

A Delphi Study to Construct an Index of Practice for Community Nurses Providing Transitional Home Care for Patients with Chronic Diseases

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Abstract

Community nurses play a key role in providing continuous home care for patients with chronic diseases. However, a perfect system of responsibilities and requirements has not yet been formed, and nurses cannot provide high-quality nursing services for home-based patients. We attempted to construct an index of the scope of practice for community nurses providing home-based transitional care for patients with chronic diseases and to guide nurses in playing an active role in transitional care work. From March to May 2023, 14 representative community nurses from the Shanghai Community Health Service Center were selected for group interviews and 2 rounds of Delphi consultation. A total of 14 valid questionnaires were collected. The authority coefficients were 0.94 and 0.93, and the Kendall coefficients were 0.56 and 0.59 for the 2 rounds of expert consultation ($P < .05$). Finally, an index system, including 6 primary indices (transitional caring provider, patient self-management facilitator, community group intervention organizer, home caregiver supporter, family physician team collaborator and supervisor of home medical equipment use, and medical waste disposal) was constructed for community nurses involved in providing home-based transitional care for patients with chronic diseases. The weight values of the 6 indices were 0.19, 0.17, 0.21, 0.13, 0.14 and 0.16, respectively ($CR = 0.035$, and the consistency test was passed), and 16 secondary indicators and 42 tertiary indicators were identified. In this Delphi study, an index system that can be used to determine community nurses' roles in providing home-based transitional and continuous care for patients with chronic diseases was successfully established. The index system is considered reliable and easy to use and will provide a meaningful reference for community nurses and policy-makers.

Keywords

chronic diseases, Delphi study, transitional caring, community nurses, nurses' scope of practice, home care services

What do we already know about this topic?

Good continuous care provided by family members can improve the life expectancy and quality of life of patients with chronic diseases. Community nurses play an important role in transitional caring. However, there is less participation of community nurses in some developing countries, mainly due to the unclarified responsibilities of community nurses, which leads to a lagging work concept, incomplete service abilities, and limited service content and affects the quality of transitional care.

How does your research contribute to the field?

In this study, qualitative research methods were used to explore the functional orientation of community nurses providing home-based transitional care for patients with chronic diseases and to construct a role responsibility system for community nurses. The purpose of this study was to provide patients with additional high-quality nursing services to fully address the effect of community-based nursing and to provide a theoretical basis and reference tools for improving the quality of life of immobilized patients.

What are your research implications for theory, practice, or policy?

In this study, the aim was to construct a responsibility system for community nurses through the Delphi expert consultation method to improve the quality of home-based care (continuous nursing service level and the abilities of community nurses) to provide a research basis for the development and collaborative work of community nurses and to optimize the integrity and consistency of transitional care services.



Introduction

Continuous care is a nursing model for patients with noncommunicable chronic diseases (NCDs) and is also known as transitional care or long-term care, which usually refers to the continuation of care for patients from the hospital to the family home.¹ Usually, this model includes attention and responses to the health problems and health needs of NCD patients during periods of transfer between different medical institutions and the home.^{2,3} The 14th Five-Year Nursing Development of China Outline, which was recently released, clarified that community nurses should take on important responsibilities during continuous care.⁴ The quality of community-based care directly affects the quality of community health services. Home health care for NCD patients is the main form of continuous care. Moreover, good continuous care provided by family members has greatly improved the life expectancy and quality of life of these patients. The continuity of care in European and American countries has established a complete set of organic links between different care stages and the hospital-community-family connections of NCD patients. Domestic scholars have conducted related research based on the direction and roles played by family doctor teams and proposed that community nursing care should be provided by caregivers, health educators, and allied health professionals.⁵⁻⁷ However, if community nurses participate less in providing home-based continuous care services for patients, problems such as a lagging work concept of community nurses, incomplete service capabilities, limited service content, and an unsound job title system will affect the development of continuous care in China.⁸⁻¹⁰ Patients with chronic diseases in the community have the characteristics of a challenging life, long disease course, and independent treatment and health care. To better provide residents with differentiated, individualized, diversified, full-process, and comprehensive transitional care services, it is particularly important to clarify the responsibilities of community nurses and realize the institutionalization of continuous community care. In a preliminary study,¹¹ we found that the scope of service of community nurses regarding

continuous care for patients chronic diseases should cover the following 4 aspects: ① individualized projects that allow patients to continue treatment, care, and recovery; ② “peer education” conditions for patients; ③ supportive care for caregivers; and ④ full health management for the family doctor team.

To further clarify the responsibility and scope of practice of community nurses, thereby maximizing their roles in providing continuous home-based care for patients with chronic diseases, this study attempted to establish an effective and practical index system with a panel of experts using the Delphi survey.

Materials and Methods

Establishment of the Research Group

Our team consisted of 19 people. The members of the research group were responsible for consulting the related questionnaires and literature, formulating an outline of the group focus interviews, identifying the interviewees and developing Delphi plans and performing the statistical analysis (Figure 1).

Selecting Delphi Experts

According to the purpose of the study, 14 community nursing managers in Shanghai were invited to participate in the Delphi expert consultation. The selection criteria for the experts were as follows:

- (1) Having more than 10 years of practical experience in community professional nursing and managing chronic diseases at home;
- (2) Having an intermediate or above professional title;
- (3) Being familiar with the meaning and purpose of this study and agreeing to participate in this study.

The exclusion criterion was dropping out in the middle of the study.

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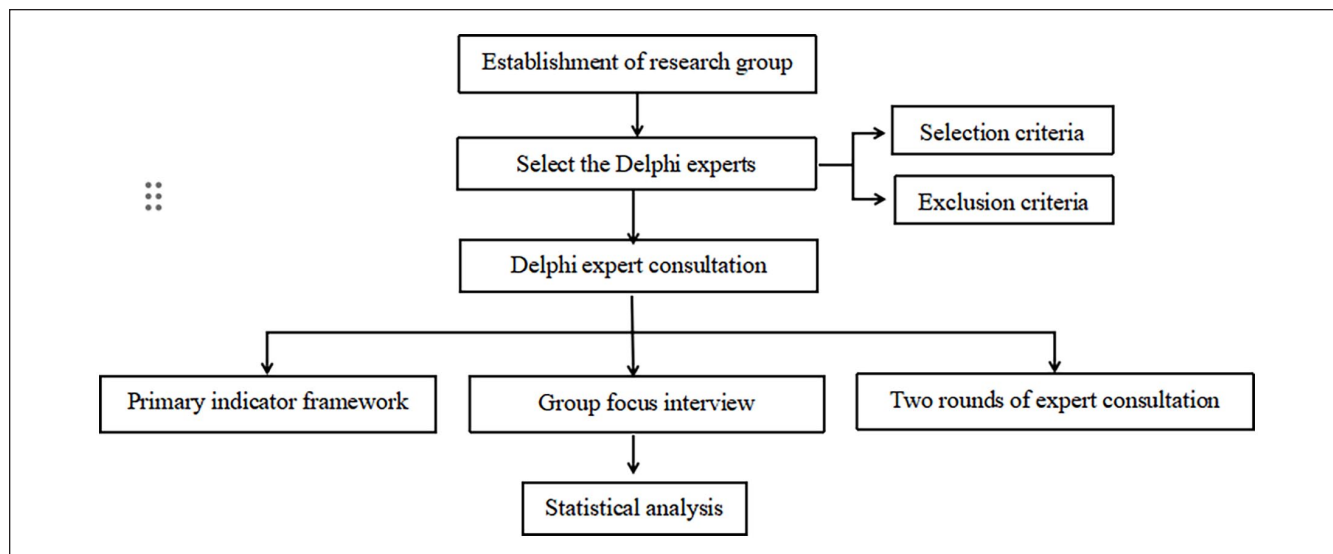


Figure 1. Delphi consultation steps.

Delphi Expert Consultation

Primary indicator framework. On the basis of the findings of a previous qualitative study,¹¹ the Beredi comparative study method was used. The role model indices and corresponding dimension settings of 3 representative community nurses were described, explained and compared, and representative indicators were selected to form a framework.^{12,13}

Group focus interviews. Before the formal formation of the Delphi expert consultation questionnaire, the preliminary indicator framework was fed back to the members of the expert group in the form of group interviews. The experts formed a team to propose changes to the framework, which were considered and sorted by the research group.

Formation of a Delphi expert consultation questionnaire. The research team identified 6 relevant first-level indicators, 13 second-level indicators and 32 third-level indicators. The team also developed a Delphi expert consultation questionnaire. The Delphi expert consultation questionnaire included ① questionnaire instructions, ② basic information about the experts, and ③ consultation forms on the service scope indicators for community nursing staff providing continuous home-based chronic disease care. A 5-point Likert scale was used to score the “importance” of the original indicators and the experts’ “familiarity” with the indicators. Moreover, specific opinions or suggestions were made for the overall questionnaire design and about each indicator.^{14,15}

Questionnaire distribution. This study involved 2 rounds of Delphi expert consultation and distributed the questionnaires via email to experts, who responded within 2 weeks. The

research team revised the indicators based on the first round of expert opinions and indicator screening criteria, conducted a second round of expert consultation, and provided the indicators to the relevant experts again, asking them to evaluate the revised indicators.

Ethical Approval

The study protocol conformed to the ethical guidelines of the Declaration of Helsinki as reflected in the prior approval of the institution’s human research committee (No: 2022-C-193-E01).

Statistical Methods

After the questionnaires were collected, Excel 2021 software and SPSS 22.0 were used to establish a database by using a double entry method. The enthusiasm of the experts was expressed by the questionnaire recovery rate, the degree of expert authority was expressed by the expert authority coefficient, and the degree of coordination of expert opinions was expressed by the coefficient of variation and the Kendall coefficient. The χ^2 test was used to verify the significance of the differences. $P < .05$ indicated a statistically significant difference.

The boundary value method was used to calculate the mean value, coefficient of variation, and full score ratio of each indicator. The screening required that the mean value assigned to the importance of the indicator be above 3.50 points and that the coefficient of variation be lower than 0.25.¹⁶ Moreover, combined with the textual opinions of the experts, changes to and deletions of items were ultimately decided after discussion among the group members to screen and optimize the indicators.

The analytic hierarchy process is a weight assignment method that combines qualitative and quantitative methods.¹⁷ By establishing a hierarchical structure model, a judgment matrix for pairwise comparison is constructed, a consistency test is performed, and the CR value of the consistency index is calculated. A CR lower than 0.10 indicates that the judgment matrix has good consistency. This study used Yaahp10.3 software for consistency testing and weight calculation.

Results

Basic Information of the Experts

In this study, a total of 14 community nurses and managers from related fields were invited to participate in the second round of expert consultation. The mean age of the experts was 46.36 ± 5.03 years. The mean number of working years of the nurses was 27.21 ± 5.45 years, the mean number of working years of the community nurses was 20.36 ± 7.53 years, 11 experts (78.6%) had an education level of associate high school or above, and 12 experts (85.7%) held specialist nursing qualification certificates, all of whom had a bachelor's degree or above, as shown in Table 1.

Expert Positive Coefficient

In the 2 rounds of expert letters, 14 valid questionnaires were collected, and the questionnaire recovery rate was 100%. The positive coefficient of the experts was high, indicating that experts paid close attention to this research.

Expert Authority Coefficient

The authority coefficient (Cr) is determined by the judgment coefficient (Ca) and the index familiarity (Cs) using the following equation: $Cr = (Ca + Cs) / 2$.¹² The judgment basis coefficients of the 2 rounds of expert consultations were 0.96 and 0.96, the familiarity coefficients were 0.91 and 0.90, and the authority coefficients were 0.94 and 0.93.

Expert Coordination Coefficient

The Kendall coefficients (ω) of the 2 rounds of expert consultation were .56 and .59, respectively (Table 2). The coordination coefficient of all levels of indicators in the second round was greater than that in the first round, which showed that the coordination degree was increasingly unified and that the result was reliable. Kendall's test indicated statistical significance ($P < .05$).

Importance of the Indicator System and Coefficient of Variation

The mean and coefficient of variation were calculated based on the 2 rounds of expert consultation scores for the

Table 1. Basic Information of Experts in Correspondence Consultation.

Variable	Number of experts	Proportion (%)
Gender		
Male	0	0.00
Female	14	100.00
Age (year)		
30-39	1	7.20
40-49	10	71.40
50-	3	21.40
Degree		
Undergraduate	14	100.00
Master	0	0.00
Title		
Intermediate	3	21.40
Deputy senior	10	71.40
Senior	1	7.20
Nursing working years		
10-19	1	7.10
20-29	8	57.20
30-39	5	35.70
Community nursing work years		
10-19	7	50.00
20-29	6	42.90
30-39	1	7.10
Specialist certificate of competency		
Yes	12	85.70
No	2	14.30

Table 2. Coordination Coefficient (ω) of Expert Opinions and Test Results.

Index	ω	df	χ^2	P
First round	.561	79	620.667	.000
First-level indicators	.104	5	7.273	.201
Second-level indicators	.122	15	25.621	.042
Third-level	.149	31	64.482	.000
Second round	.586	69	566.003	.000
First-level indicators	.241	5	16.842	.005
Second-level indicators	.116	15	24.378	.049
Third-level	.152	41	87.466	.000

importance of the indicators. The final index importance scores at all levels are shown in Table 3.

The Analytic Hierarchy Process

Based on the results of 2 rounds of Delphi expert consultation, 6 first-level indicators were identified, namely, "continuing care executors," "facilitators of patients' participation in disease self-management," "organizers of community group interventions," "supporters of home caregivers," "family doctor team collaborators," and "supervisors of home medical equipment use and medical waste disposal." A

Table 3. Evaluation Duty Index System for the Index of Practices Scope for Community Nurses in Home-based Transitional Caring of Chronic Diseases.

Indicators	Importance score (mean \pm standard deviation)	Coefficient of variation	Weight	Combination weight
1. The practitioner of continuing care	5.00 \pm 0.00	0.000	0.192	—
1.1 The continuation of the hospital continuity care program in the home setting	4.93 \pm 0.27	0.054	0.095	0.018
1.1.1 Scientific formulation and effective implementation of nursing measures for patients at home	4.86 \pm 0.36	0.075	0.095	0.002
1.2 Observation on the prognosis of the disease	4.93 \pm 0.27	0.054	0.038	0.007
1.2.1 Understand and master patient information (condition)	4.79 \pm 0.43	0.089	0.015	0.000
1.2.2 Monitor changes in the condition and make a referral if necessary	4.43 \pm 0.51	0.116	0.008	0.000
1.2.3 Understand care needs and help patients recover	4.79 \pm 0.58	0.121	0.015	0.000
1.3 Consultation and assessment of patients' health needs	4.64 \pm 0.50	0.107	0.060	0.011
1.3.1 Assessment of risk factors for home health care	4.57 \pm 0.65	0.141	0.012	0.000
1.3.2 Accurate assessment of health environment and disease changes of home patients	4.36 \pm 0.63	0.145	0.031	0.000
2. Facilitators of patient involvement in disease self-management	5.00 \pm 0.00	0.000	0.167	—
2.1 Guide patients to master the appropriate operational techniques of self-care	4.86 \pm 0.36	0.075	0.013	0.002
2.1.1 Promote patients to master self-monitoring of disease, such as blood pressure, blood sugar monitoring at home	4.86 \pm 0.36	0.075	0.013	0.000
2.2 Guide patients to understand and master the theoretical knowledge of self-care	4.79 \pm 0.43	0.089	0.116	0.019
2.2.1 Personalized self-care knowledge (basic self-care ability, drug use ability, self-rescue ability)	4.71 \pm 0.47	0.099	0.101	0.002
2.2.2 Promote patients to master the prevention and care of disease complications	4.71 \pm 0.47	0.099	0.015	0.000
2.3 Improve patients' compliance to treatment and rehabilitation	4.79 \pm 0.43	0.089	0.039	0.007
2.3.1 Help patients with positive psychological construction	4.64 \pm 0.50	0.107	0.013	0.000
2.3.2 Encourage patient participation in disease management	4.71 \pm 0.47	0.099	0.005	0.000
2.3.3 Help patients understand the benefits of good adherence	4.21 \pm 0.70	0.166	0.020	0.000
3. Organizer of community group intervention	4.86 \pm 0.36	0.075	0.211	—
3.1 Connecting "partnerships" for patients	4.79 \pm 0.43	0.089	0.070	0.015
3.1.1 Carry out peer education to improve patients' confidence in curing diseases	4.71 \pm 0.47	0.099	0.035	0.001
3.1.2 Propose interventions for risk factors	4.57 \pm 0.65	0.141	0.035	0.001
3.2 Carry out group health science popularization activities	4.86 \pm 0.36	0.075	0.141	0.030
3.2.1 Carry out multi-angle and multi-channel popularization of science, establish network platforms (WeChat, QQ, corporate WeChat, etc.), TV broadcasts, and publicity leaflets	4.79 \pm 0.41	0.086	0.022	0.001
3.2.2 Health station, online live broadcast, and remote guidance	4.36 \pm 0.63	0.145	0.032	0.001
3.2.3 Observing, discussing, and researching issues related to community health care	4.14 \pm 0.86	0.209	0.072	0.002
3.2.4 Sinking village neighborhood committee to carry out nursing activities	4.57 \pm 0.65	0.141	0.015	0.000
4. Supporter for home care workers	4.79 \pm 0.43	0.089	0.132	—
4.1 Guide to master necessary and appropriate nursing techniques	4.86 \pm 0.36	0.075	0.045	0.006
4.1.1 To guide the improvement of a safe and appropriate medical care and rehabilitation environment at home	4.71 \pm 0.47	0.099	0.003	0.000
4.1.2 Guide home rehabilitation training	4.79 \pm 0.43	0.089	0.002	0.000
4.1.3 Guidance on home diet and medication	4.71 \pm 0.47	0.099	0.011	0.000

(continued)

Table 3. (continued)

Indicators	Importance score (mean \pm standard deviation)	Coefficient of variation	Weight	Combination weight
4.1.4 Guide the caregivers to master the rehabilitation nursing techniques of related diseases	4.64 \pm 0.50	0.107	0.004	0.000
4.1.5 Do a good job of health education for caregivers	4.71 \pm 0.47	0.099	0.007	0.000
4.1.6 First aid training for caregivers	4.64 \pm 0.50	0.107	0.004	0.000
4.1.7 Guide caregivers to master the content of disease surveillance	4.57 \pm 0.51	0.112	0.015	0.000
4.2 Provide psychological care and support to caregivers' families	4.79 \pm 0.43	0.089	0.014	0.002
4.2.1 Give psychological support to the family members according to the evaluation results and guide the decompression.	4.50 \pm 0.65	0.145	0.011	0.000
4.2.2 Encourage caregivers and family members to talk about their nursing needs	4.43 \pm 0.85	0.192	0.003	0.000
4.3 Help to understand medical information and channels	4.64 \pm 0.63	0.136	0.072	0.010
4.3.1 Help to understand health policies, information and access to care	4.50 \pm 0.76	0.169	0.072	0.001
5. Collaborator of the family doctor team	5.00 \pm 0.00	0.000	0.142	—
5.1 Do a good job in health file management	5.00 \pm 0.00	0.000	0.070	0.010
5.1.1 Participate in the collection of health management information	4.93 \pm 0.27	0.054	0.037	0.000
5.1.2 Assist family doctors in contract work and health file management, and input of nursing follow-up information	4.64 \pm 0.63	0.136	0.023	0.000
5.1.3 Maintain health records and update information	4.43 \pm 0.76	0.171	0.010	0.000
5.2 Cooperate with family doctors	4.86 \pm 0.36	0.075	0.028	0.004
5.2.1 Cooperate with family doctors to follow up patients	4.57 \pm 0.65	0.141	0.006	0.000
5.2.2 Cooperate with all kinds of disease assessment	4.50 \pm 0.65	0.145	0.011	0.000
5.2.3 Do a good job of family doctor team publicity work	4.21 \pm 0.80	0.190	0.002	0.000
5.2.4 Cooperate with the establishment of family beds and do a good job in nursing	4.43 \pm 0.65	0.146	0.006	0.000
5.2.5 Assist family doctors to do two-way referral of patients	4.21 \pm 0.89	0.212	0.004	0.000
5.3 Do a good job in multi-dimensional and multi-dimensional coordination	4.71 \pm 0.47	0.099	0.044	0.006
5.3.1 Publicity and interpretation of family doctors' contract related policies	4.43 \pm 0.76	0.171	0.023	0.000
5.3.2 Coordinating multidisciplinary teams and liaison with social resources	4.43 \pm 0.76	0.171	0.005	0.000
5.3.3 Participate in community diagnosis and health risk analysis	4.14 \pm 0.86	0.209	0.006	0.000
5.3.4 Contact and interact with neighborhood committees for joint management	4.29 \pm 0.61	0.143	0.011	0.000
6. Supervisor of home medical equipment use and medical waste disposal	4.64 \pm 0.50	0.107	0.157	—
6.1 Guide the standard use of point-of-care testing equipment (POCT)	4.71 \pm 0.47	0.099	0.118	0.019
6.1.1 Help patients and their families master the use, maintenance and maintenance of rapid testing equipment	4.64 \pm 0.50	0.107	0.118	0.002
6.2 Disposal of medical waste	4.71 \pm 0.47	0.099	0.039	0.006
6.2.1 Guide the classification, collection and disposal of medical waste	4.64 \pm 0.50	0.107	0.020	0.000
6.2.2 Prevention and emergency treatment of sharp weapon injuries	4.57 \pm 0.65	0.141	0.020	0.000

Note. Not applicable.

6-order judgment matrix was constructed, and research was conducted using the analytic hierarchy process. The weighted values of the 6 first-level indicators were 0.192, 0.167, 0.211, 0.132, 0.142 and 0.157, respectively. The consistency test was passed, and the results are shown in Table 3.

Index Revision

After the first round of inquiry, the research group screened and modified the indicators according to the selection criteria (for which the mean value of the importance score was lower than 3.50 or the coefficient of variation was greater than 0.25) and combined them with expert opinions. Six experts have proposed their opinions, and the main changes were as follows:

- (1) Deletion of indicators: the third-level indicators “development of community continuity care programs” and “multidisciplinary team organizers” were deleted.
- (2) Increase indicators: the third-level indicators “provide personalized self-care knowledge,” “encourage patients to master the prevention and care of disease complications,” “help patients understand the benefits of good compliance,” “create a neighborhood committee to carry out nursing activities,” “provide psychological support to family members according to the results of the evaluation,” “guide decompression,” and “do a good job maintaining health records and the updated information” were included. The prevention and emergency treatment of sharp weapon injuries was also included.
- (3) Modify the index: For the second-level indicators, “health records management,” “maintenance and updates,” and “medical waste disposal content” were changed to “prevent and provide emergency treatment for sharp weapon injuries.” The third-level indicators “guiding the standardized use of on-site rapid testing instruments (POCT)” was changed to “guiding the standardized use of on-site real-time testing instruments (POCT),” and “doing a good job managing health records” was adjusted to “assist family doctors in signing contracts and managing health records and input nursing follow-up information.”

All the indicators after the second round of inquiry met the screening criteria. One expert put forward an opinion. According to the expert opinion, the third-level indicator “popularize science from multiple angles and channels” was changed to “popularize science from multiple angles and channels, and develop network platforms (WeChat, QQ, Enterprise WeChat, etc.), TV broadcasts, and publicity leaflets.” “Carry out nursing activities” was changed to “creating village neighborhood committees to carry out nursing activities.” The group adopted the expert opinions. Finally, an

evaluation index system of nursing staff responsibilities in providing continuous home-based care for patients with chronic diseases was established; this system included 6 first-level indicators, 16 second-level indicators, and 43 third-level indicators. The importance scores of the indicators at all levels are shown in Table 3.

Discussion

The Importance and Urgency of the Index System

With the intensification of urbanization, industrialization and population aging in China and the increase in the prevalence of behavioral risk factors, the incidence of chronic diseases in China continues to increase.¹⁸ Chronic diseases are characterized by complex aetiologies, long disease courses, non-infections, and difficulty curing¹⁹ and thus pose great threats and losses to the health of all people.²⁰ Currently, most patients with chronic diseases require home care. After patients with chronic diseases return to the community from higher-level hospitals, community hospitals need to provide continuous care based on their actual conditions. To improve the quality of life of patients with chronic diseases, continuous community-based care plays a leading role in the transition period.²¹

The “National Nursing Career Development Plan (2021-2025)” promulgated by the National Health and Medical Commission recommends exploring long-term and stable forms of medical care services for patients with chronic diseases; extending nursing services from hospitals to communities and families; providing continuous care for patients; developing multiple nursing service models; and improving the continuity, coordination and integrity of medical care services. However, at present, relevant implementation actions have not been carried out effectively, a mature chronic disease continuous care system has not yet been established, and the perfect division of the functions of continuous community-based care personnel has not yet been determined.²² Comprehensively promoting the construction of a healthy Chinese population has led to new requirements for the development of the nursing industry, and a comprehensive, high-quality and efficient nursing service system for the nursing industry urgently needs to be built. Therefore, it is urgent and necessary to construct a job index system for community nurses providing home-based continuous care for patients with chronic diseases.

The Significance and Reliability of the Index System

We preliminarily determined the content of the service index system for community nurses providing continuous home-based care for patients with chronic diseases based on the investigation of residents’ needs conducted by a previous

research group and the practical experience of community nurses with chronic diseases. The invited experts included community nursing managers and community specialist nurses, all of whom had more than 10 years of experience in community nursing (78.6% of whom had associated senior titles or above), and their research fields included diabetes care, wound care, PICC maintenance, rehabilitation nursing, tranquillity nursing, psychological nursing, and health management; these individuals could also provide professional guidance in these areas.

In this study, the effective recovery rate of the 2 rounds of letter questionnaires was 100%, indicating that the positive coefficient of the experts was high; the authority coefficients of the experts were 0.94 and 0.93, which were greater than 0.7, indicating that the experts were more authoritative and that the results of the letter inquiries were more reliable. The Kendall concordance coefficient of the second round was greater than that of the first round ($P < .01$), indicating that the second round of expert opinions tended to be consistent and that the results of the letter inquiry were credible. The weight matrix showed good consistency. Among the indicators, the weight value of the first-level indicator "organizers of community group interventions" was the highest, at 0.211. The experts agreed that community nurses should adopt great health as the concept of home-based transitional care for patients with chronic diseases and provide comprehensive physical, psychological, social adaptation and activity services according to the specific conditions and needs of patients. Moreover, we should focus on home health education suitable for patients with chronic diseases so that patients and their families can understand and master the knowledge and skills needed to prevent and control their diseases, conscientiously implement healthy lifestyles and behaviors, improve medical and nursing compliance and initiatives in disease prevention and control, and achieve self-management.^{23,24}

The Practicability and Pertinence of the Index System

According to previous reports,¹¹ home-based patients with chronic diseases, such as disabled individuals, dementia patients, and disabled elderly individuals, and their caregivers hope that their treatment plans formulated by higher-level hospitals can be continued in the community or at home. Community nurses should provide home-based patients with convenient, standardized and safe care so that they can enjoy the same care as patients in higher-level hospitals.

In view of the characteristics of scattered residences, protracted course of disease, and self-care of home-based chronic disease patients, a system including 6 first-level indicators, 16 second-level indicators, and 43 third-level indicators was constructed, covering the core elements of community nurses providing transitional home care for patients with chronic

diseases. Moreover, the entire process of transitional home-based care in communities for patients with chronic diseases involves the implementation of treatment and nursing, disease prevention and delayed disease development, changes in unhealthy lifestyles, and guidance in the use of medical equipment at home. The work contents and responsibilities of community nurses in the transitional home-based care of patients with chronic diseases are shown in detail to provide more comprehensive guidance on community nursing work. This result is consistent with the findings of Ma et al²⁵ and Fan et al.²⁶ The United States, Germany, Australia, Japan and other developed countries have developed more complete service content and operation modes for continuous home-based care.²⁷⁻²⁹ Transitional home-based care in China is still in the exploratory stage. Most related studies have focused only on the role of community nurses as family doctor team assistants³⁰⁻³²; thus, subjective initiatives in relation to the role of community nurses are lacking. This study is based on the whole process of chronic disease management as a starting point, with community nurses as the leading participants in the development of the service scope, basically developing the "14th five-year plan" proposed to meet the differential and diversified nursing service needs of home-based patients and their caregivers. Community nurses are strongly involved in providing transitional home-based care for patients with chronic diseases and should be guided to play their role in providing transitional home-based care for patients with chronic diseases.

Limitations

This study has certain limitations. A sample verification study has not yet been conducted, and the practicality of the indicator system needs to be further clarified. The team plans to continuously verify and optimize this indicator system in terms of changing patients' lifestyles, reducing drug treatment, improving outcomes, and slowing disease progression.

Conclusion

As an aging society becomes increasingly prominent, community nursing staff play an important role in providing continuous home-based care for patients with chronic diseases. Based on the abovementioned requirements, an index system for the service scope of community nursing staff providing continuous home-based care for patients with chronic diseases was constructed; similar domestic research is lacking. In this Delphi study, an index system that can be used to determine community nurses' roles in providing traditional and continuous home-based care for patients with chronic diseases was successfully established. The index system is considered reliable and easy to use and will provide a meaningful reference for community nurses and policy-makers.

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Authors' Contributions

Jinjin Ge: Conceptualization, Methodology, Software, Writing - Original Draft. Chunyan Zhao: Formal analysis, Data Curation, Writing-Original Draft. Jiayun Lu: Investigation. Xian Zhang: Investigation. Xiaoling Zhou: Writing-Original Draft. Rongxi Wang: Writing-Original Draft. Changying Jiang: Investigation. Wei Sun: Investigation. Shuqin Ju: Investigation. Fulan wang: Investigation. Weiqun Liu: Validation, Investigation, Resources, Supervision. Yuzhong Yan: Resources, Supervision, Writing -Review & Editing.

Availability of Data and Materials

The datasets generated and/or analyzed during the current study are not publicly available due to privacy but are available from the corresponding author on reasonable request.

Consent for Publication

Not applicable.

Declaration of Conflicting Interests

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Ethics Approval and Consent to Participate

The study was approved by the research ethics committee of Zhoupu hospital of Shanghai Pudong New Area (2022-C-193-E01). All procedures performed in studies involving human participants were in accordance with the ethical standards of the Declaration of Helsinki.

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Supplemental Material

Supplemental material for this article is available online.

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