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Cognition, Training, and Education of Nurses in Oral Feeding Assistance for Hospitalized Patients: A Comparative Study among Nurses in China and Japan

Huifang CHEN¹⁾, Yukiko MIYAKOSHI²⁾, Hisae NAKATANI³⁾,
Tomie FUJII³⁾, Md Moshir RAHMAN³⁾ and Toshio KOBAYASHI³⁾

1) Graduate School of Biomedical & Health Sciences, Hiroshima University, 1-2-3 Kasumi, Minami-ku, Hiroshima 734-8553, Japan

2) Department of Nursing, Nihon Fukushi University, Nagoya, Japan

3) Institute of Biomedical & Health Sciences, Hiroshima University, Hiroshima, Japan

ABSTRACT

This study compared cognition, training, and education regarding oral feeding assistance provided to hospitalized patients among nurses in China and Japan. The participants included 401 nurses from two general hospitals (China, 141; Japan, 260). The survey items included demographic characteristics, cognition about who should assist with oral feeding, the need for professional knowledge and skills, supporting patients with particular needs, essential steps in oral feeding assistance, and evaluation of training and relevant education. In total, 107 Chinese (75.9%) and 184 Japanese (70.8%) nurses returned completed questionnaires. Compared to Japanese nurses, a larger proportion of Chinese nurses (5.6% vs. 42.1%, $p < 0.001$) responded that a “family member” should assist with oral feeding. Most (92.5% of Chinese and 98.9% of Japanese, $p < 0.01$) nurses recognized the need for professional knowledge and skills. In both groups, cognition was high for eating environment and aspects of patients’ physical condition, such as dysfunction and position, but inadequate for aspects of patients’ psychological conditions, such as emotional state and appetite. Limited learning experiences, such as attending lectures, undergoing training, and exposure to literature, were observed among Chinese nurses compared to Japanese nurses. Compared to Japanese nurses, Chinese nurses showed inadequate cognition concerning the role of nurses in oral feeding assistance. The degree of cognition regarding this assistance may be associated with relevant learning experiences. To improve the quality of oral feeding assistance and execution of related nursing duties, greater emphasis on oral feeding assistance is necessary in the Chinese nursing curriculum.

Key words: Oral feeding, Nursing education, Cognition, Comparative study

Eating is a basic physiological need and falls within the most important category in Maslow’s hierarchy of needs¹⁶⁾. For hospitalized patients, eating provides physical sustenance to support life as well as to fulfill psychological and social needs by providing pleasure, adding value to life, and incentivizing patients to fight disease. In addition, eating alongside other patients provides an opportunity for fraternization⁷⁾. Therefore, eating is important for patient health.

Although oral food intake is the natural ingestion pathway, this method increases the risk of aspiration pneumonia, especially for elderly hospitalized patients with low function in feeding and swallowing¹⁴⁾. In addition, as undernutrition frequently occurs during hospitalization¹⁵⁾, nurses play an increasingly important role in supporting patient nutritional needs¹¹⁾. However, in China, 64.7% of direct nursing

care in hospital wards, including nutrition, hygiene, and elimination, is provided by patients’ relatives and health care assistants¹²⁾. Considering that families and care assistants lack relevant professional knowledge, dietary guidance for these care providers is also necessary. Accordingly, nurse-supported meals are indispensable for the safety and nutritional support of low-functioning hospitalized patients.

As stated in the Chinese textbooks on the fundamentals of nursing, oral feeding assistance is one of the basic nursing skills. Family-paid caregivers, rather than hospital nursing staff, are involved in most bedside nursing care, the most frequent task of which is feeding¹³⁾. Thus, the implementation rate of oral feeding assistance by nurses remains low. The proposed probable factors include a shortage of nurses and insufficient awareness³⁾. In addition, 89.8% of nurses do not completely understand their roles in

basic life care and demonstrate a low interest in daily life nursing skills such as sponge bathing, bed making, and oral feeding^{30,31}. In order to improve this situation, in 2010, the Ministry of Health in China initiated a “Quality Care Service Demonstration Project”²⁰ and “Basic Care Service for Hospitalized Patients”¹⁷. In this way, oral feeding assistance began to be emphasized. However, while there has been some research on nurses’ perspectives on basic life care, very few studies have been conducted specifically on oral feeding assistance. Furthermore, no related research in nursing students was found. This paucity of research underlies a lack of information on the outcomes of current nursing education in oral feeding assistance.

In Japan, dietary guidance regarding pathology is more prevalent among nurses compared to daily care for feeding such as necessary meal preparation^{8,23}. It has recently been reported that nurses pay inadequate attention to patient diets⁷.

The above findings indicate the importance of oral feeding assistance for hospitalized patients. However, nurses’ perceptions of its importance and their roles in oral feeding assistance remain unclear in China.

As summarized by DeSantis⁵, international nursing is a type of service that must consider various sociocultural factors such as education, culture, and health care systems across the country or region. Moreover, there is variation in nursing practice and nursing skills according to the differing backgrounds and statuses of the countries examined in the current study. China has a quarter of the world’s population and has sustained rapid economic development within recent years, making it an important developing Asian country. Japan, as the representative developed Asian country, shares a similar climate and food culture (conventional chopsticks, staple foods, tea culture, etc.) with China. Accordingly, studies examining the similarities and differences in nursing practice and nursing skills in China and Japan can improve our understanding of nursing practices in Asian countries. The current study compared cognition, training, and education in oral feeding assistance between nurses in China and those in Japan.

METHODS

Study design and sample and data collection

A cross-sectional comparative survey was designed to explore cognition, training, and education in oral feeding assistance among nurses in China and Japan. In China, hospitals are ranked according to the satisfaction level of the staff, technical level, number of hospital beds, and the quality and quantity of equipment⁹. Hospitals directly managed by the government and provincial hospitals are generally ranked at level 3 (500 beds or more), municipality hospitals are ranked level 2 (100–499 beds), and lo-

cal hygiene centers are ranked level 1 (20–99 beds). Each level is further subdivided into ranks A, B, and C, depending on resources. Accordingly, the level of nurses in a level 3 hospital is closest to the national average. In 2011, Chinese general hospitals comprised more than 60% of all hospitals, and the number of beds, attendances, and admissions at these hospitals accounted for more than 70% of those across all hospitals¹⁸. These findings suggest that research in Chinese general hospitals would provide representative data. For comparison with data obtained from a level 3 general hospital in China, a local general hospital in Japan was chosen. This hospital has the most beds in its district, as well as high attendance, admission, and bed usage rates. Thus, our target participants were ward nurses working in two general hospitals with more than 500 beds (one in China and one in Japan). After considering the increased need for oral feeding assistance in departments with patients who require critical care or continuous life support care because of limitations caused by age or physical condition, the inclusion criteria were specified. The target nurses were specified to be those with two or three shifts working in any inpatient departments except for the pediatric ward, operating room, emergency room, or intensive or other critical care units.

The survey was carried out between April and June 2014. The questionnaires, along with sealable envelopes, were provided to a staff member of the Nursing Department Office at each of the surveyed hospitals. This staff member distributed the questionnaires to nurses. We placed a questionnaire collection box at the entrance to each Nursing Department Office. Upon completion, the participants placed the questionnaires into the collection box. The questionnaires were retrieved after two weeks.

Ethical issues

The study was approved by the ethics committee of Hiroshima University, Japan. Hospital visits were made to explain the objectives of the study. The director of nursing at each of the two hospitals was provided with a detailed introduction with written information about the study. Research cooperation was obtained via signed consent from these directors. The nursing department was asked to distribute sealable envelopes with questionnaires and consent forms to the participants. All participants were informed of the study’s purpose and their participation was voluntary with no effect on their work. Agreement to participate was assumed based on receipt of responses. To maintain confidentiality and anonymity, no personal identifiers were attached to the data. A code number was assigned to each completed questionnaire and the data were secured in a locked file. The participants were informed that the study findings would be reported in academic

journals.

Questionnaire development

The Japanese version of the questionnaire concerning cognition, training, and education in oral feeding assistance was originally developed using the items included in a previous study (Hasebe et al.)⁸⁾. To reduce the physical and mental burden on participants, only selected questions were used.

Prior to the study, the Japanese version of the questionnaire was reviewed by two Japanese faculty members from a nursing school and pretested with five Japanese nurses. Participants were asked to identify any items they had difficulty answering and to specify the length of time taken to complete the questionnaire. Based on this pretest, the questionnaire items were adjusted to make them more understandable for participants. Furthermore, the number of questions was revised to ensure that they could be answered within 15 minutes. The questionnaire was subsequently translated into Chinese. To ensure its reliability and validity, it was reviewed by two Chinese nursing faculty members who were also proficient in Japanese. The final questionnaire included four items covering demographic characteristics, plus items relating to the following areas: cognition about who should assist with oral feeding and the need for professional knowledge and skills; assisting patients with particular needs; the required steps to assist with oral feeding; training in oral feeding; and evaluation of education on oral feeding assistance. The questionnaire was administered anonymously; therefore, we assumed

agreement to participate based on the return of the questionnaire.

Data analysis

After checking the recovered questionnaires for the validity of the responses, every valid questionnaire was numbered in order. Statistical analysis was performed using the software package SPSS version 21.0 in Japanese. The significance level was set at $p < 0.05$. Descriptive statistics and frequency distributions for participant demographics were calculated. T-tests and chi-squared tests were used for comparisons between the groups of nurses. In addition, a thematic content analysis was carried out on the descriptive responses of the nurses in Japan. First, the relevant responses were encoded. Subsequently, the encoded data were integrated and sub-categories were extracted. Finally, the sub-categorical data were integrated and categories were extracted from groups of similar sub-categories. These results were also compared to the quantitative results.

RESULTS

Demographic characteristics (Table 1)

A total of 330 questionnaires were returned from 137 (97.2%) of 141 Chinese nurses and 193 (74.2%) of 260 Japanese nurses. Of these, 291 nurses completed the questionnaires: 107 Chinese nurses (75.9%) and 184 Japanese nurses (70.8%).

Regarding sex, 97.2% of Chinese and 93.5% of Japanese nurses were female, with mean ages of 30.57 ± 6.59 and 30.14 ± 6.68 years, respectively.

Table 1. Demographic characteristics

	China n (%)	Japan n (%)	X ² (p)	t (p)
Sex				
Male	3 (2.8)	12 (6.5)	1.91	
Female	104 (97.2)	172 (93.5)	(0.167)	
Age (yr)				
M ± SD	30.57 ± 6.59	30.14 ± 6.68		
20-29	58 (54.2)	103 (62.4)		0.52
30-39	36 (33.6)	44 (26.7)		(0.602)
40-49	11 (10.3)	17 (10.3)		
≥50	2 (1.9)	1 (0.6)		
Total years working as a nurse (yr)				
M ± SD	9.24 ± 6.82	7.96 ± 5.37		
≤3	25 (23.4)	34 (18.6)		1.67
4-6	24 (22.4)	55 (30.0)		(0.097)
7-9	14 (13.1)	38 (20.8)		
≥10	44 (41.1)	56 (30.6)		
Nursing education level				
Secondary/post-secondary education	50 (46.7)	83 (45.1)		
Undergraduate education	55 (51.4)	97 (52.7)	0.67	
Master's education	2 (1.9)	3 (1.6)	(0.881)	
Five-year consistent education		1 (0.5)		

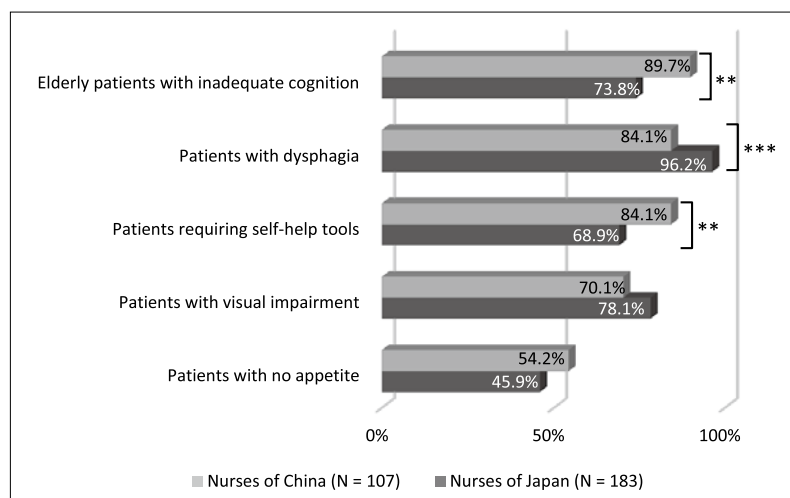
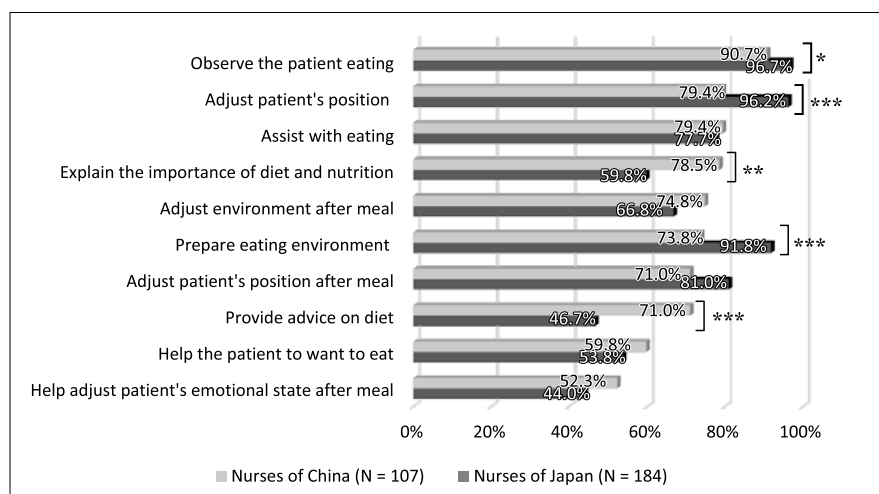
Note. M = mean; SD = standard deviation.

Table 2. Cognition about who should assist with oral feeding and the need for professional knowledge and skills

	China n (%)	Japan n (%)	χ^2
^a Who do you think should assist with oral feeding?			
Nurse	52 (48.6)	161 (89.9)	64.22***
Family member	45 (42.1)	10 (5.6)	
Care worker/nursing assistant/others	10 (9.3)	8 (4.5)	
Are related professional knowledge and skills necessary?			
Yes	98 (92.5)	177 (98.9)	8.13**
No	8 (7.5)	2 (1.1)	

^a This question's responses included 'nurse', 'family member', 'nursing assistant' and 'others' for the Japanese version of the questionnaire. However, 'nursing assistant' was changed to 'care worker' for the Chinese version of the questionnaire.

** P < 0.01; *** P < 0.001.

**Fig. 1.** Cognition about assisting patients with particular needs**Fig. 2.** Cognition about steps to assist with oral feeding

The mean working years were 9.24 ± 6.82 for Chinese nurses and 7.96 ± 5.37 for Japanese nurses. Concerning nursing education level, 46.7% of Chinese nurses had received secondary or post-secondary education and 51.4% had received an undergraduate education. In comparison, 45.1% of Japanese nurses had received

secondary or post-secondary education, while 52.7% had received an undergraduate education. There were no significant differences between Chinese and Japanese nurses regarding sex, mean age, mean working years, or nursing education level.

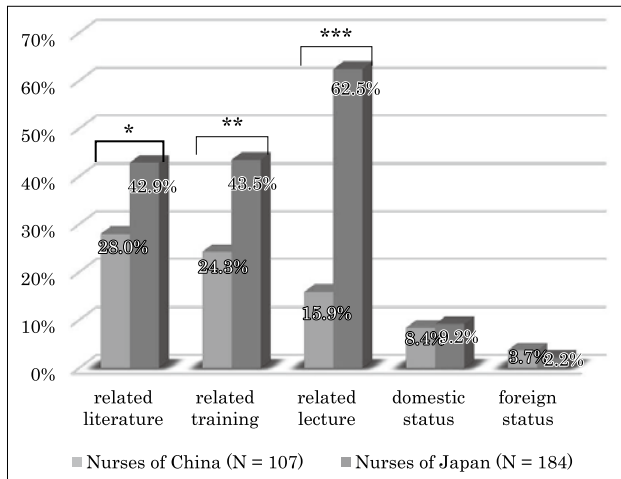


Fig. 3. Training in oral feeding assistance

Cognition about who should assist with oral feeding and the need for professional knowledge and skills (Table 2)

Regarding cognition about who should assist with the oral feeding of hospitalized patients, 42.1% of Chinese nurses responded, “family member” and 48.6% responded “nurse.” In contrast, 89.9% of Japanese nurses responded “nurse” ($p < 0.001$). More Japanese nurses (98.9%) than Chinese nurses (92.5%) were aware of the need for professional knowledge and skills ($p < 0.01$).

Cognition about assisting patients with particular needs (Fig. 1)

Chinese nurses’ most frequent responses were “elderly patients with inadequate cognition” (89.7%), “patients requiring self-help tools” and “patients with dysphagia” (84.1% each), and “patients with visual impairment” (70.1%). Japanese nurses’ most frequent responses were “patients with dysphagia” (96.2%), “patients with visual impairment” (78.1%), and “elderly patients with inadequate cognition” (73.8%). In comparison to their Chinese counterparts, significantly fewer Japanese nurses responded: “patients requiring self-help tools” and “elderly patients with inadequate cognition” ($p < 0.01$ for both responses). However, significantly more Japanese nurses responded: “patients with dysphagia” ($p < 0.001$).

Cognition about steps to assist with oral feeding (Fig. 2)

Regarding cognition about steps to assist with oral feeding, Chinese nurses’ most frequent responses were “observe the patient eating” (90.7%), “adjust patient’s position” and “assist with eating” (79.4% each), and “explain the importance of diet and nutrition” (78.5%); Japanese nurses’ most frequent responses were “observe the patient eating” (96.7%), “adjust patient’s position” (96.2%), and “prepare eating environment” (91.8%). Chinese

Table 3. Chinese nurses’ evaluation of textbooks and lectures regarding oral feeding assistance.

	China (N = 107) n (%)
How would you rate the amount of related textbook content?	
Very little	16 (15.0)
A little	41 (38.3)
Suitable	40 (37.4)
Much	7 (6.5)
Too much	3 (2.8)
How would you rate the extent of emphasis on related lectures?	
Very low	15 (14.0)
Low	23 (21.5)
Suitable	58 (54.2)
High	10 (9.3)
Very high	1 (0.9)

nurses more frequently responded “explain the importance of diet and nutrition” ($p < 0.01$) and “provide advice on diet” ($p < 0.001$), whereas Japanese nurses more frequently responded “observe the patient eating” ($p < 0.05$), “adjust patient’s position” ($p < 0.001$), and “prepare eating environment” ($p < 0.001$).

Training in oral feeding assistance (Fig. 3)

With respect to learning experiences in oral feeding assistance, Chinese nurses (literature 28.0%, training 24.3%, lectures 15.9%) were significantly less likely than Japanese nurses ($p < 0.05$, $p < 0.01$, and $p < 0.001$, respectively) to have received such experiences. In both groups, less than 10% of nurses had read the domestic or foreign status of relevant research reports.

Chinese nurses’ evaluation of textbooks and lectures regarding oral feeding assistance (Table 3)

Chinese nurses’ evaluations of textbooks and lectures regarding oral feeding assistance are shown in Table 3. More than half (53.3%) considered the amount of relevant textbook content to be “a little” or “very little.” In addition, 35.5% regarded the emphasis of relevant lectures as “low” or “very low.”

Thirty-seven Japanese nurses (20.1%) responded to the open-ended question on education in oral feeding assistance. Some important points arising from these nurses’ comments could be summarized under the categories of basic knowledge, sympathy with patients’ feelings, safety of oral feeding, and sufficient practice.

DISCUSSION

The majority of nurses in both groups were women in their 20s or 30s with a mean working experience of 8–9 years. More than half had received an undergraduate education, which reflects the trend toward higher nursing education in China⁶ and the

increase in four-year nursing education in Japan¹⁰.

A similar proportion of Chinese nurses responded “family member” as responded “nurse” when asked who should assist with oral feeding, significantly higher than the proportion of Japanese nurses giving the former response. In a previous study²⁶, descriptive examples such as “no meal assistance” (not taught at school) and “family members provide body cleaning, transferring, excretion aid, dietary aids, etc.” were given. Indeed, bedside nursing care is traditionally considered to be the responsibility of the family, and Chinese hospital nurses mainly carry out doctors’ orders, completing routine tasks and administering medical treatments²⁹. According to a study report, 34.2% of nurses in China believed that patient family members or health care assistants could provide basic life care³¹. Thus, the role of Chinese nurses in oral feeding assistance was insufficiently recognized and implemented. According to the “Chinese Nursing Development Plan”¹⁹, in 2015, the bed-to-nurse ratio in level 3 hospitals was 1:0.60 and the physician-to-nurse ratio was 1:1.07. Thus, the numbers of Chinese nurses and doctors were almost equal; this ratio is far lower than the average in developed countries. Under such circumstances, nurses may prioritize jobs related to basic treatment, given time limitations. However, the “Basic Care Service for Hospitalized Patients”¹⁷ clarified that the scope of nursing jobs should cover the fundamentals of nursing, including oral feeding assistance and assistance with items related to daily life care, in order to promote the implementation of basic nursing care. The project has led to an emphasis on basic nursing care in daily nursing work. This means that daily nursing care, including oral feeding assistance, is now accorded an increasingly important status.

In contrast, most Japanese nurses responded “nurse” when asked who should assist with oral feeding. Thus, the role of nurses in oral feeding was well recognized; this may be associated with the education of Japanese nurses, which appears to have better addressed oral feeding assistance. In addition, daily living assistance, such as body cleaning, transferring, and dietary aids, has become the routine duty of nurses in Japan. This differs from the expected role of nurses in China, where responsibilities are more clinical and include assisting with setting up drips and administering intravenous injections following doctors’ instructions²⁶. One reason for this difference is that American-style nursing education started late in China. American nursing books translated into Chinese were widely used in the new baccalaureate and masters programs until the late 1990s⁴. In contrast, content central to American nursing, such as nursing theory, nursing diagnosis, etc., have been incorporated into the curriculum in Japan⁴. Nursing students can read not only American nursing books and journals translated into Japanese but also the original English texts and articles. Another

factor is the high nurse-to-patient ratio in Japan, which was boosted by strong government intervention due to economic improvements in the 1990s²⁷. China had 3.2 million registered nurses until late 2015, which is only about twice the number of Japanese nurses. Considering the great disparity in the populations of the two countries, it can be inferred that there has been a severe shortage of nurses in China. Based on these differences, it is clear that oral feeding assistance has been emphasized as an important life-caring role of nurses in Japan, but not in China.

In both groups, nurses were well aware of the need for professional knowledge and skills in oral feeding assistance. A similar result has been reported in previous research conducted with student nurses in a Chinese hospital³⁰. Therefore, the importance of the expertise of oral feeding assistance were recognized well by ward nurses in both countries.

Regarding cognition of assisting patients with particular needs, cognition was high in both groups for aspects of patient physical condition such as visual impairment and dysphasia, but inadequate for aspects of their psychological condition such as appetite. A similar result has also been reported, with the suggestion that it may result from nurses being exposed to more practice related to pathology and less practice related to routine preparation^{8,23}. As the “Quality Care Service Demonstration Project”²⁰ advocates a patient-centered philosophy and is aimed at satisfying patients, society, and government, it has led to the integration of humanistic caring into daily nursing work. This means daily nursing care in consideration of appetite and other aspects of patient psychology is receiving increased attention. Leading up to 2015, the quality care service was expanded in all level 3 hospitals and 82.6% of level 2 hospitals¹⁹. Additionally, with a shift in focus from disease treatment to prevention and rehabilitation²⁸, there has been an increase in expectations and professional competencies relating to oral feeding assistance in nursing. Furthermore, Japanese nurses were significantly less likely than Chinese nurses to provide a positive response to “patients requiring self-help tools.” This difference may be due to more widespread use of self-help tools in the surveyed Japanese hospital, meaning that patients requiring these tools are advised to use them to feed themselves.

Regarding cognition of steps to assist with oral feeding, cognition was high for eating environment and physical aspects of patient conditions, such as their position. Nevertheless, it was inadequate for aspects of patient psychological conditions, such as their emotional state. In Chinese hospitals, duties related to the eating environment may be performed by family members or non-nurse caregivers, as they are the primary providers of bedside nursing care, including oral feeding assis-

tance^{12,13}). However, as indicated by Fukura et al.⁷, meals play an important role in a person's emotional state; the relationship that people have with the food they eat is crucial to their overall sense of well-being. Roper et al.²⁴ also reported that appetite can be affected by emotional state, which can lead to loss of appetite or eating disorder. Thus, it is important that nurses recognize the prominent role of nursing care in helping to establish an appropriate emotional state and appetite during oral feeding assistance. In addition, Japanese nurses attached less importance than Chinese nurses to explaining the importance of diet and nutrition and providing dietary advice. This may be explained by the roles of nursing assistants and the important function of an existing nutrition support team in the surveyed Japanese hospital. Alternatively, this may be due to difficulties with cooperation and work-sharing between nurses and assistants, as have been previously identified in a study conducted in an acute-phase hospital in Japan²¹.

In Chinese nursing schools, although lectures on oral feeding assistance are given, practical education such as in-class exercises and clinical practice remains insufficient. Few learning experiences in the form of training, lectures, or exposure to literature were reported. In addition, Chinese nurses reported that relevant textbook content was poor and not emphasized in lectures. Thus, the fact that nurses' roles in oral feeding assistance were insufficiently recognized may be due to inadequate education and insufficient learning experiences. A previous study reported that 89.8% of nurses did not completely understand their role in basic life care³¹. Furthermore, oral feeding assistance is not emphasized or well taught in the educational setting²⁶. On the other hand, in Japan, school education in oral feeding assistance is fully integrated into lectures, in-class exercises, and clinical practice as an important life support role of nurses. Furthermore, relative to Chinese nurses, Japanese nurses reported significantly more educational experiences in the form of training, lectures, and exposure to literature on oral feeding assistance. In addition, Japanese nurses reported an awareness of the need for and importance of basic knowledge and practical education and described a need for education emphasizing comfort and safety during oral feeding assistance. Thus, it can be inferred that the resulting cognition held by nurses about their roles are probably connected with the level of nursing education and relevant training experiences. Nonetheless, the knowledge of Japanese nurses regarding domestic and foreign research reports on oral feeding assistance was as limited as that of the Chinese nurses. This suggests that education promoting self-directed learning is also needed.

This study is limited by its use of convenience

sampling to investigate ward nurses from two general hospitals in China and Japan. Thus, the characteristics of the nurses may not generalize to all ward nurses in either country. In addition, this study did not define factors affecting cognition, training, and education regarding oral feeding assistance.

Implications for nursing education

The findings of this study have important implications for basic nursing education. The results revealed inadequate education and significantly lower cognition of issues relating to oral feeding assistance in Chinese nurses. It is necessary to increase their awareness of the importance of oral feeding assistance for hospitalized patients and the roles of nurses in this through relevant educational interventions. Considering the burden of stroke-induced malnutrition worldwide^{2,22}, we might focus on ward nurses in the neurology department for the development of an effective education program. In the future, with rapid globalization and aging, the members of the Association of Southeast Asian Nations will mutually recognize each other's nursing qualifications³. Thus, this program should emphasize the importance of psychological and sociocultural factors related to oral feeding. Furthermore, oral feeding assistance must consider the patient safety and comfort, a message consistent with a previous report that recommended consideration of patient safety and emotional state during oral feeding assistance²⁵. Given that the main sources of oral feeding support in China are families and care assistants, training to improve nursing competency in explaining the importance of oral feeding assistance to student nurses is also important.

This study revealed that the cognition regarding the need for professional knowledge and skills was equally high in both groups, including the environment and physical aspects of patient condition. In comparison, cognition regarding aspects of patient psychological state and appetite was inadequate. Knowledge of relevant research reports was similarly limited in both groups. Educational experience and exposure to relevant training were slightly rarer in Chinese nurses. Many nurses in China also mentioned family members as the main sources of oral feeding assistance.

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