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A Changing Healthcare System Model: The Effectiveness of Knowledge, Attitude, and Skill of Nursing Assistants Who Attend Senile Dementia Patients in Nursing Homes in Xi'an, China—A Questionnaire Survey

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ABSTRACT

Background: In 2010, China had an elderly population of 1.78 billion people. As in other societies around the world, China is facing a growing challenge in providing care for its elderly citizens. Ensuring the highest quality of care for elderly patients, many of whom have senile dementia, is directly related to the performance of nursing assistants.

Methods: With the goal of investigating the knowledge, attitudes, and skills of nursing assistants who care for senile dementia patients in nursing homes in Xi'an, China, we distributed a survey and analyzed the responses.

Results: Nursing assistants showed dedication and sincerity in their care for senile dementia patients. However, their performances in the categories of life nursing and mental nursing reveal room for improvement. Further, the nursing assistants did not display adequate knowledge about senile dementia. Based on survey results, the knowledge of the nursing assistants concerning nursing safety was comparatively adequate.

Conclusion: Nursing assistants who care for senile dementia patients in nursing homes in Xi'an, China, require further training that expands their knowledge and increases their capabilities. We recommend that nursing homes in Xi'an offer a standardized professional nurse/nurse assistant training course that focuses on care for elderly patients with senile dementia.

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INTRODUCTION

Future healthcare delivery systems must meet the extraordinary needs expected of our aging population in the United States and around the world. China, which had an elderly population of 1.78 billion in 2010, is preparing for huge challenges related to lack of healthcare resources and heavy economic burden.[1] Modern societies around the world face the growing challenge of providing communal care and hospital care for the elderly. As this challenge has grown, caregivers have identified special classifications of care for the elderly, including the distinct field of care for elderly patients who suffer from senility. The combined challenges of the delivery of care in the communal setting, the standard of care for the elderly, and the protocols of care for the pathology of senility merit further research.

In China, researchers have investigated the prevalence of dementia, which has increased from 1980 to 2004.[2] The literature also suggests that in China, increased age is associated with an increased rate of dementia.[3] Recent decades have witnessed significant changes in Chinese family dynamics, including a transition in the manner of care for the elderly. The traditional model of growing old at home

is changing to the modern model of being attended by society. Nursing homes for the elderly have grown into an institution in modern society.[4] Compared to decades ago, many more Chinese families are enrolling their elderly family members in nursing homes.[4] China and the United States both have had a significant increase in their numbers of geriatric citizens in recent decades.[2]

Senile dementia strongly influences the health of the elderly population worldwide.[5] The prevalence of senile dementia increases exponentially with age, and no ideal, definite, or effective treatment exists.[6] Worldwide, Alzheimer's disease and vascular-induced dementia are described as the leading etiologies of senile dementia, but the condition arises from a number of factors. In China, almost 6 million patients suffer from senile dementia. These patients range widely in age, which may warrant concern.

Chinese families who send elderly family members with senile dementia to nursing homes have certain expectations, including day and night care, daily health monitoring, and psychiatric services. In China, the National Standards for Senile Nursing regulates the performance of the nursing assistants who care for the members of this burgeoning group of patients. The challenge of ensuring high-quality care is directly related to the performance of nursing assistants. The assistants need training, career stability, and good supervision. In general, a lack of training, high levels of stress, and lack of supervision from nursing staff can significantly negatively affect the quality of nursing for elderly patients who suffer from senile dementia.

The competence of nursing assistants directly correlates with the prognosis and quality of life of the senile dementia patient.[7] However, little study has been done to evaluate care at these nursing homes. Our study aimed to evaluate nursing assistants' mastery of basic knowledge and skills in the care of patients with senile dementia. The results of our investigation may provide information that can improve different aspects of nursing care worldwide.

METHODS

Based on the literature,[4,8,9] a survey was designed and given to nursing assistants in 8 nursing homes for the elderly in Xi'an, China. The survey focused on 3 categories of care: knowledge, beliefs/attitude, and practices/skills. The questionnaire also focused on the treatment of nursing home patients with dementia. This focus is important because dementia and senility in nursing home patients are a growing cause of concern.[6,7] The questionnaire was designed according to the guidelines of the National Standards for Senile Nursing.

General information about each nursing assistant who participated in the survey was collected, including age, sex, education level, and professional history. The questionnaire specifically tested general knowledge about senile dementia, life nursing, safety nursing, and psychiatric care. Questions about their conceptions of patients with senile dementia were designed to determine the nursing assistants' attitudes. Additional questions evaluated their skill and mastery of nursing techniques to test their actual nursing practice. Tested techniques included the practice of disease nursing, life nursing, safety nursing, and mental nursing.

A presurvey with a sample of 20 was performed to evaluate the survey's reliability. A repeated measurement was adopted to evaluate its reliability. To evaluate the effectiveness of the survey, 2 nursing education experts, 2 neurologists, and 1 statistician reviewed the questionnaire. The total survey had a content validity of 0.84. Because these data are >0.75, they showed that the survey is reliable and effective.

All surveys were completed after a face-to-face contact and assessment. The survey contained 36 questions for a maximum possible score of 36 points. One point was recorded if a positive answer was given or if the practice assessment was passed, and 0 points were recorded if a negative answer was given or if the practice assessment was not passed. Accordingly, the qualified rate was 60%, and assistants with a final score of $\geq$22 were regarded as a "better group" (Group A_1). Assistants who scored $\leq$21 were placed into the "worse group" (Group A_2).

Statistical analysis was performed with SPSS 12.0. The Pearson chi-square test was used to evaluate the survey scores and responses of the nursing assistants. These analyses were also used to compare general information between Group A_1 and Group A_2. The Mann-Whitney U test was used to compare the mastery of specific nursing skills between the 2 groups (A_1 and A_2).

RESULTS

From 8 nursing homes for the elderly, 248 nursing assistants participated in the study. Among the 248 finished questionnaires, 240 were deemed complete. Power with response rate was 96.7%.

Forty-four participants were male and 204 participants were female. The nursing homes were from the following locations: 2 from the northern suburbs, 2 from the southern suburbs, 2 from the western suburbs, 1 from the eastern suburb, and 1 from the center of Xi'an. The age of the nursing assistants ranged from 20-60 years (mean 45.7 $\pm$ 4.8 years). Their working lifetime ranged from 1 month to 7 years (mean 14.4 $\pm$ 3.6 months). The educational level of

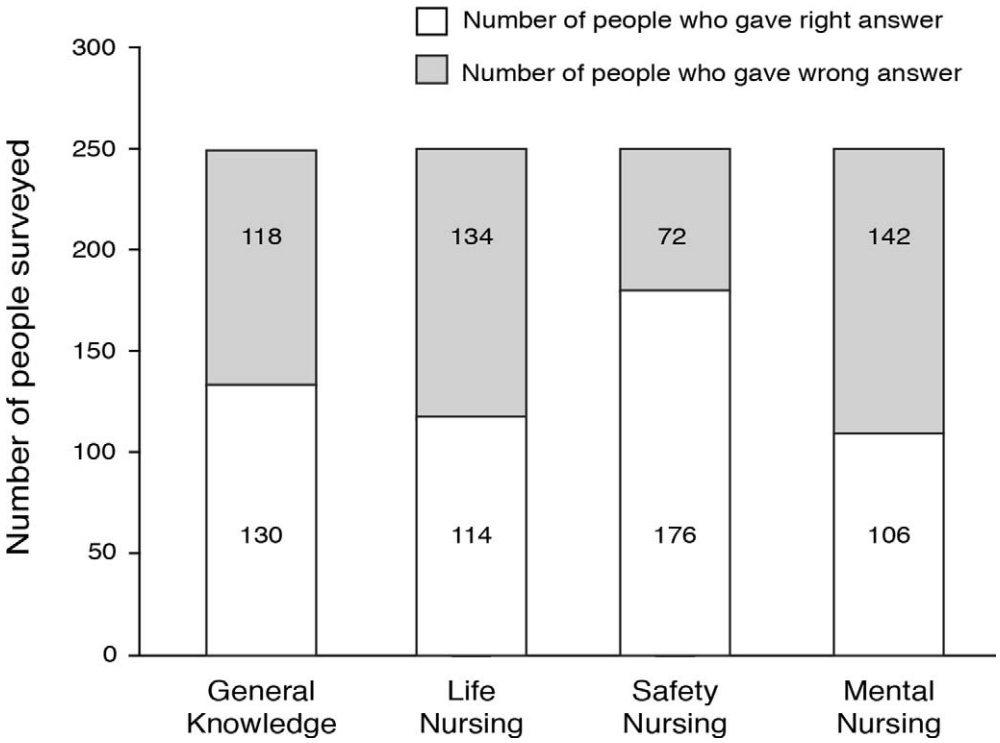

Figure 1. The number of correct and incorrect responses to the survey questions about the mastery of knowledge concerning nursing senile dementia patients, including general knowledge about senile dementia, life nursing, safety nursing, and mental nursing.

the subjects varied: 128 had graduated from high school or received higher education, 56 had at most a middle school education, 48 had at most a primary school education, and 16 had no formal education. Seventy-five percent of the nursing assistants had previously delivered care to senile dementia patients, and all had some past contact with senile dementia patients.

Knowledge

In response to questions concerning the knowledge necessary to nurse senile dementia patients (Figure 1), 70.97% of the nursing assistants gave the correct answer to questions about safety nursing. However, only 52.42%, 45.97%, and 42.74% of the nursing assistants gave the correct answers to questions about general knowledge, life nursing, and mental nursing, respectively.

Attitude

With one exception, the nursing assistants showed comparatively correct and active attitudes and beliefs (Table 1). However, >50% of respondents were unaware of the necessity to perform routine patient rechecks.

Skill

Nursing assistants' responses to the skill questions on the survey showed that their best performance was safety nursing (81.85% correct). Their performance in disease nursing (54.44% correct), mental nursing (47.18% correct), and life nursing (47.18% correct) was comparatively poor (Figure 2).

Comparisons Among Knowledge, Attitude, and Skill

A Pearson chi-square analysis was performed to compare the number of nursing assistants who gave the right answers to questions about knowledge, attitude, and skill (125.71 [50.69%], 182.00 [73.39%], and 134.64 [54.29%], respectively). As shown in Table 2, no significant difference was observed in the comparison between knowledge and skill. However, a significant difference exists in each of the following comparisons: knowledge and attitude; attitude and skill; and knowledge, attitude, and skill ($P<0.01$).

Comparison of General Information about Nursing Assistants with Different Levels of Cognition

As shown in Table 3, age, length of working lifetime, and education level were significantly differ-

Table 1. Beliefs and Attitudes About Senile Dementia Patients

Questions	Yes (%)	No (%)
Do you think that after you have received necessary health instruction you will be able to take good care of the patient?	226 (91.13)	22 (8.87)
Can you overcome anxiety and depression and persevere in attending the patients well?	208 (83.87)	40 (16.13)
Do you think living a regular life is helpful for the disease?	191 (77.02)	57 (22.98)
Do you think encouraging the patients to take self-care in life is helpful for the disease?	187 (75.40)	61 (24.60)
Do you think effective and prompt daily care can postpone the development of the disease and avoid certain hidden dangers?	183 (73.79)	65 (26.21)
Do you think it is very important to check the development of the disease?	183 (73.79)	65 (26.21)
Do you think intellectual work and entertainment are helpful in preventing the disease from rapid development?	165 (66.53)	83 (33.47)
Do you think it is necessary to have regular rechecks?	113 (45.56)	135 (54.44)

Note: Each Yes answer was counted as positive and received 1 point. Each No answer was counted as negative and received 0 points.

ent between Group A_1 and Group A_2 ($P<0.05$). Those who were younger than 40 years old, had worked for 1-3 years, or had received high school or higher education showed a better aptitude for the care of senile dementia patients.

Comparison of the Mastery of Nursing Between Nursing Assistants with Different Levels of Cognition

A Mann-Whitney U test was performed to compare the mastery of nursing among nursing assistants with

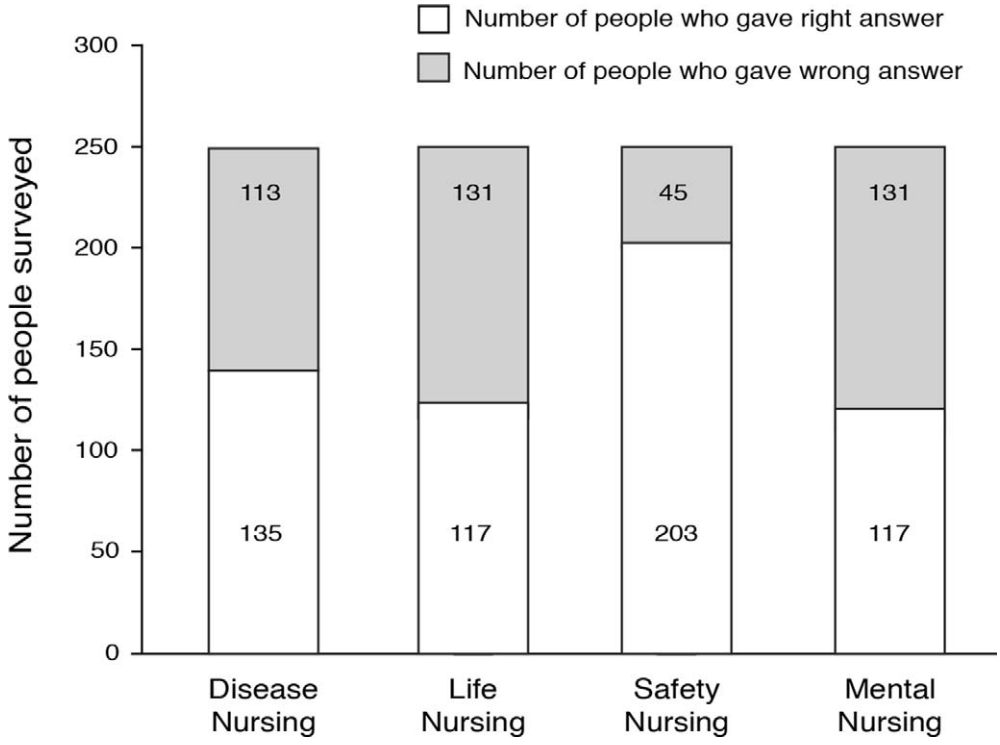

Figure 2. The number of correct and incorrect responses to the survey questions about the mastery of nursing skills and performance, including the practice of disease nursing, life nursing, safety nursing, and mental nursing.

Table 2. Comparisons Among Knowledge, Attitude, and Skill

Categories Compared	Proportion of Correct Answers, %	Chi Square	Degree of Freedom	*P* Value
Knowledge–Skill	50.69–54.29	0.655	1	>0.05
Knowledge–Attitude	50.69–73.39	26.863	1	<0.01
Attitude–Skill	73.39–54.29	16.309	1	<0.01
Knowledge–Attitude–Skill	50.69–73.39–54.29	30.275	2	<0.01

different levels of cognition. As shown in Table 4, no significant difference in the cognition of safety nursing between Group A_1 and Group A_2 was observed. However, significant differences were observed between Group A_1 and Group A_2 ($P<0.05$) in disease nursing, life nursing, and mental nursing. In addition, significant differences between Group A_1 and Group A_2 ($P<0.05$) were observed in their attitudes towards senile dementia patients.

DISCUSSION

Compared with the specialized programs of training and systems of healthcare service in other parts of the world, nursing care for the elderly and for the elderly with senile dementia in China is in its developmental stage.[2-4] To meet the demands of institutional standardized care for the elderly, China faces challenges, including lack of nursing assistants, instability of the present system, diversity of staff training, and regional discrepancies in the quality of nursing.[10]

Relatively few researchers have examined the knowledge and skills of nursing assistants who care for elderly patients with senile dementia. Two studies have been conducted in nursing homes in Beijing, China, and in Wuhan, China.[10,11] The present study was conducted to begin an assessment and refinement of the current system. The aim was to identify the most important issues in the delivery of optimum care for the elderly patient with senile dementia. This investigation was designed to obtain firsthand information about the overall quality of nursing in nursing homes for the elderly through a survey that evaluated the mastery of knowledge and skills in the care for senile dementia patients. To the best of our knowledge, this survey is the first of its kind in China. Our results suggest that nursing assistants express responsibility, care, and compassion in nursing their patients. However, these assistants have a relatively poor mastery of the knowledge and skills needed for optimum care of their patients.

The results of this study suggest that increased knowledge and better training are needed for the improvement of nursing care for elderly patients with senile dementia. To ensure proper care of elderly patients, nursing homes must follow a set of standards that includes the review of educational backgrounds, of licensure and certification, and of work history. Implementing such standards will help to ensure that nursing assistants have the requisite skills and background.

Our results indicate that the nursing assistants we surveyed did not have the knowledge and skills needed to care for the patients in the nursing homes of Xi'an. However, these nursing assistants showed a mastery of safety nursing. This mastery suits the nursing assistants to the specialized management of risk factors and unrecognized dangers that exist in nursing homes.[12]

The survey results indicate that many nursing assistants had little knowledge about disease information, mental nursing, and life nursing. Elderly patients in nursing homes not only have difficulty with daily activities such as walking and eating, but also suffer from varied disease states. Some patients also have psychological issues, including depression, anxiety, sleep disorders, cognitive decline, and major psychological pathogenesis. Therefore, a greater

Table 3. Comparison of Demographic Information with Levels of Cognition

	Age, years		Working Lifetime, years			Education Level	
Groups (n=248)	**<40**	**≥40**	**<1**	**1-3**	**≥3**	**High school or higher**	**Middle school or lower**
A_1 (n=134)	74	60	47	74	13	74	60
A_2 (n=114)	27	87	60	33	21	27	87
Chi square	25.38			17.67		25.38	
***P* value**	<0.05			<0.05		<0.05	

Note: A_1=assistants who scored ≥22 of 36 possible points; A_2=assistants who scored ≤21 of 36 possible points.

Table 4. Comparison of the Mastery of Nursing with Levels of Cognition

Items Tested	Group A_1 (n=134)	Group A_2 (n=114)	Mann-Whitney U Test	*P* Value
Disease nursing	2.9 ± 1.4	1.2 ± 1.2	10.30	<0.05
Life nursing	3.7 ± 1.0	2.4 ± 1.4	8.28	<0.05
Safety nursing	1.7 ± 0.7	1.6 ± 1.0	0.87	>0.05
Mental nursing	1.8 ± 0.8	0.5 ± 0.6	14.59	<0.05
Attitudes and beliefs toward patients	6.2 ± 1.4	3.3 ± 2.0	13.00	<0.05

Note: Results are expressed as points ± standard deviation. A_1=assistants who scored ≥22 of 36 possible points; A_2=assistants who scored ≤21 of 36 possible points.

emphasis on psychological nursing training would be a logical curriculum modification for nursing assistants. The average senile dementia patient in a nursing home is unable to take responsibility in any aspect of life. This severe limitation grants more responsibility and more work to nursing assistants caring for senile dementia patients.[13]

Our results revealed that nursing assistants had satisfactory attitudes and active beliefs, which are integral to the formation of healthy behaviors and the relinquishment of dangerous behaviors.[2-4] Good attitudes and active beliefs also help promote a healthy living environment for the elderly patients and motivate the nursing assistants to further improve their nursing skills, to offer optimal nursing services, and to provide better professional health instruction to the patients.[2-4] Good attitudes and active beliefs may also help to establish a powerful social support system that can benefit the conditions for overall treatment and convalescence.[14] Caring for senile dementia patients is a complex and difficult task. Nursing homes should realize the importance of the recruitment of nursing assistants who have the best knowledge, attitudes, and skills.

Our results also suggest a relationship between knowledge and practice. The nursing assistants who participated in the survey showed a mastery of safety knowledge and safety nursing. However, these nursing assistants showed a poor understanding of disease nursing, life nursing, and mental nursing, indicating that nursing homes should teach and review professional nursing knowledge. In addition, the results indicate that nursing homes should establish proper strategies for future education. Our research leads us to a proposal concerning nursing models in the United States: professional care for elderly patients with senile dementia must be strengthened and standardized.

Meaningful change would be of great practical and long-term importance to the improvement of quality of life for the senile dementia patient. Prior studies have shown that many elderly patients with dementia die in the community setting.[15] Dementia in the elderly patient has been shown to correlate with other ailments.[16] Interventional actions by trained nursing staff may slow the progression of senile dementia in elderly patients.[17]

CONCLUSION

Our results show that nursing assistants who were younger than 40 years old, had worked for 1-3 years, and had received high school or higher education demonstrated an increased ability in the nursing care of senile dementia patients. These results suggest that nursing homes should avoid hiring nursing assistants who are on the extremes of age ranges, who have poor education, or who are on the extremes of the range of experience. The improved selection of future nursing assistants should benefit the ever-increasing senile dementia patient population.

Nursing assistants who care for senile dementia patients in nursing homes in Xi'an, China, require further training that expands their knowledge and increases their capabilities. We recommend that nursing homes in Xi'an offer a standardized professional nurse/nurse assistant training course that focuses on care for elderly patients with senile dementia.

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