Improving the curriculum for a community nursing training program in Guangzhou City, China

Siyun Wang | Weiju Chen | Yun Du

Nursing Department, The First Affiliated Hospital, Jinan University, Guangzhou, China

Correspondence
Weiju Chen, Nursing Department, The First Affiliated Hospital, Jinan University, Guangzhou, Guangdong, China.
Email: chenweiju@126.com

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Abstract
In China, community nurses do not have systematic training, and the nursing education curriculum focuses on clinical nursing both in vocational school and high school. Most nurses work at a hospital, and almost all community nurses lack systematic knowledge about community nursing. A training program for community nurses in Guangzhou City has been conducted since 2003. The training curriculum has evolved over the years, but is not standardized. This article describes research on improving community nurses’ basic knowledge and practice skills. We modified the curriculum with a questionnaire and a modified Delphi method. First, 318 participating nurses and instructors were queried in December 2012. Then 22 experts modified the training program based on the results of the questionnaire and implementation since 2013. After 4 years, we followed up with the new participating nurses to evaluate the curriculum.

KEYWORDS
community-based nursing, continuing education, curriculum

1 | BACKGROUND

1.1 | Community nurse training in China

In China, nursing higher education ceased after the founding of the People’s Republic of China in the 1950s. Nursing higher education resumed in the 1980s with a curriculum focused on clinical nursing. In 1996, the Chinese Nursing Association advocated developing community nursing, and the National Health and Family Planning Commission of the PRC (NHFPC)—has been changed National Health Commission of the People’s Republic of China (NHC) in March, 2018—emphasized it in 1997. But until recently, community nursing has only been available as a field of study in high school or vocational education.

In 1999, the NHC created “six functions in one center,” which expanded community health services to include prevention, primary medical, primary health care, rehabilitation, health education, and family planning. Community health service centers have been founded in Beijing, Shanghai, Guangzhou, Shenzhen, and Tianjin, and community nursing work is developing. According to statistics, China has more than 33,000 community health service centers (National Health Commission of the People’s Republic of China, 2013), and more than 95% of Chinese cities had community health service centers at the end of April 2013 (Hong, Shuwen, & Kang, 2007), but there is still a severe shortage of community nurses. Community nursing as a field of study is covered in the curriculum at most nursing schools, but the depth of this education is not sufficient. On-the-job training has become an important way to enrich public health knowledge and community nursing skills.

In 2000, the NHC published a Community Nurses Training Outline (Trial; National Health & Family Planning Commission of People’s Republic of China, 2001). The next year, it asserted that community nurses must be qualified and registered to participate in community nursing training organized by the municipal administrative departments. Chinese community nurses do not always have certificate before they begin work. Many were clinical nurses in hospitals need training to become qualified and registered to become a community nurse. Home visiting nurses, that is, experienced community nurses,
must have more than 5 years of clinical nursing experience (Huang, 2011).

Municipal administrative departments have carried out training for community nurses to strengthen their professional education (Zijing, 2010). From 2000 until the present, the Community Nurses Training Outline has been revised three times, and the management of community nurses and professional education has attracted increased attention. As China is a vast country, its provinces have different economies, cultures, languages, habits, and social customs, so health services are not balanced. Community nursing training is based on local conditions, and the training final tests determined by local health administrative departments.

Compared to developed countries, China’s community nursing training lacks funding and policy support, hindering its development. Although community nursing training has been implemented for more than a decade, it is still at a basic stage, and in many local communities, nursing training is a formality and not standardized (Xiao, Mei-mei, & Shi, 2012). The lack of high-quality community nurses has restricted the development of community health services. Therefore, improving community nursing training and establishing a standard training curriculum is an important objective.

### 1.2 Community nurse training in Guangzhou

Guangzhou is a metropolis of more than 13 million people, half from other cities. The city’s residents have diverse cultural backgrounds and different customs. There are 11 districts but only two community nursing training centers in Guangzhou. From 2003 until the present, the community nurse training centers have trained hundreds of nurses. Once a year, the training program accepts new community nurses who transfer from general hospitals to community health service centers. Participating nurses come from primary health care hospitals and community health service centers. The training centers prepare the teaching schedule and the training curriculum is designed by nursing professors and advanced clinical nurses based on the Community Nurses Training Outline. The curriculum includes face-to-face training in theory and practice. Passing the final exam administered by the Guangdong province, permits the issuing of a Training Certificate. The students must possess a valid RN license and be employed at a hospital or community health training center to participate in the community nurse training program. Then they must pass the final exam for the training program, which is held in their local community. This will allow them to obtain the Training Certificate, which they will use to take part in the final examination, organized by the Guangdong provincial administration department. If they pass the final examination, they can receive a formal certificate in community nursing.

### 1.3 Research questions

China’s ongoing economic development and urbanization present challenges to community nurses. The training program must adapt to the complex needs of increasingly diverse populations. This research tried to answer the following questions: (a) Were the nurses satisfied with the training and its contents? (b) How could the curriculum be improved? (c) How could the new training curriculum be evaluated?

### 2 METHODS

#### 2.1 Design and sample

This study used three questionnaires and a modified Delphi method divided into three steps. This research has received ethics committee approval in July 2012. The informed consent was present to the preface of all of the questionnaires, and all the respondents were anonymously.

#### 2.1.1 Step 1

The first step used a field survey and questionnaire and invited all of the nurses from the Panyu District of Guangzhou and instructors who participated in community on-the-job training from 2009 to 2012 (Evaluation of training courses for community nurses, questionnaire 1). A total sample size of 361 nurses and 20 faculties were contacted to participate in the survey. These nurses worked at community health service centers, general hospitals, or primary hospitals. The questionnaire included a student and instructor version named evaluation of training courses for community nurses, both with three parts: (a) How important and useful is the existing curriculum? (b) How should the training program be evaluated? (c) What are your suggestions for training? Index of content validity was used for questionnaires to evaluate the validity. We used an expert scoring method (Polit & Beck, 2010), chosen 15 nursing experts with at least 10 years of experience to score questionnaire and calculated index of content validity statistical tests were 0.979. Test-retest reliability was used for reliability, with 20 randomly selected nurses who retook the questionnaire 2 weeks later; the calculated index was 0.973.

#### 2.1.2 Step 2

Guangzhou’s modified community nurse on-the-job training theoretical curriculum included a course module and course content. The expert questionnaire (Questionnaire 2) was based on the existing training curriculum and the results of a survey. The questionnaire was given to 26 experts. Data were collected from June to October 2013 via three rounds of emailed questionnaires, and a research team discussed the results of each round. A new curriculum was constructed from the results and the training was implemented in 2014.

#### 2.1.3 Step 3

A field survey was again used with a questionnaire (Survey of community nurses training courses in Guangzhou, questionnaire 3) to investigate the outcome of the revised curriculum. All of the 50 nurses from Guangzhou’s Tianhe District who participated in the training program in 2016 were surveyed. The questionnaire had two parts: one focused on usefulness of the course and one focused on satisfaction and suggestions for change.
2.2 | Measures

2.2.1 | Step 1

Part 1 of evaluation of training courses for community nurses had two questions for each course: (a) Was the course important for the community? (b) Was the course content useful for the community after you finished the training? The items had a 5-point response scale: 5 = very important, 4 = important, 3 = no opinion, 2 = unimportant, and 1 = very unimportant. The items also had a 5-point response scale: 5 = very useful, 4 = useful, 3 = less useful, 2 = not useful, and 1 = I do not know.

2.2.2 | Step 2

The questionnaire had one topic for each course concerning the necessity of training, including the course and its content. For the purpose of this analysis, the Likert scale was reversed as follows: 4 = very necessary, 3 = necessary, 2 = moderately necessary, and 1 = not necessary. This mode was assessed for each course teaching hour.

2.2.3 | Step 3

This questionnaire covered one topic for each course that assessed if the training content would be useful for the participants’ work. These items had a 5-point response scale: 5 = strongly agree, 4 = agree, 3 = no opinion, 2 = disagree, and 1 = strongly disagree.

2.3 | Analytic strategy

Quantitative data were entered into Excel 2007 and SPSS 17.0 software for analysis, and frequencies were used to describe the demographic characteristics. The open-ended qualitative questions were organized and summarized by topic area.

3 | RESULTS

3.1 | Step 1: Pre-investigation (Evaluation of training courses for community nurses) (Questionnaire 1)

3.1.1 | Demographics

A total of 361 student questionnaires were sent; 318 were returned, for a response rate of 88.09%. Overall, 11 hospitals and 25 community health service centers participated in the study, covering most of the community health service institutions in the district. All of the participating nurses and instructors were female. Demographic information is presented in Table 1.

We received 20 questionnaires from the instructors who participated in training nurses program from 2009 to 2012. These instructors worked at general hospitals, had more than 15 years of experience as RNs, and 12 (60%) had participated in the community instructor training. Three (15%) were engaged in community nursing and four (20%) in community nursing; 13 (65%) had never engaged in community nursing.

3.1.2 | The participating nurses and instructors’ satisfaction with training

In the pre-investigation in 2012, 88.4% of the participating nurses expressed satisfaction with the training, but only 65% were satisfied with the curriculum arrangement and training management and considered the course too short.

3.1.3 | Suggestions for improvement

The participating nurses evaluated the courses’ importance and utility; the results are presented in Table 2. The top three courses the
nurses suggested adding were “Home visiting skills,” “Management of nutrition,” and “Health care of infants and pregnant women.”

The top three suggestions were “Home visiting technology and skills,” (202/65.2%), “Management of nutrition” (189/61.0%), and “Health care of infants and pregnant women” (179/57.7%).

### 3.2 Step 2: Delphi method (Questionnaire 2)

#### 3.2.1 Demographics

We organized a research team to discuss the results of the pre-investigation, and on the basis of the results carried out three rounds of consultation. We invited 26 experts, and 22 participated. All practiced in Guangzhou; six (27.2%) taught nursing at a university, nine (40.9%) worked at a general hospital, four (18.1%) worked at a primary hospital, and three (13.7%) worked at a community health service center. The majority of the panelists were women (18%, or 81.8%), 68.2% were between the ages of 40–50 (M 44.82, SD 5.6), and 50% had more than 20 years of experience in community nursing related areas (M 24.36, SD 6.5). Overall, seven (31.8%) had a doctoral degree, seven (31.8%) had a master’s degree, six (27.2%) had a bachelor’s degree, and two (9.5%) had a nursing diploma. A total of 18 (82%) listed their profession as RN, of which 10 were experts with community nursing experience in Guangzhou.

#### 3.2.2 Consultation process

The research team consists of a master’s supervisor, a nursing director, two nursing graduate students, and a community nurse. The team discussed the data collection and the results from each round, and designed the next round. The modified course is presented in Table 3.

| Course | Importance | Rank | Content utility | Rank |
|--------|------------|------|-----------------|------|
| Community emergency nursing | 4.761 ± 0.496 | 1 | 4.783 ± 0.456 | 1 |
| Community nursing practice of diabetes mellitus (DM) | 4.720 ± 0.533 | 2 | 4.736 ± 0.514 | 2 |
| Self-check of breast | 4.664 ± 0.602 | 3 | 4.663 ± 0.613 | 3 |
| Community health education | 4.657 ± 0.543 | 4 | 4.641 ± 0.518 | 4 |
| Home care of the chronically ill | 4.654 ± 0.544 | 5 | 4.610 ± 0.532 | 10 |
| Management of community infectious disease nursing and occupational protection | 4.626 ± 0.552 | 6 | 4.591 ± 0.570 | 11 |
| Communication skills | 4.610 ± 0.566 | 7 | 4.613 ± 0.577 | 9 |
| Community pharmacology | 4.601 ± 0.606 | 8 | 4.616 ± 0.565 | 8 |
| Skin care and basic skills of enterostomal nursing | 4.594 ± 0.622 | 9 | 4.638 ± 0.603 | 5 |
| Tube care | 4.597 ± 0.614 | 10 | 4.626 ± 0.590 | 6 |
| Community population and healthy behavior | 4.525 ± 0.677 | 11 | 4.544 ± 0.717 | 15 |
| PICC tube care and treatment | 4.503 ± 0.714 | 12 | 4.553 ± 0.675 | 14 |
| Health intervention in the community | 4.503 ± 0.668 | 12 | 4.534 ± 0.658 | 16 |
| Mental illness health care | 4.500 ± 0.634 | 14 | 4.497 ± 0.654 | 18 |
| Hospice care | 4.497 ± 0.700 | 15 | 4.560 ± 0.636 | 13 |
| Cold and heat therapy | 4.494 ± 0.687 | 16 | 4.585 ± 0.592 | 12 |
| Vital signs monitoring | 4.491 ± 0.731 | 17 | 4.623 ± 0.678 | 7 |
| Primary health care and community health care system in China | 4.434 ± 0.665 | 18 | 4.500 ± 0.604 | 17 |
| Peritoneal dialysis home care | 4.418 ± 0.752 | 19 | 4.452 ± 0.734 | 19 |
| Community health service and introduction of community nursing | 4.305 ± 0.658 | 20 | 4.443 ± 0.622 | 20 |

TABLE 2 Courses’ importance and content utility scores in step 1 (Old-Curriculum) (Questionnaire 1), x ± s
We have implemented the new curriculum modules since 2013. Fifty nurses who came from another district participated in this training.

### 3.3 | Step 3. Follow-up investigation (Survey of community nurses training courses in Guangzhou) (Questionnaire 3)

We sent 50 questionnaires and 40 were returned, a response rate of 80%. All of the participating nurses were female and worked at 25 community health service centers. Overall, 67.5% of the participants had community nursing work experience before the training, and 75% worked at community health service centers after finishing the training. Their educational backgrounds were as follows: 9 (22.5%) went to technical secondary schools, 22 (55%) had diplomas, 9 (22.5%) had a bachelor’s degree in nursing science, and none had a master’s or doctoral degree. Overall, 95% of the participating nurses were satisfied with the training.

### 3.3.2 | Satisfaction with training

In this investigation, 95% of the participating nurses were satisfied with the training, an improvement compared to the 2012 results. Each nurse was asked the subjective question “What course made the deepest impression on you in this training?” The top course was “Introduction to community nursing.” Each course’s score is presented in Table 5.

### 4 | DISCUSSION

#### 4.1 | Closing the gap: Mutual learning experiences from developed countries

Developed countries have adopted training methods to ensure the quality of community nursing practitioners, and community nursing training has attracted attention all over the world. Many countries provide considerable policy and funding support for community nursing training (Wales, 2009; Xiaoqian & Guoping, 2009) through programs to update nurses’ knowledge and skills (Prellp et al., 2012). Over the past century, developed countries have also improved community nurses’ human resources and training systems (Brooker, Tarrier, Barrowclough, Butterworth, & Goldberg, 1992; Perra, 1999; Rudan, 2002; Ziegler, Anyango, & Ziegler, 1997) and implemented many standard training institutions. The United States, South Korea, Japan, and other developed countries have specified different training measures depending on the needs of community nurses (Duan, 2001; Liu, Li, Zhou, Lv, & Peng, 2008; Spradley & Allender, 2001). Many teach content integrated theory and practice based on community standards (Carter, Fournier, Grover, Kiehl, & Sims, 2005). To meet the needs of community nurses, countries have established flexible and diverse educational systems (Carnwell, 1998; Hongmei & Ling, 2000). Since community nursing is highly associated with national policies and cultural backgrounds, each country develops standards depending on the local situation.

Compared to developed countries, community nurses in China lack community-based nursing perspective and skills. We found that the reasons included insufficient posteducation and instructor deficiency. We could not design an appropriate curriculum for community health service, since most of the instructors did not have experience in community nursing. As a developing country, China has supported community nursing for only 20 years, and more experience is necessary to close the gap.

#### 4.2 | Designing community nurse training based on national needs

The nursing shortage is a worldwide problem, and community nurses play an important role in primary health care in many countries, as in China. However, China as a developing country is an aging society with economic inequality and an immature primary health care system. Consequently, training community nurses to address and serve their populations has become a great challenge. Over the past decade, our experience has demonstrated the value of community nurse training programs to help new nurses adapt to their field quickly and to effectively improve community nursing practices. The developing training program promotes community nursing standards. Clinical nursing and community nursing have many differences, but almost all community nurses work in hospitals, and the training curriculum should acknowledge these differences. New nursing guidelines should emphasize the benefits of cooperation between hospitals and the community. In this study, we found that most of the community nurses and the instructors lacked community nursing experience, a common phenomenon.
| Module                                      | Course                                      | Content                                                                                   |
|--------------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------|
| Introduction to community health service   | Introduction to community nursing           | Community nursing characteristics and work                                               |
|                                            |                                             | Community nurses’ roles and responsibilities                                            |
|                                            |                                             | Outcome evaluation of community nursing                                                 |
| Community health records management        | Introduction to community nursing           | Family health service program                                                            |
|                                            |                                             | Family nursing process                                                                  |
| Family health nursing                      | Home visiting skills                        | Home visits                                                                               |
|                                            |                                             | Home visit content and skills (mothers and infants/chronically ill patients/people over 80 years old) |
| Community assessment skills                |                                             | Family assessment skills                                                                 |
|                                            |                                             | Community assessment skills                                                              |
| Health education skills in the community   | Health education and promotion in the community | Methods and skills of health education and promotion                                       |
|                                            |                                             | Health education process                                                                 |
|                                            |                                             | Impact of unhealthy behavior on health                                                   |
|                                            |                                             | Unhealthy behavior intervention                                                         |
| Health care of vulnerable community populations | Health intervention in women/pregnancy and adults | Mother and infant health care                                                           |
|                                            |                                             | Contraception skills                                                                    |
|                                            |                                             | Childbearing period/nursing women                                                        |
|                                            |                                             | Nursing adults with frequently-occurring disease                                         |
| Health interventions in infants/children/adolescents | Handling and bathing infants                | Infants/children/adolescent growth characteristic and health care                        |
|                                            |                                             | Prevention of health problems in children                                               |
|                                            |                                             | Accident prevention in the community                                                    |
|                                            |                                             | Prevention and intervention of addictive behavior in adolescents                         |
|                                            |                                             | Adolescent psychology                                                                   |
| Health intervention in the elderly          | Immunization schedule and related knowledge  | Elderly peoples’ behavior characteristics                                               |
|                                            |                                             | Physiology changes and social role adaptability                                          |
|                                            |                                             | Health care of old people living alone                                                  |
|                                            |                                             | Family care guidelines for Parkinson's disease and Alzheimer's disease                  |
|                                            |                                             | Vaccination objectives/indications/contradictions                                        |
|                                            |                                             | Immunization schedule in Guangdong                                                       |
|                                            |                                             | Observation and intervention guidelines for vaccination reactions                       |
|                                            |                                             | Storage transport/cold-chain management of vaccines                                      |
| Management of chronically ill patients in the community | Nursing chronically ill patients in the community | Community nursing practice of DM/cancer/COPD/stroke/heart disease                        |
| Management of nutrition                    |                                             | Community focus groups’ nutrition (pregnant/lactating mother/infant/children/adolescent/the elderly) |
|                                            |                                             | Food safety at home (food poisoning and food storage)                                    |
|                                            | Basic theory and skills of rehabilitation nursing | Diet for DM/hypertension/gout                                                          |
|                                            |                                             | Evaluation of rehabilitation effects                                                    |
|                                            |                                             | Physical therapy and occupational therapy                                               |
|                                            |                                             | How to use orthoses and walking aids                                                    |

(Continues)
in China. This research attempts to modify not only the courses but the content of the community nursing curriculum. We have designed a teaching guideline for instructors, and the curriculum has increased from 140 to 240 hr as suggested by the panelists.

This new curriculum added a few courses, some suggested by nurses, others suggested by experts, and we reconstructed the course module to make the curriculum more systematic and targeted. "Introduction to community nursing" has become a top course, suggesting that nurses are aware of and understand the roles they play in society. This change is a testament to the positive effects of community nursing training and is vital for Chinese nurses who lack a systematic educational background in this field.

4.3 | Implications for research and practice

Most cities in China have community nursing training, and almost all have a form of curriculum. This study suggests a way to improve community nursing training with limited resources. With the aging of Chinese society, there is no doubt that community nursing will be integral to the effort to eliminate health disparities, and the importance of community nurses will continue to increase.

This curriculum could lead nurses to understand community nursing and help them become qualified community nurses. Primary face-to-face training is the only form of instruction in China, but distance learning or online training may become feasible. Compared to developed countries such as Germany and Japan (Dreier et al., 2010; Imoto, 2013), one of the defects of this curriculum is the lack of an epidemiology course. Epidemiology is a basic subject that could help nurses understand the high-risk factors of diseases and the principles and methods of controlling the spread of diseases. However, most of the participating nurses lacked higher educational backgrounds, and limited class hours restricted the amount of teaching time that can be devoted to this subject. Epidemiology may be taught to advanced community nurses in the

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**TABLE 4 (Continued)**

| Module | Course | Content |
|--------|--------|---------|
| Management of community infectious diseases and nursing and public emergency health events | Community infectious disease prevention and intervention and occupational protection | Infectious disease transmission routes  
Management of infectious diseases  
Quarantine and decontamination of infectious diseases  
Prevention of nosocomial infections  
Management of high-risk populations  
Introduction to public emergency health events  
Intervention in public emergency health events  
Management of populations and materials in disasters  
Psychological crisis intervention in disasters |
| Management of severe mental illnesses in the community | Management and family guidelines for community mental illnesses | Management of severe mental illnesses in acute phases  
Family care guidelines for mental illnesses in rehabilitative phases  
Family care guidelines for children with mental disorders (autism/mental retardation) |
| Community emergency nursing | Community emergency nursing  
Community emergency aid technology and skills | Emergency nursing for drowning/heatstroke/CO poisoning/electric injury/burn/coma/asphyxia  
CPR/hemostasis/bandaging methods/fixation/transfer treatment |
| Hospice care | Hospice care in the community | Hospice care for patients with psychological and physical changes  
Assessment and care of cancer pain  
Assisting family members in mourning |
| Health care practice skills in the community | Tube care  
Skin care and basic skills of enterostomal nursing | Family health care of drainage tubes/PICC/home oxygen therapy  
How to use kinds of dressing  
Assessment of chronic wounds  
Home care of chronic wounds  
Chronic wound complications |
| Other | Communication skills  
Community pharmacology  
Community nursing-related legislation | Patient-nurse communication skills and methods in the community  
Medication safety in the community  
Legal risk of criminal liability in community nursing  
Legal risk of civil liability in community nursing  
Community nursing-related laws and regulations |
future. With the development of the Internet and the improving economic, Chinese community nursing training will evolve and improve.

**ORCID**

Weiju Chen [http://orcid.org/0000-0001-9080-5360](http://orcid.org/0000-0001-9080-5360)
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