Expected and Current Nursing Competency of Nurses in Long-Term Care Settings in Nanning, Guangxi, People's Republic of China

สมรรถนะทางการพยาบาลตามความคาดหวังและความเป็นจริงของพยาบาลในสถานบริการระยะยาว เมืองหนานหนิง มลฑลกวางสี สาธารณรัฐประชาชนจีน

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ABSTRACT

This descriptive comparative correlational study was designed to describe and compare the expected and current nursing competency, to examine the correlations between the expected and current nursing competency, and to find factors associated with the expected and current competency of nurses in long-term care settings in Nanning, Guangxi, P.R. China. Quantitative data were collected among 319 nurses in 32 long-term care settings in Nanning City. The Content Validity Index (CVI) was 0.950. The reliability of the questionnaire by Cronbach's alpha coefficients were 0.979 and 0.980 for the expected and current nursing competency, respectively. Descriptive statistics, Wilcoxon Signed Ranks tests, and Chi-square tests were applied for data analysis. The results revealed that the total expected nursing competency was reported at a high level, whereas the total current nursing competency was at a moderate level. There were significant differences ($P<0.001$) and significant correlation ($P<0.001$) for both total nursing competency and each competency dimension between expected and current competency. Only nurses who were trained reported significant association with expected nursing competency ($P=0.028$), while nurses with longer work experience or with longer long-term care work experience reported significant association with current nursing competency ($P=0.021$; $P=0.042$). The findings suggest that current gerontological nursing competency should be further improved to fill the gap with the expected nursing competency.

บทคัดย่อ

การศึกษาเชิงพรรณาความสัมพันธ์และเปรียบเทียบนี้ มีวัตถุประสงค์เพื่อ อธิบายและเปรียบเทียบสมรรถนะทางการพยาบาลผู้สูงอายุตามความคาดหวังและความเป็นจริง และศึกษาความสัมพันธ์ระหว่างสมรรถนะทางการพยาบาลผู้สูงอายุ ตามความคาดหวังและความเป็นจริงของพยาบาล และศึกษาปัจจัยที่มีความ

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สัมพันธ์กับสมรรถนะทางการพยาบาลผู้สูงอายุตามความคาดหวังและความเป็นจริงของพยาบาล ในสถานบริการระยะยาว เมืองหนานหนิง มลฑลกวางสี สาธารณรัฐประชาชนจีน เก็บรวบรวมข้อมูลเชิงปริมาณจากพยาบาลจำนวน 319 คน ในสถานดูแลระยะยาวจำนวน 32 แห่ง ของเมืองหนานหนิง มีค่าดัชนีความเที่ยงตรงเท่ากับ 0.950. ความเชื่อมั่นของแบบสอบถาม มีค่าสัมประสิทธิ์สหสัมพันธ์ครอนบาร์คของสมรรถนะทางการพยาบาลผู้สูงอายุตามความคาดหวังและตามความเป็นจริงเท่ากับ 0.979 และ 0.980 ตามลำดับ วิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณา การทดสอบ Wilcoxon Signed Ranks และการทดสอบไคสแคว์ **ผลการศึกษา** พบว่า สมรรถนะทางการพยาบาลผู้สูงอายุ ตามความคาดหวังโดยรวมอยู่ในระดับสูง ในขณะที่สมรรถนะทางการพยาบาลผู้สูงอายุตามความเป็นจริงโดยรวมอยู่ในระดับปานกลาง โดยสมรรถนะทางการพยาบาลผู้สูงอายุตามความคาดหวังและสมรรถนะทางการพยาบาลผู้สูงอายุตามความเป็นจริงมีความแตกต่างกันอย่างมีนัยสำคัญ (P<0.001) และมีความสัมพันธ์กันอย่างมีนัยสำคัญ (P<0.001) และพบว่ามีเพียงปัจจัยด้านการ ได้รับการอบรม (P=0.028) ที่มีความสัมพันธ์กับสมรรถนะทางการพยาบาลผู้สูงอายุตามความคาดหวัง และปัจจัยด้านระยะเวลาการทำงานและระยะเวลาทำงานในสถานดูแลระยะยาวมีความสัมพันธ์กับสมรรถนะทางการพยาบาลผู้สูงอายุตามความเป็นจริงของพยาบาล (P=0.021; P=0.042). การศึกษานี้เสนอแนะว่า ควรมีการพัฒนาสมรรถนะทางการพยาบาลผู้สูงอายุตามความเป็นจริงของพยาบาลให้มีเพิ่มขึ้น เพื่อลดช่องว่างระหว่างสมรรถนะตามความคาดหวังและตามความเป็นจริง

Key Words : Nursing competency, Long-term care, China
คำสำคัญ : สมรรถนะทางการพยาบาล สถานดูแลระยะยาว สาธารณรัฐประชาชนจีน

Introduction

China had stepped into an ageing society (Chinese National Ageing Committee, 2008a) and has the largest older population in the world today (Chinese National Ageing Committee, 2008b). The rapid socio-economic development, migration and urbanization, the time lag effect on household structures triggered by the low birth rate (caused by the one-child policy) in China, had caused the empty nest phenomenon and changes in Chinese families and in living arrangements for the elderly (Agree and Freedman, 2000) . All these facts make China's ageing problem more serious than any other countries in the world, and created great health care demand for Chinese older adults. In order to cope with the ageing problem, the Chinese government has established a social welfare system for older adults both in urban and in rural areas, introduced a series of policies, and strengthened investment in long-term care settings.

By the end of 2005, there were 39,546 institutes available to privide long-term care service for older adults in China, which included older adults homes, nursing homes, rest homes, older adults residential apartments, social welfare institutions for the aged, hostels for older adults, homes for the device-aided older adults, nurseries for older adults, centers of service for older adults (Ministry of Social Welfare, 2001). Basic regulators in social welfare settings for older adults estimated that 1,497,000 beds were available for older adults among all types of social facilities (Chang, *et, al.*, 2001). Because the variety of long-term care settings, they are not easy to be classified, so in this study, the term "long-term care settings" will be used.

High quality nursing care is provided by well-trained, experienced and competent registered nurses, and the consequences of incompetence are expensive (Lenburg, 1999). Nursing competency assessment is essential to provide baseline data for identifying the needs for improvement, and evaluating the outcome of staff development programs. Therefore, assessing, improving and maintaining the competency of staff nurses are the focus of quality management for nurse administrators, and preparing competent nurses is the key consideration of nurse educators and nursing education agencies (Alexander and Runciman, 2003).

To date, gerontological nursing competency for Chinese registered nurses has not been defined. In order to establish baseline data and to validate staff development, especially to improve the quality of nursing care in long-term care settings and to cope with the ageing problem in China, this study was aimed to describe and compare the expected and current nursing competency, to examine their correlations, and to find factors associated with the expected and current competency of nurses in long-term care settings was urgently needed in China to fill in the gap of knowledge in this area.

Conceptual framework

This study employed the nursing competency framework of the ICN and Liu's work, together with the gerontological nursing competency framework for Baccalaureate Nurses of the American Association of Colleges of Nursing (American Association of Colleges of Nursing and The John A. Hartford foundation Institute for geriatric nursing, 2004), as the conceptual framework of this study.

The concept of nursing competency of nurses in long-term care settings in China was defined as the knowledge, skills and attitudes in accordance with legal and ethical accountability and responsibility required for a nurse in performing a range of roles within general professional nursing practice, as well as geriatric nursing practice for older adults in long-term care settings in China. The Chinese nurses' competency was identified to comprise seven dimensions, including: critical thinking and research aptitude; clinical care; leadership; interpersonal relationships; legal/ethical practice; professional development & personal growth; and teaching & coaching. The nursing competency was divided into the expected and current nursing competency (see Figure 1).

Methodology

This descriptive, comparative, correlational research was designed to describe and compare the expected and current nursing competency, to examine the correlations between the expected and current nursing competency, and to find factors associated with the expected and current competency of nurses in long-term care settings in Nanning, Guangxi Zhuang Autonomous Region, People's Republic of China.

Subjects

The target population in this study was the nurses (n=334) who worked in 32 long-term care settings in Nanning City. However, there were 319 nurses in this research excluded those who had participated in the pilot study (n=15).

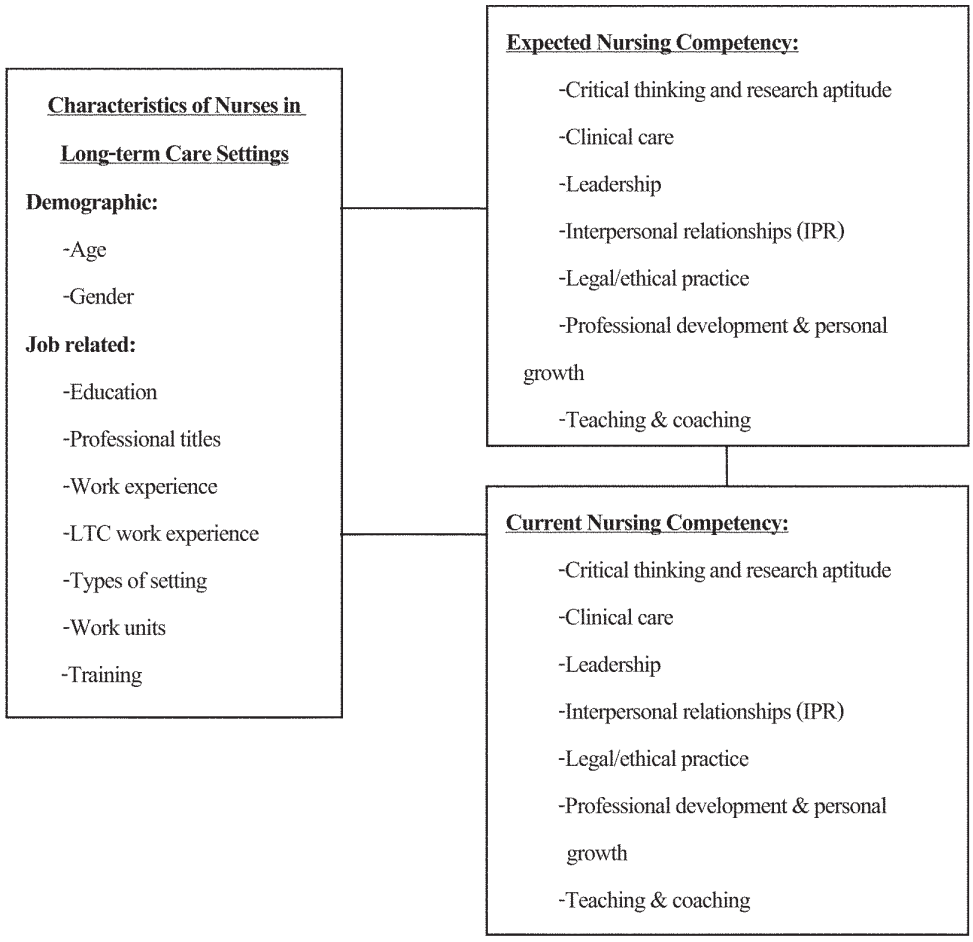

Figure 1 Conceptual framework of expected and current nursing competency of nurses in long-term care settings in P. R. China

Instrument

Based on the conceptual framework, a self-reported questionnaire was used, which consists of demographic data, and nursing competency assessment inventory of Liu's work, for both expected and current nursing competency (Liu, *et al.*, 2006). The items of the questionnaire were modified to fit with the critical dimensions of the conceptual framework. Accurate forward and back translation of the draft questionnaire was done carefully to guarantee the consistency of the questionnaire between Chinese and English versions. The content validity of the questionnaire was assessed by three Thai and six Chinese expert teams with average CVI of 0.950. The reliability of the questionnaire for assessing the expected and current nursing competency by using Cronbach's alpha coefficient were 0.979 and 0.980, respectively.

The competency item scales were ranged from 0 to 4, and the levels of nursing competency were judged as low, moderate, and high by the rating scores according to the criteria as follows:

The average score of 0.00-1.33 meant the level of competency was low.

The average score of 1.34-2.66 meant the level of competency was moderate.

The average score of 2.67-4.00 meant the level of competency was high.

Data collection procedure

Before data collection, approval letters were received from the Institutional Review Board of Khon Kaen University, Thailand, and the Nanning Bureau for Civil Affairs to give permission to carry out the study. Nurses' participation was voluntary, and they were guaranteed to have the right to withdraw at any time. All data were collected and handled anonymously; all participants' privacy, anonymity and confidentiality were ensured.

The data for the study was collected by the researcher at each long term care setting. The time duration for data collection was two months, from November to December, 2008. Questionnaires were distributed to 319 nurses in 32 long-term care settings who agreed to participate in this study. There were 280 questionnaires returned with a response rate of 87.8%. Among these were 20 uncompleted and 21 invalid questionnaires. Therefore, 41 cases were excluded and 239 valid questionnaires were obtained.

Data analysis

The software of Statistical Package for Social Sciences (SPSS for Windows) was used for data analysis. Descriptive statistics were applied for description of demographic characteristics of respondents and levels of both expected and current nursing competency. Because the normalities of distribution of each dimension and overall competency of respondents indicated non-normal, therefore, the nonparametric statistics, i.e. the Wilcoxon Signed Ranks tests were used to compare the expected and current nursing competency. The Spearman's rho correlation coefficient was applied to analyze the correlation between the expected and current nursing competency. The Chi-square test (X^2) was applied to analyze the associations between demographic characteristics and both the expected and current nursing competency levels.

Results

General characteristics of subjects

Of 239 respondents, most nurses (75.7%) were from public settings, and mostly (97.9%) were female. 41.8% worked in "not divided into different units or other units". The average age of the participants was 25.9 years old (SD=6.60) with ages that ranged from 18 to 55 years old. Most of the nurses (81.6%) were pre-registered nurses, 27 participants (11.3%) were competent nurses with only one nurse specialist. The rest, 17 nurses (7.1%) were advanced beginners. Most nurses (63.6%) were educated at secondary technical certificate level. Approximately one out of three (32.6%) were educated at Associate Degree (diploma) level. Only nine nurses (3.8%) held Bachelor's degrees. The average work experience of participants was only 5.4 years (SD=6.2) with 3.4 years' average work experience in long-term care settings (SD=4.2). More than half (51.0%) of nurses had been trained, and tutoring by following senior nurses in real settings, but the training time duration was quite short. Most of the nurses (76.2%) with training experience were trained for eight hours only or even less. There were a variety of motivations for work in long-term care

settings. Mostly (37.2%) motivations were to "make a living", 28.9% of them worked for "self actualization", and 13.0% of them reported two or more reasons. Most participants (63.1%) reported they were satisfied or very satisfied with their current job.

The expected and current nursing competency of nurses in long-term care settings in Nanning, P.R. China

Most nurses (98.8%) reported high or moderate level of total expected nursing competency in the study. Only three nurses (1.2%) reported low level of expected nursing competency. On the other hand, most nurses (92.9%) reported high or moderate level of total current competency in this study, and only 17 nurses (7.1%) reported low level of current nursing competency (see Table 1).

The avaerage total expected nursing competency of nurses in long-term care settings in Nanning was at a high level (mean=3.00, SD=0.66), whereas the average total current nursing competency of nurses in long-term care settings in Nanning was reported at a moderate level (mean=2.49, SD=0.74). Most dimensions of the expected nursing competency were reported at high levels except dimension 1 (critical thinking and research aptitude) which was at a moderate level. Most current nursing competency dimensions were reported at moderate levels, except dimension 4 (interpersonal relationship) and dimension 5 (legal & ethical practice) which were reported at high levels (see Table 2).

The difference between the expected and current nursing competency of nurses in long-term care settings in Nanning, P.R. China

The means of the sums of each dimension of current nursing competency were lower than those of expected nursing competency, respectively. There were significant differences for both total competency and each competency dimension between expected and current nursing competency of nurses in long-term care settings in Nanning ($P<0.001$) (see Table 2).

Table 1 Frequency, percentage of nurses' levels of expected and current nursing competency

Nursing competency dimension	Levels of expected nursing competency						Levels of current nursing competency					
	Low		Moderate		High		Low		Moderate		High	
	N	%	N	%	N	%	N	%	N	%	N	%
1: Critical thinking & research aptitude	21	8.8	108	45.2	110	46.0	54	22.6	130	54.4	55	23.0
2: Clinical care	4	1.7	77	32.2	158	66.1	26	10.9	119	49.8	94	39.3
3: Leadership	7	2.9	48	20.1	184	77.0	21	8.8	85	35.6	133	55.6
4: Interpersonal relationship	5	2.1	48	20.1	186	77.8	10	4.2	100	41.8	129	54.0
5: Legal/ ethical practice	2	0.8	40	16.7	197	82.4	9	3.8	77	32.2	153	64.0
6: Professional development & personal growth	7	2.9	49	20.5	183	76.6	22	9.2	91	38.1	126	52.7
7: Teaching & coaching	13	5.4	68	28.5	158	65.1	42	17.6	89	37.2	108	45.2
Sum	3	1.2	68	28.5	168	70.3	17	7.1	111	46.4	111	46.4

Table 2 Mean, standard deviation and levels of nurses' expected and current nursing competency

Nursing competency dimension	Expected nursing competency			Current nursing competency			
	Mean	SD	Level	Mean	SD	Level	Z*
1. Critical thinking & research aptitude	2.59	0.85	Moderate	1.96	0.89	Moderate	-10.73***
2. Clinical care	2.95	0.75	High	2.34	0.79	Moderate	-10.93***
3. Leadership	3.13	0.76	High	2.65	0.88	Moderate	-9.59***
4. Interpersonal relationship	3.22	0.70	High	2.76	0.82	High	-9.84***
5. Legal/ ethical practice	3.25	0.66	High	2.87	0.78	High	-9.39***
6. Professional development & personal growth	3.07	0.77	High	2.62	0.85	Moderate	-9.23***
7. Teaching & coaching	2.89	0.82	High	2.37	0.94	Moderate	-10.03***
Total	3.00	0.66	High	2.49	0.74	Moderate	-11.41***

* Wilcoxon Signed Ranks Test

*** P< 0.001

The correlations between the expected and current competency of nurses in long-term care settings in Nanning, P.R. China

The correlation between the total expected and total current nursing competency was significant at the 0.01 level (P<0.01). The Spearman's rho correlation coefficient was 0.667. The Spearman's rho correlation coefficients of the same dimensions between the expected and current nursing competency of nurses ranged from 0.599 to 0.715. Each dimension between the expected and current competency was correlated significantly (P<0.01) with one another (see Table 3).

The factors associated with the expected and current nursing competency of nurses in long-term care settings in Nanning, P.R. China

Most general characteristic variables did not show close association with expected nursing competency of nurses in long-term care settings in Nanning, P.R. China except "training". Only those nurses who were trained reported significant higher level of expected nursing competency than those who had never been trained for long-term care settings (P=0.028) (see Table 4).

Most general characteristic variables did not show any close association with the level of current nursing competency, but those nurses who had longer work experience reported significantly higher level of current nursing competency (P=0.021); similarly, those nurses who had longer long-term care work experience also reported significantly higher level of current nursing competency than those who worked in long-term care settings for shorter time with less experience (P=0.042) (see Table 5).

Table 3 Spearman's rho correlation coefficients between the nurses' expected and current nursing competency

Current nursing competency dimension	Expected nursing competency dimension							
	1	2	3	4	5	6	7	Total
1. Critical thinking and research aptitude	.633**							
2. Clinical care	.460**	.599**						
3. Leadership	.435**	.476**	.663**					
4. Inter-personal relationship	.375**	.496**	.583**	.712**				
5. Legal & ethical practice	.373**	.494**	.604**	.600**	.709**			
6. Professional development & personal growth	.352**	.504**	.579**	.596**	.595**	.710**		
7. Teaching & coaching	.408**	.518**	.560**	.557**	.492**	.520**	.715**	
Total	.501**	.600**	.622**	.594**	.548**	.532**	.643**	.667**

** P<0.01

Table 4 Association of general characteristic variables and the expected nursing competency levels

General characteristic variables		Levels of expected competency		X^2
		Low and Moderate	High	
Training	No	44	78	4.825*
	Yes	27	90	

* P<0.05

Table 5 Association of general characteristic variables and current nursing competency levels

General characteristic variables		Levels of current competency		X^2
		Low and Moderate	High	
Work experience groups	≤1 year	30	12	7.754*
	1 year to 5 years	60	68	
	>5 years	38	31	
Long-term care work experience groups	≤1 year	53	29	6.326*
	1 year to 4 years	49	51	
	>4 years	26	31	

*P<0.05

Discussion and Recommendations

Results related to the characteristics of nurses in long-term care settings

The phenomenon of nurses' young age (mean=25.9 yrs) may mainly be attributed to their lower educational background, short average work experience, and high turnover rate, and these factors may affect their abilities in decision making and independence.

The majority (63.6%) of nurses in long-term care settings were educated at secondary level, compared with hospital settings, and Yan *et al.* (2007) reported that most nurses in Chinese primary care hospitals graduated from junior college. Nursing competency relies heavily on educational preparation (Yan, and Li, 2007). The lower educational background of nurses in long-term care settings would impact their competencies in effective decision-making, problem-solving, human relations, self-development and communication in nursing practice.

Though there were approximately half (51.0%) of the nurses who had been trained by following senior nurses for only eight hours or less in their own settings, this way of training might not guarantee nurses to learn enough essential knowledge and skills needed to provide quality care for older adults. It appears that systematic orientation and on-the-job training, punctuated by more formal continuing education opportunities, will be essential to maintain a labor force for long-term care.

Results related to the differences of expected and current nursing competency of nurses in long-term care settings in Nanning, P.R. China

There were significant differences for both total competency and each dimension between the expected and current competency of nurses in long-term care settings in Nanning ($P<0.001$). Nurses reported higher expected nursing competency (mean=3.00) than their current nursing competency (mean=2.49). There is still a space for nurses to improve their nursing competency based on the gap between the expected and current competency.

The competency dimension 4 (interpersonal relationships) and dimension 5 (legal & ethical practice) of both expected and current nursing competency were reported at high levels. This result might also relate to the Chinese culture and tradition where most nurses could form good relationship with other people, followed regulations, laws and policies strictly, at the same time, took responsibility for and loved their work, took good care of clients willingly, and protected clients' rights. These attributes will definitely have positive influence on nursing competency.

Both expected and current competency for the dimension of critical thinking and research aptitude were reported at moderate levels. In other words, nurses did not expect themselves to become highly competent for critical thinking and research competency, neither for their current competency in this area. This indicates the urgent need for innovation in nursing education to make nurses understand the importance of critical thinking, and its impact to clinical care. It is also possible to improve nurses' competency by training programs specifically on research. This result may help administrators in long-term care settings to encourage research and provide training programs in order to improve nurses' competency for better critical thinking and research competency.

There are big gaps between the expected and current nursing competency on the dimensions

of clinical care, leadership, professional development & personal growth, and teaching & coaching, with the mean score gap ranging from 0.45 to 0.52. Future training programs should focus on these competency dimensions to improve their competencies.

Results related to the correlation between the expected and current nursing competency of nurses in long-term care settings in Nanning, P.R. China

The correlation between the total expected and total current nursing competency was significant at the 0.01 level (P<0.001). The Spearman's rho correlation coefficient was 0.667. Each dimension between the expected and current competency was also correlated significantly (P<0.001) with one another. The correlations of the same dimensions between the expected and current nursing competency of nurses ranged from 0.599 to 0.715. Even though, they were significant at the 0.01 level (2-tailed), this was still considered not to be very high. It was certain that participants understood the differences between expected and current nursing competency well.

The highest correlation was found between the expected and current competency dimension 7 (teaching and coaching). The Spearman's rho correlation coefficient was 0.715. This result indicated that the competency dimension of "teaching and coaching" should be the first priority for intervention. If the dimension between expected and current competency were closely correlated with each other, they could influence or be influenced by each other. This may because of the nature of "teaching and coaching", nurses could perform this competency by themselves, and there were fewer barriers which would influence their behavior for "teaching and coaching". Conversely, the lowest correlation between expected and current nursing competency for the same dimension was dimension 2 (clinical care), and the Spearman's rho correlation coefficient was 0.599. It seems very likely that the dimension of clinical care would be the most difficult dimension to change. This may due to the fact that there are many factors that could influence clinical care practice, such as staffing ratio, workload, practice standard and guidelines, motivation to work, job satisfaction, working experience, training, etc. When managers of long-term care agencies plan to improve clinical care competency of nurses, all of these factors need to be considered.

Factors associated with the expected and current nursing competency of nurses in long-term care settings in Nanning, P.R. China

It sounds reasonable that nurses who were specifically trained reported a significant higher level of expected nursing competency (P=0.028). Those nurses who were trained on ageing and gerontological nursing knew more about their work and could understand their clients better. Thus, they realized that there was much knowledge and many skills need to be learnt.

Nurses with longer work experience reported significant higher level of current nursing competency (P=0.021). Similarly, nurses with longer long-term care work experience also reported significant higher level of current nursing competency than those who worked in long-term care settings for shorter time with less experience (P=0.042). The way of "learning by doing" in real situations could help nurses improve nursing competency by gaining more experience. It was reasonable that longer work experience would

improve current nursing competency. This finding could help administrators consider "work experience" as an indicator to predict a nurse's competency. It is also recommended that more solutions to decrease turnover rate" are needed in order to increase "work experience", and consequently to increase nurses' competency.

Other factors, such as age, professional titles, educational background, work units, motivation and job satisfaction did not show close association with both expected and current competency. Unlike Benner's theory (1982, 1984) that indicated that younger nurses with lower professional titles would be associated with lower current competency, the findings of this study were beyond the expectation that senior nurses with higher professional titles must be associated with higher nursing competency. One possible explanation might be that Benner's competency model (1982, 1984) was developed in acute care settings (Benner, 1982; Benner, 1984). This model may not fit with the context of long-term care settings. Senior nurses with higher professional titles did not report higher competency in their work, and there was no significant difference between different groups of nurses with different ages and professional titles. One reason may due to their educational preparations; the curricula were quite different between senior nurses and newly graduated nurses. There was no gerontological course available for nurses who graduated before 2003, whereas most young nurses had learned geriatrics in nursing schools and had the experience of clinical practice in long-term care settings. Another possible reason might due to the nature of work in long-term care setting; nursing care was mostly daily care in China, and most nurses regarded it as a simple job.

The findings also indicated that there was no significant difference of nursing competency between different groups of nurses with different professional titles or educational background. This might due to the small number of participants with higher professional titles and higher level of educational preparation. However, the finding might help administrators reconsider the traditional strategy for human resource management in long-term care settings. This result would also contribute to nursing education in designing different curricula for different levels of education programs to cope with different needs at different levels of nursing care.

Nurses who were trained on ageing reported higher expected nursing competency but were not associated with higher real competency. This may because of the short time duration for training, and types of training. It was really difficult for three quarters (76.2%) of the group to be tutored by another colleague in their own settings for only eight hours or even less time and get significantly higher real competency than those who had never been trained.

Most nurses worked just to "make a living", and they might have regarded nursing as a job instead of a professional career. Lack of positive motivation would definitely impact nurses' right attitude toward nursing care, which would thereby influence nursing competency for caring clients negatively.

Implications

The results of this study provided implications for nurses themselves, managers/ administrators of long-term care setting, educators, researchers, as well as policy makers and senior administrators at government levels.

There is no gerontological nursing specialty in P. R. China so far. This competency assessment model provided the framework for development of nursing competency as well as gerontological nursing specialty needed in long-term care settings. This will also help provide a framework for nursing competency in long-term care settings for other countries.

Recommendations

It is recommended that gerontological nursing should be taught as a compulsory course in nursing schools with different levels of nursing education programs and be put into the nursing licensure examination system, so that nursing students will be well prepared to take care of older adults in a variety of settings after graduation. Long-term care settings need to be considered by nursing educators and nurse practitioners as the alternative place for nursing practice beyond hospital settings in China.

Limitations of the study

It should to be noted that the scope of population in this study was restricted to nurses in Nanning City only. It is recommended that broad sampling of subjects from different geographic areas of China should be included for future studies.

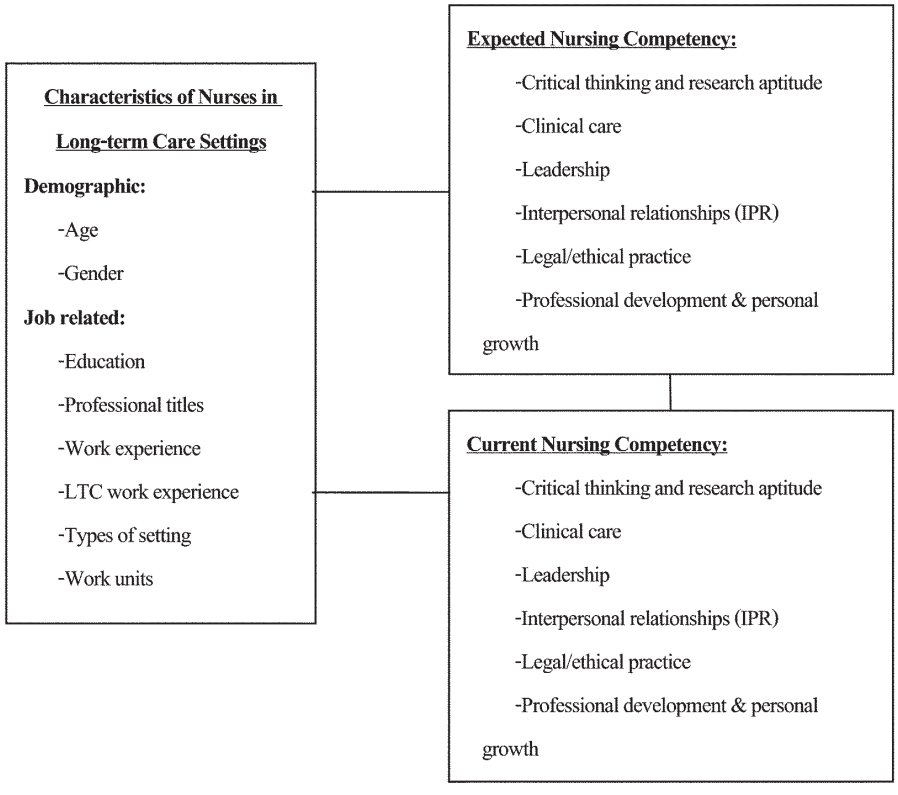

Figure 1 Conceptual framework of expected and current nursing competency of nurses in long-term care settings in P. R. China

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