death	YES	133	63.33
	NO	77	36.67
Whether families discuss death openly	YES	157	74.76
	NO	53	25.24

**Table 2.** Scores of each dimension of DAP-R for 210 nursing interns (points,  $\bar{x} \pm s$ )

Dimension	Number of items	Score of dimensions	Average score of items	Sorting of item scores
Fear of death	7	19.83±3.84	2.83±0.55	3
Escape from death	5	15.20±3.21	3.04±0.64	2
Naturally accepted	5	19.01±2.79	3.08±0.56	1
Approaching to accept	10	23.97±4.11	2.40±0.41	4
Flee to accept	5	11.28±2.98	2.25±0.60	5

discussed the topic of death openly ( $P<0.05$ ). See **Table 3** for details.

### *Univariate analysis of correlative factors influencing attitudes to death*

A univariate analysis of various factors that may influence interns' attitudes towards death was performed. The results showed that gender, religious belief, death of patients in nursing practice, whether the interns had read death-related books and whether their families had openly discussed death topics were related to

the scores of nursing interns on death attitude (all  $P<0.05$ ) (**Table 4**).

### *Multivariate logistic regression analysis of correlated factors influencing death attitude*

Multivariate logistic regression analysis was carried out for each factor with statistical significance in the univariate analysis. The results indicated that religious belief, death of patients in clinical practice, reading death-related books and open discussion on death were key factors affecting nursing interns' attitude of death (all

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**Table 3.** The influence of various factors on the attitude of nursing interns towards death (points,  $\bar{x} \pm s$ )

Factor	Fear of death	Escape from death	Naturally accepted to death	Approaching to accept	Flee to accept
<b>Gender</b>					
Male	19.49±4.88	15.10±3.05	18.28±2.36	21.54±3.74	10.51±2.69
Female	19.91±3.58	15.22±3.25	19.18±2.86	24.52±4.00	11.45±3.03
t	0.506	0.200	1.815	4.248	1.780
P	0.615	0.842	0.071	0.000*	0.077
<b>Nationality</b>					
Han nationality	19.83±3.77	15.17±3.26	18.99±2.81	23.96±4.17	11.31±2.89
Others	19.75±5.12	15.58±2.19	19.25±2.45	24.08±3.06	10.67±4.33
t	0.073	0.431	0.307	0.101	0.728
P	0.942	0.667	0.759	0.920	0.467
<b>From single-parent-family</b>					
YES	19.85±3.66	15.85±3.37	18.41±2.68	23.66±3.84	11.15±2.67
NO	19.82±3.89	15.04±3.16	19.15±2.80	24.04±4.18	11.31±3.06
t	0.046	1.470	1.527	0.534	0.310
P	0.963	0.143	0.128	0.594	0.757
<b>Place of residence</b>					
Urban	20.37±3.47	14.92±3.27	19.08±3.17	23.92±4.24	11.46±2.96
Village/town	19.18±4.04	15.45±3.33	19.40±2.58	23.85±4.08	11.30±2.95
Rural	19.84±4.08	15.30±2.92	18.32±2.24	24.22±4.00	11.92±3.10
F	1.920	0.580	2.289	0.129	0.521
P	0.149	0.561	0.104	0.879	0.595
<b>Religious beliefs</b>					
YES	20.34±4.18	15.41±3.45	19.59±3.25	25.24±3.93	11.76±3.64
NO	19.68±3.74	15.13±3.14	18.85±2.63	23.61±4.11	11.14±2.77
t	1.037	0.520	1.595	2.401	1.249
P	0.301	0.603	0.112	0.017*	0.213
<b>Whether the Only Child</b>					
YES	19.67±3.80	15.21±3.20	19.06±2.78	23.77±4.06	11.42±3.09
NO	20.33±3.98	15.16±3.26	18.86±2.84	24.59±4.27	10.82±2.59
t	1.079	0.098	0.431	1.242	1.247
P	0.282	0.922	0.667	0.216	0.214
<b>Have been to funerals before</b>					
YES	19.77±3.78	15.14±3.29	18.97±2.76	24.15±4.20	11.44±3.00
NO	20.15±4.22	15.48±2.76	19.21±2.97	23.00±3.49	10.42±2.81
t	0.525	0.564	0.454	1.474	1.796
P	0.600	0.573	0.651	0.142	0.074
<b>Whether experienced a serious illness in family member</b>					
YES	19.41±3.98	14.97±3.28	18.89±2.77	24.41±3.57	11.48±3.00
NO	20.00±3.78	15.29±3.18	19.06±2.08	23.79±4.31	11.19±2.98
t	1.010	0.658	0.412	0.999	0.678
P	0.313	0.511	0.681	0.319	0.537
<b>Patient cared for during internship passed away</b>					
YES	20.59±3.51	15.63±3.20	19.40±2.76	24.33±4.12	11.48±2.88
NO	18.63±4.05	14.51±3.11	18.40±2.74	23.40±4.06	10.96±3.13
t	3.714	2.502	2.558	1.597	1.217
P	0.000*	0.013*	0.011*	0.112	0.225
<b>Whether suffered from a serious illness ever</b>					
YES	19.06±3.77	14.94±5.01	18.59±2.79	24.24±3.40	11.47±3.50
NO	19.90±3.85	15.22±3.02	19.05±2.79	23.94±4.18	11.26±2.94
t	0.861	0.224	0.649	0.280	0.280
P	0.390	0.825	0.517	0.780	0.780

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Whether read books about death					
YES	20.69±3.46	15.52±3.06	19.27±2.59	24.70±4.07	11.41±2.83
NO	18.37±4.04	14.64±3.40	18.58±3.06	22.72±3.91	11.05±3.23
t	4.405	1.938	1.664	3.470	0.839
P	0.000*	0.054	0.098	0.001*	0.402
Whether the family discussed the topic of death publicly					
YES	20.19±3.69	15.36±3.08	19.20±2.81	24.27±4.07	11.50±2.74
NO	18.75±4.10	14.70±3.53	18.43±2.69	23.06±4.14	10.60±3.56
t	2.379	1.308	1.746	1.874	1.678
P	0.018*	0.192	0.082	0.062	0.098

Note: \*P<0.05.

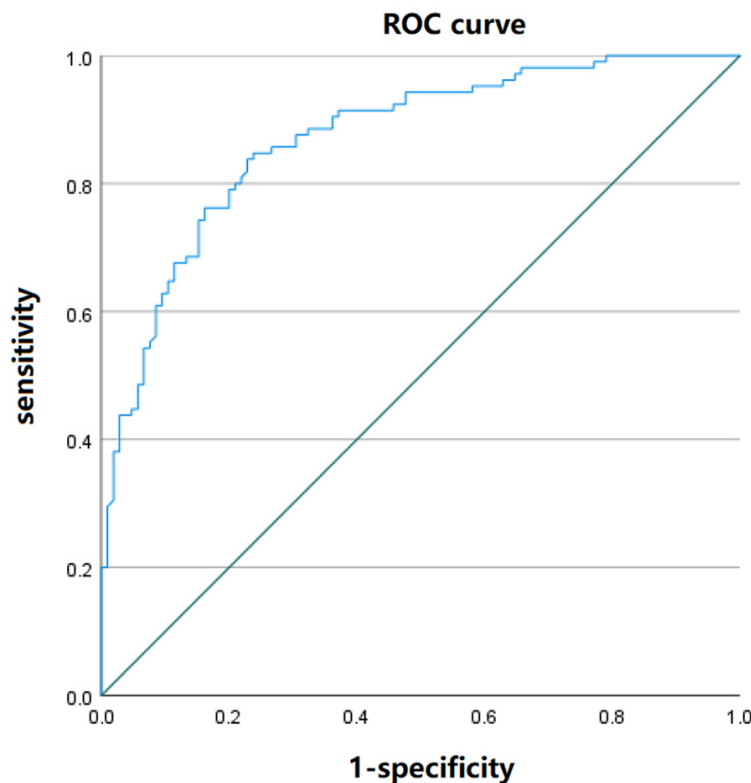
**Table 4.** Univariate analysis of related factors affecting nursing interns' attitude to death (points,  $\bar{x} \pm s$ )

Factor	Number of cases	Total Score	t/F	P
Gender				
Male	39	84.92±6.93	4.319	0.000
Female	171	90.27±6.98		
Nationality				
Han	198	89.27±7.26	0.028	0.978
Others	12	89.33±7.66		
From single-parent-family				
YES	41	88.93±6.72	0.343	0.732
NO	169	89.36±7.41		
Place of residence				
Urban	87	89.75±7.64	0.404	0.668
Village/town	73	89.18±7.07		
Rural	50	88.60±6.95		
Religious beliefs				
YES	46	93.25±7.84	3.297	0.001
NO	164	88.44±6.89		
Whether the Only Child				
YES	159	89.12±6.69	0.477	0.635
NO	51	89.76±8.88		
Attended funeral(s) before				
YES	178	89.46±7.23	0.864	0.389
NO	32	88.27±7.46		
Whether experienced a serious illness in family member				
YES	61	89.15±7.05	0.164	0.870
NO	149	89.33±7.37		
Patient cared for during internship passed away				
YES	125	91.43±6.66	5.768	0.000
NO	85	85.91±6.92		
Whether suffered from a serious illness ever				
YES	17	88.29±7.45	0.577	0.564
NO	193	89.36±7.28		
Whether read books about death				
YES	133	91.59±6.42	6.618	0.000
NO	77	85.30±6.98		
Whether families discuss death openly				
YES	157	90.54±6.97	4.519	0.000
NO	53	85.55±6.87		

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**Table 5.** Multivariate logistic regression analysis of correlated factors influencing death attitude

Independent Variable	$\beta$	SE	Standardized Coefficients	t	P
Constant	62.980	2.515	-	25.037	0.000
Religious Beliefs	3.056	0.984	0.174	3.105	0.002
The death of patient in practice	4.381	0.853	0.294	5.136	0.000
Read books related to death	5.727	0.845	0.379	6.777	0.000
Open discussion about death in family	3.531	0.958	0.212	3.685	0.000



**Figure 1.** The predictive value of the ROC curve validation prediction model for the attitude of nursing interns towards death.

$P < 0.05$ ) (Table 5). The formula of prediction model: DAP-R total score =  $62.980 + 3.056 * \text{religious belief} + 4.381 * \text{death of nursing patients in clinical practice} + 5.727 * \text{reading death-related books} + 3.531 * \text{family members had discussed death openly}$ .

*The predictive value of ROC curve verification prediction model for nursing undergraduate interns' attitudes towards death*

The ROC curve was used to verify the predictive value of the above prediction model for undergraduate nursing intern' attitude towards death. The results showed that the area under the curve was 0.871 (95% CI: 0.824~0.918,

$P < 0.05$ ) with a sensitivity of 84.8% and a specificity of 76.2% (Figure 1).

### Discussion

The total score of the DAP-R scale of 210 nursing interns was  $(89.27 \pm 7.26)$  with a range of 72 to 112. The dimensions were sorted according to the average score of items, including natural acceptance, escape, fear, approaching acceptance and fleeing acceptance. According to the findings of this study, undergraduate nursing interns scored relatively high on the questionnaire on their attitudes towards death. Among them, the item of 'Death should be regarded as a naturally undeniable and inevitable event' (natural acceptance) had the highest score. This indicates that interns have a positive attitude towards death, and this finding is consistent

with the results reported by several scholars [9, 10]. Most undergraduate nursing interns can rationally face death and realize that life is an inevitable natural cycle from birth to death. This may be related to the current increasingly open minds and emphasis on death education in schools. Accepting an attitude of death calmly will help students face the negative emotions brought about by death in their future clinical work [11, 12].

This study conducted univariate and multivariate logistic regression analysis on influencing factors of attitude towards death among undergraduate nursing interns. The results indicate that religious belief, death of patients in clinical

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practice, reading death-related books and family members' open discussion on death were key factors affecting nursing interns' attitude to death. The religious belief, to some extent, could satisfy people's spiritual needs. Especially when facing fear and anxiety of death, people with religious beliefs can often find support from it, achieving spiritual and psychological comfort and relief [13]. Studies by scholars have shown that [14] religious people who believe in a better afterlife have less fear and anxiety when facing death, which is consistent with the results of this study. Students with religious beliefs tended to have a positive attitude towards death, and their fear of death was milder. However, there are also domestic scholars who have shown [15, 16] that many unreligious students are also more likely to accept death, and there is little difference in their attitude towards death. This is thought to be related to the long-standing education of atheism and dialectical materialism in our country. Meanwhile, this study still showed that religious belief had an important impact on death attitude of nursing interns, which is possibly due to the differences in the study subjects.

Nursing interns who experienced the death of a patient during their practice had a more positive attitude towards death, indicating that most nursing interns were able to accept the death of a patient. At the same time, witnessing a patient's death helps nursing interns accept death more directly. Therefore, it is recommended that nursing educators strengthen the pre-training of nursing interns before practice, so that they can deal with the death of patients more rationally. The training shall include education on death, guide them towards maintaining a rational attitude and avoid negative attitudes such as misunderstanding or prejudice towards death. Attention should be paid to cultivating the psychological adaptability of nursing interns, so as to reduce the psychological burden and stress reaction of interns when encounter patients' death [17-19].

In addition, nursing interns who had read death-related books and discussed death openly in their families were more positive about death. The studies show that when parents openly discuss about death in family, the children will be less afraid of death. While children whose parents rarely talk about death are more likely to avoid it [20, 21]. People that openly discuss death in their families have more positive attitude towards death, which is more conducive to

nursing interns keeping good mentality to face death and eliminate their fear of death [22, 23]. Some scholars have confirmed that the escape attitude towards death of nursing interns could be improved by reading death-related books [24]. Reading books enables interns to have a more in-depth and objective understanding of death, so it may be beneficial to encourage nursing interns to read more death-related books [25, 26].

However, this study only conducted research on undergraduate nursing interns in our university and did not analyze the attitudes toward death of interns in other schools or regions. The included sample size was small, which needs to be expanded in later studies. In addition, interns in other schools and regions shall be investigated and analyzed to obtain more accurate research data. In summary, the undergraduate nursing interns in our school have a good attitude towards death, but still have a negative attitude of fearing death. Educational institutions should actively carry out death education, improve curriculum design according to the factors related to students' attitude towards death, and help them establish positive attitude towards death.

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### Disclosure of conflict of interest

None.

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