Comprehensive Hospitals Nurses' Cognition on Palliative Care in Shandong Province, China: A Cross-Sectional Study

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Abstract

Background: Palliative care is an essential part of medical practice, however, it has developed slowly in China. We aimed to analyze the current situations of the cognition on palliative care among the nurses in Shandong Province, China.

Methods: This was a cross sectional study. Investigation of 1050 nurses came from 5 third-class hospitals and 5 second-class hospitals in Shandong Province, China from Jul to Oct in 2018. The questionnaire included 4 parts: general information of the subject, the questionnaire of palliative nursing knowledge, attitude, and the behavior. Data were collected by the APP. Overall, after eliminating the invalid questionnaires, 1026 questionnaires were included in the final analyses. The software Stata 14.2 was used for all statistical analyses.

Results: The score of knowledge and attitude was low, the practice was higher. Multivariate analysis results: the significant independent variables of univariate analysis were included in the multivariate non-conditional logistic regression model for analysis. Some departments had statistical significance in knowledge multivariate Logistic regression analysis. The multivariate logistic regression analysis of practice was significant for physical health and religious beliefs. The statistical variables of the total score of cognition were gender, age of care, health status and religious beliefs.

Conclusion: Nursing knowledge is lacking and attitude remains to be improved as soon as possible. It is vital to improve the cognition of palliative care of nurses in Shandong general hospitals by developing relevant rules and regulations, strengthening the supervision of relevant ant departments, and enhancing training for nurses.

Keywords: Palliative care; Knowledge; Cross-sectional study; Nurses; China

Introduction

Palliative care (PC) is vital but it remains limited, inaccessible, or even absent in low and middle income countries (1). Palliative care with the Economist Intelligence Unit ranking China 71 of 80 countries in 2015 (2). With the change of medical model, aging and the change of disease spectrum, it is inevitable to carry out (3) in China. Despite China has made great progress during

the past few decades, it continues to face significant barriers (4,5). There are more than 30 thousand registered nurses have nursed for 100.7 million people in Shandong Province, therefore, it is critical for nurses to clearly understand cognition status of PC in comprehensive hospitals.

We aimed to analyze the current situations of the cognition on palliative care among the nurses in Shandong Province, China.

Methods

Setting and Participants

The participants were recruited from 5 third-class hospitals and 5 second-class hospitals during Jul to Oct in 2018 in Shandong Province. The stratified cluster sampling of 1050 nurses were selected: first of all, according to the geographical distribution of Shandong Province, the convenient sampling method was used to extract one third-class hospital and one second-class in the municipality under its jurisdiction, and then we contacted with the staff of the nursing department of the hospital to solicit their consent and collaboration, to confirm that the sampling department was in line with the study and to confirm the plan of this study. Secondly, the cluster stratified sampling method was used to randomly select the nurses of 6 departments.

Data sources/ measurement

With the help of the nursing department, the nurses who meet the inclusion criteria were asked to answer questions by the APP of www.wenjuan.com to fill out the questionnaires. Overall, 1050 questionnaires were collected online. After eliminating the invalid questionnaires, 1026 questionnaires were included in the final analyses. The software Stata 14.2 was used for all statistical analyses.

The general cognitive of Palliative Nursing included the understanding of concepts about PC, access to knowledge, whether received any training and discussed death with patients and their families and so on.

The knowledge questions were adopted from the PC Quiz for Nursing (PCQN) also modified according to the prevailing context of health institutions in China by Zou Min (6). The PCQN is a 20-question inventory about knowledge toward PC. The response ranges from 0 ("No"or "Don't know") to 1 ("Yes"). The higher the score is, the knowledge is better. The Cronbach'α value for PCQN was 0.758.

The Bradley attitude assessment questionnaire including 12 questions: positive rating and negative rating. Each question was rated on a five-point Likert-type scale, positive ranging from 5 ("absolutely not") to 1("absolutely yes") and negative ranging from 1 ("absolutely not") to 5 ("absolutely yes"). The higher the scores are, the more good an individual attitude to PC. This questionnaire was developed among the Chinese population in mainland China and so far has achieved satisfactory validity and reliability (6). It`s Cronbach'α value was 0.794.

The practice questionnaire to PC is 8-question inventory of three subcategories, including physiological care, psychological care and social role care (7). Each question was rated on a five-point Likert-type scale, ranging including 1 ("often do"), 2("can do"), 3("indeterminacy"), 4("less"), 5("rarely"). The higher the one-dimensional scores are, the more a nurse implemented practice to PC. The scale was developed among the Chinese nurses in mainland China and so far has achieved satisfactory validity and reliability. It`s Cronbach' α were 0.910. The authors had access to information that could identify individual participants during or after data collection in this study.

Bias

Most of directors of nursing from all over province have contacted about study design before done. With their help, we got the consent form participants so that they knew how to answer on the right way. We have recruited two persons whom come from university for statistical analysis.

Quantitative variables and Statistical methods

Stata Software (ver. 14.2) was used to analyze the data, and a two-sided *P*-value<0.05 was considered as a statistical significance. The socio-demographic and work-related characteristics variables of nurses were obtained via descriptive. Quantitative variables were calculated as mean standard deviation (SD), and qualitative variables were expressed with number and percentage. Then independent sample *t* tests was conducted to explore factors related to cognitive on PC, respectively. To determine the factors predicting cognitive on PC, multiple linear regression models with conditional stepwise analysis were used. *P*-value≤0.05 have statistic difference.

In the study, the scoring rating = mean/total scores ×100%, dividing higher level (>85%), medium level (60%~85%), lower level (<60%).

Ethical approval

The study was approved by the hospital Ethics Committee, number is: (Ke) Lun Shen No. (2016109).

Results

Table 1 shows the Socio-demographic and work-related characteristics of nurses (N=1026).
Table 2 shows that 47.95% of the respondents knew the definition of PC, only 47.95% agreed that PC was being given when patients' conditions were deteriorating. Table 3 shows that the majority of knowledge learned from networks or other sources (26.61% and 32.16%). However, professional training sources accounted for only 14.72% from data.

Table 1: Characteristics of nurses and Crude analysis of cognition on palliative care among Nurses in Shandong Province (point) (N=1026)

Item	Characteristics	Number	Percentage (%)	Cognition χ²/U	Cognition *P*-value	Belief χ²/U	Belief *P*-value	Action χ²/U	Action *P*-value
Gender	Male	73	7.12	0.209	0.834	-1.620	0.105	-1.328	0.184
	Female	953	92.88						
Age(yr)	≤25	170	16.57	0.099	0.992	9.473	0.024	10.570	0.014
	26~35	692	67.45						
	36~45	126	12.28						
	≥46	38	3.70						
Department	Cardiovascular department	447	43.57	17.495	0.004	16.706	0.033	7.964	0.158
	Emergency department	126	12.28						
	Respiration department	99	9.65						
	Intensive care unit	188	18.32						
	Oncology department	101	9.84						
	Hematology	65	6.34						
Hospital Class	Second-class	178	17.35	4.408	0.036	0.191	0.662	1.103	0.294
	Third-class	848	82.65						
Nursing age(years)	≤2	178	17.35	3.928	0.416	9.374	0.052	12.830	0.012
	3~5	274	26.71						
	6~10	328	31.97						
	11~20	155	15.11						
	≥21	91	8.87						
Staffing system	On the payroll	214	20.86	1.093	0.579	7.803	0.020	5.446	0.064
	Personnel agency	172	16.76						

	not on the payroll Contract system not on the payroll	640	62.38						
Title	Nurses	932	90.84	1.055	0.304	13.471	0.001	5.403	0.020
	Nursing management	94	9.16						
Professional title	Nurse	333	32.52	3.796	0.150	5.559	0.062	9.408	0.009
	Nurse practitioner	444	43.36						
	Nurse-in-charge and above	247	24.12						
Physical status	Very good	163	15.89	9.366	0.053	0.911	0.923	32.387	0.001
	Good	371	36.16						
	Common	360	35.09						
	Bad	34	3.31						
	Special period (pregnancy or maternity)	98	9.55						
Whether has religious belief or not	Yes	110	10.72	1.417	0.234	0.426	0.514	-2.449	0.014
	No	916	89.28						
Trained or not	Yes	202	19.69	4.345	0.037	0.354	0.552	0.354	0.552
	No	824	80.31						

Table 2: Distributions of nurses' general cognitive to palliative care（N=1026）

No	Questions	Response	Frequency (N)	Percentage (%)
1	Do you know the definition of palliative care?	Yes	492	47.95
		No	534	52.05
2	Do you know the difference between palliative care and terminal care?	Yes	314	30.60
		No	712	69.40
3	Do you understand the service philosophy of palliative care?	Yes	276	26.90
		No	750	73.10
4	Do you know how to communicate with middle-late period patients or bereaved families effectively?	Yes	620	60.43
		No	406	39.57
5	Do you understand the common psychological problems of patients in the middle-late stages?	Yes	692	67.45
		No	334	32.55
6	Have you ever had psychological care for patients or their families in the middle and late stages?	Yes	665	64.81
		No	361	35.19
7	Have you discussed death openly with patients or family members?	Yes	334	32.55
		No	692	67.45
8	Do you know the ethical and religious issues involved in palliative care?	Yes	328	31.97
		No	698	68.03

Table 3: Sources of palliative care knowledge among hospital nurses in Shandong Province (*N*=1026)

Source of Knowledge	Frequency (n)	Proportion (%)
Lecture	91	8.87
Internet	273	26.61
Conference	37	3.61
Textbook	54	5.26
Education or training	151	14.72
Professional magazine	36	3.51
Audio-visual resource	54	5.26
Others	330	32.16

Table 4 shows the score of each question of PC knowledge. Accuracy of question lower than 10% was Q3, Q7, and Q13. On the contrary, the top there was Q4, Q17, and Q12. All of those questions, accuracy of 13 questions was lower than 50%.

Table 5 shows that the scoring rating of cognitive of PC was 63.4%, which was at the medium level. The scores of knowledge and attitude were 40.2% and 59.5%, which were at the lower level. Overall score of cognitive on PC Scoring rate separately was 40.2%, 59.9%, 80.2%.

Table 4: Score of each question of palliative care knowledge (*N*=1026)

No	Question	Accuracy (%)
1	Palliative care is only suitable for patients whose condition is getting worse or worsening.	34.7
2	Morphine is the reference standard for the analgesic effect of other opioids	50.1
3	The course of the disease determines the method of pain treatment	3.2
4	Adjuvant therapy is important for pain control	90.9
5	It is vital that family members accompany the patients besides their beds until death	27.9
6	At the last stage of the patients' life, sleepiness associated with electrolyte imbalance reduces their need for sedation	74.4
7	The main problem brought by long-term use of morphine is drug addiction	4.6
8	Patients taking opioids should also be given enteral therapy (ie, precautions and treatment for gastrointestinal symptoms)	24.9
9	palliative care requires emotional separation	28.5
10	At the end of the disease, drugs that cause respiratory depression are appropriate for the treatment of severe dyspnea.	42.4
11	Men generally relieve their sadness faster than women	19.4
12	The concept of palliative care is consistent with the concept of active treatment.	81.5
13	The use of placebo is appropriate when treating certain types of pain	7.8
14	Large doses of codeine are more likely to cause nausea and vomiting than morphine	14.6
15	Pain and physical pain are synonymous	16.9
16	Dolantin is not an effective analgesic to control chronic pain	70.1
17	The accumulation of the sense of loss caused by nursing dying patients inevitably makes palliative care workers exhausted physically and mentally	83.9
18	The clinical manifestations of chronic pain are different from that of acute pain	62.7
19	Losing a distant relative or an estranged relative is easier than losing a loved one or a close one.	31.2
20	Fatigue or anxiety can cause a decrease in pain threshold	24.3

Table 5: Overall Score of cognition on palliative care among nurses in Shandong Province (point) (*N*=1026)

Dimension	Mini-mum	Maxi-mum	Scoring Rate (%)	$\bar{X}\pm S$
Knowledge	0	14	40.2	8.04±2.49
Attitude	25	48	59.9	35.94±2.84
Practice	8	40	80.2	32.09±5.54
Total	42	97	63.4	76.07±7.17

Remarks: scoring rate = average score / total score × 100%

Crude analysis

In Table 1 statistically significant (*P*<0.05), the knowledge part was whether to receive training and department category; attitude part included age, initial education, compilation, post and department; The behavior part was enriched age, nursing age, health status, training, intensity of work satisfaction, department and religious belief.

Multi-factor logistic regression analysis

The significant variables of crude analysis were included in the multi-factor logistic regression analysis. In Table 6, multi-factor logistic regression analysis of cognitive on PC, the scores (categorical variables) were used as the dependent variables, the variables of significance with univariate analysis were used as independent variables to conduct unconditional logistic regression analysis. Variables about physical status (good or common), department of Emergency, Oncology have statistical significance.

Table 6: Multi-factor Logistic Regression Analysis of cognition on palliative care among Nurses in Shandong Province (*N*=1026)

Questionnaire	Characteristics	Department	OR-value	95%CI	P-value
Knowledge Part	Hospital department	Cardiovascular	1	-	-
		Emergency	1.89	1.27-2.83	0.002
		Oncology	0.61	0.38-1.96	0.033
Practice Part	Physical status	Very good	1		
		Good	0.63	0.43-0.93	0.019
		Common	0.40	0.27-0.59	0.001
	Whether has religious belief or not	Yes	1		
		No	1.76	1.17-2.65	0.007

Note:The significant variables of crude analysis were included in the multi-factor logistic regression analysis. We deleted the variables which not in significance instead of those one only.

Discussion

Key results
In Table 2, distributions of nurses' general cognitive to PC, the scores of Q1-Q3 and Q6, Q7 were not optimistic. 52.05% of the respondents did not know PC, and 69.4% of those did not know the differences between PC and hospice care; 67.45% of those had not discussed the topic of death with the patients or their family members publicly, 68.03% of those did not know the ethical and religious issues involved in PC. This indicates their general cognitive status on PC was not optimistic.

Table 3 shows that the respondents had fewer opportunities to obtain PC, which also suggested that the majority of nursing management should focus on broadening the access to knowledge and enriching palliative care training methods. Table 5 illustrates that the average score on knowledge was 8.04±2.49, and the average scoring rate was 40.2%, which was lower than that of Canada (61%) (8), New Zealand (58.2%) (9) and France (54.6%) (10), similar to the result of 44.38% concluded by Zou Min (6), a domestic scholar.

In Table 4, the question "the course of the disease determines the method of pain treatment" was of the lowest correctness, only 3.2%, and the second lowest one was "the main problem caused by long-term use of morphine is drug addiction", only 4.6%. The question "adjuvant therapy is important for pain control" was of the highest correctness, at 90.9%. Most of the others were not good, indicating that PC knowledge was more difficult for clinical nurses. There were 6 questions with the correctness of higher than 60% in another study (6) in China.

In the multi-factor logistic regression analysis of knowledge, some departments were of statistical significance possibly because the clinical nurses had different focuses. Under the background of the whole people paying attention to "quality of life", the majority of nursing management should guide and encourage to promote PC.

Univariate analysis shows that the knowledge level of nurses with training history was higher. This was consistent with the actual situation, and the knowledge level of nurses who received professional training was relatively high. However, in the multi-factor logistic regression analysis of knowledge, "whether has received training or not" was of no statistical significance. Although some hospitals have carried out training and publicity on PC knowledge, the effects were influenced, which cannot highlight its statistical significance.

Table 5 shows that the full mark of the attitude part of this questionnaire was 60 points, with an average score of (35.94±2.84) points; the full mark of the practice part was 40 points, with an average score of (32.09±5.54) points; the total

score was 120 points, with the average score of (76.07±7.17) points. The score of attitude on PC among nurses in Shandong Province was at a low level (59.9%), and it still needs further improve. The scores of knowledge and attitude were 40.2% and 59.5% respectively, at a low level, the practice part was 80.2%. The total score of cognitive on PC was 63.4%, which was at a medium level. The analysis results of multivariate unconditional logistic regression model showed that the variables of statistical significance in the total score of cognition were: sex, professional title, physical status and whether religious belief had.

Interpretation and Generalisability

The quality of service depends on the quality of the practitioner (11), while the education or training on PC can improve the nurses' knowledge and attitude (12,13). It was recommended to strengthen the training from the following aspects:

A survey in 40 hospitals across the country (14) pointed out that pain training was few, most hospitals had no pain specialist nurses. The scores of pain care questions of the table 4 were not optimistic.

39.57% of the respondents did not understand the methods of effective communication with patients with intermediate and advanced diseases due to the lack of communication skills. Such as "ASK-TELL-ASK" "SPIKES" mode (15) and "COMFORT (16)", was worth learning.

In this study, 32.55% of the respondents did not understand the common psychological problems of patients, 35.19% of the respondents had not offered psychological care to patients with intermediate and advanced diseases or their families.

67.45% of the respondents had not discussed the topic of death with patients or their families publicly, possibly because they did not know how to cope with death and post-mortem matters. We call for the implementation of advance care planning (17) which is a trend of the times (18). It is also feasible in China, but it requires a long period of time to consider many obstacles.

68.03% of the respondents did not understand the ethical and religious issues involved in PC.

The nurses should be familiar with relevant ethics and laws, strictly implement the principle of confidentiality.

At present, PC has been defined as a compulsory course for nursing students in the United States (19,20), however, higher education in PC have not been popularized yet in China (21-23). Therefore, Colleges and universities are encouraged to develop professional hospice care materials (24).

The income of PC nurses was far lower than other, they were more likely to be transferred or resigned, and then affected the outcome indicators (24). Therefore, medical institutions should increase the manpower and salary income of nurses, to improve relevant rules, systems and responsibilities (25).

The National Health Commission issued a practical guide for hospice care (26). However, facing the huge demand, the government should further increase policy support. It was recommended to eliminate the lack of awareness (27, 28).

Limitations

The nurses in the heal centers in counties, towns, communities and pediatrics were not covered in this study. There was a certain bias in the sample representation, and there was no horizontal and vertical comprehensive comparison. In the next stage, we will conduct further research on the above issues.

Conclusion

Nursing knowledge is lacking and attitude remains to be improved as soon as possible. It is vital to improve the cognition of PC by developing relevant rules and regulations, strengthening the supervision of relevant departments, and enhancing training.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interest.

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