

Analysis of Educational Needs of Home Care Nurses: Utilizing Borich's Needs Assessment and the Locus for Focus Model

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Purpose: This study analyzed educational needs of home care nurses to improve the quality of home care service and identify priority educational subjects.

Methods: This study analyzed the training priorities of 54 home care nurses working at community service centers or public health centers in Seoul, Korea, using the Borich Needs Assessment and the Locus of Focus model. The home care nurses' tasks were categorized into 21 tasks and 85 task elements.

Results: Six priority educational subjects were identified: 1) health assessment and monitoring, 2) nursing records and information management, 3) health education and counseling techniques, 4) home care supplies management, 5) recipient identification and communication skills, and 6) care recipient classification and management. Activities related to one-on-one health management, such as health screening, measurements, and disease management counseling, were found to be high priorities. In contrast, small group program planning and operation were rated as a low priority.

Conclusion: This study underscores the importance of incorporating identified educational needs into training curricula for home care nurses. Regular assessment and integration of these needs into educational programs are crucial for enhancing nursing competence and service quality.

Keywords: Aged; Education; Home care services; Nursing; Organization and Administration

Introduction

Korea is expected to become a super-aged society in 2025, and the demand for medical services provided at home and preventive care for vulnerable groups implemented by public health centers is expected to increase due to several factors, such as the increase of chronic diseases in elderly people, the increase of elderly people living alone, and a high poverty rate among the elderly. As a result, the role and importance of home care nurses are increasingly emphasized [1]. The basic role of home care nurses implementing the home care service of public health centers is to provide healthcare services through home visits to vulnerable groups with limited access to healthcare services and el-

derly people, and home care nurses mainly perform the role of providing preventive healthcare services before people living with illness or frailty reach the stage where they need long-term care services. In other words, home care nurses perform nursing interventions such as health screening, monitoring, health counseling, and disease management for care recipients, and if necessary, they perform the primary prevention of diseases to which care recipients can access easily through linkage with community health and welfare services and medical institutions in the community. In addition, they perform the assessment of the health status of the community they are in charge of at the population level, and provide public health campaigns and group programs to promote healthy lifestyles [2]. In recent years, as technological

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development enables real-time health monitoring at home, home is becoming a preferred place of primary, secondary, and tertiary care [3]. Accordingly, in some pilot regions, a healthcare approach utilizing a smartphone app and various Bluetooth devices is also being utilized within the home care service by implementing the 'AI-IoT-based health care for the elderly.'

For home care nurses to perform these complex roles effectively, systematic and comprehensive training processes are essential. However, although the roles and demand of home care services are increasing, training for home care nurses is implemented according to practice guidelines, and there is a lack of a systematic education process or best practices for the training of home care nurses [4]. In an organization, human resources cannot be separated from training, and the organizational capability to make changes is closely related to preparation for the future and the ability to disseminate knowledge acquired from past experience within the organization [5]. Therefore, enhancement of the competencies of home care nurses does not simply mean the improvement of individuals' skills, but it is also related to the ability to create change of the entire organization [6]. In this respect, it is a method for maximizing the efficiency of education to systematically identify educational needs as well as the items of educational content that should be given priority with limited resources [7].

Needs assessment refers to a process of identifying differences between competencies required for the achievement of the goals of an individual or an organization and the present competencies of the individual or organization. This process makes it possible to identify what type of education is needed and develop a curriculum to meet educational needs. Needs assessment increases the efficiency of education, and helps to allocate a budget in a reasonable manner. A method of needs assessment frequently utilized in the education of various disciplines is the needs assessment model proposed by Borich [8-11]. According to Borich, an educational need is defined as a discrepancy between an educational goal and trainee performance. Borich's educational needs model is a practical method that can be easily applied when you create a list of skills required for individuals to work effectively, assess educational needs for each skill, and develop an educational program based on the assessment results.

However, if the Borich model is used alone, it is necessary to determine how many top priority items should be considered in an education program. To deal with this problem, the Locus for Focus (LFF) model can be additionally used along with the Borich model [12]. The LFF model helps to prioritize educational topics by visually displaying educational needs on a two-dimen-

sional plane. In this model, the horizontal axis represents the average of the required competence levels (RCLs) of each activity, and the vertical axis represents the average of the difference between the required competence levels (RCLs) and the present competence levels (PCLs) of each activity. These two axes divide the plane of a graph into four quadrants. The first quadrant (HH) represents activities with a high RCL and a large positive difference between the RCL and PCL, which correspond to top priority educational topics. The second quadrant (LH) represents activities with a low RCL and a large difference between the RCL and PCL. The third quadrant (LL) represents activities with a low RCL and a small difference between the RCL and PCL. The fourth quadrant (HL) represents activities with a high RCL and a small difference between the RCL and PCL, which are areas where activities are already being appropriately performed. This LFF model allows us to visually identify the priorities of educational needs, and the final priorities of educational needs can be determined by comprehensively interpreting the LFF model together with the results of Borich needs assessment.

Therefore, this study aimed to analyze the educational needs of home care nurses implementing the home care service of public health centers and identify high priority educational topics by utilizing the Borich needs assessment model and LFF model. A systematic analysis of educational needs and the discussion of educational strategies are expected to contribute to the enhancement of the competencies of home care nurses and the improvement of the quality of their home care service.

Methods

Study design

This study is a cross-sectional exploratory study using a secondary data to analyze the educational needs of home care nurses by applying both Borich's educational needs assessment and the LFF model. The research process consisted of determining a list of tasks through a literature review, identifying perceived RCL for each task and self-rated current performance levels for each task, and analyzing the responses of home care nurses to derive the priorities of educational topics.

Participants

The participants of this study were home care nurses working at the community service centers of each dong (neighborhood) or public health centers in Seoul Metropolitan City. When raw data was collected, analysis was conducted with data from 54 home care nurses recruited from a total of 50 dongs selected by extract-

ing 2 dongs from each of the 25 districts in Seoul. The inclusion criteria of the participants were as follows: 1) home care nurses working at a community service center of each dong (neighborhood) or a public health center; 2) nurses with two years or more of work experience as a home care nurse. All home care nurses working for the home care service were considered to meet the inclusion criteria regardless of the type of employment such as public servant and indefinite-term contract worker.

Regarding the exclusion criteria, home care nurses with less than one year of work experience in the home care service were excluded. It was allowed to exclude people who had difficulty performing tasks properly due to health problems, and people engaged in other occupations than nursing, such as nutritionists or exercise therapists, were also excluded.

Measures

General characteristics

The general characteristics of the participants examined were as follows: work region (district, dong as an administrative unit), age, gender, and length of career (years of employment) in nursing and the home care service.

Educational needs assessment

Regarding the key variable of this research, tasks derived through DACUM job analysis in a previous study were supplemented based on the 2023 home care service manual [2]. Finally, the job duties of home care nurses were classified into 21 tasks and 85 task elements, and the tasks included activities such as identifying new care recipients, health interview surveys, planning home care service interventions, implementing interventions, reevaluation, planning and running small group programs, referral and linkage, administrative duties and promoting the health project (Appendix 1). For each of the 85 task elements, the participants were asked to assess the RCL and the PCL on a 5-point Likert scale. In this case, the RCL refers to the required competency level perceived as important by the respondent for each item, and the PCL refers to the competency level that the respondent perceives as his or her current competency level. The RCL was as-

sessed on a 5-point scale ranging from 1 point (Not important at all) to 5 points (Very important). The PCL was assessed on a 5-point scale ranging from 1 point (Very difficult) to 5 points (Very easy). A higher RCL score indicates that the activity was perceived as more important by home care nurses. A higher PCL score indicates a higher level of proficiency for the activity.

Data collection and analysis

This study utilized three main analysis methods. First, needs analysis formula proposed by Borich is a method to rank educational needs [11]. The score of Borich's educational needs (Fig. 1) is calculated by multiplying the difference between the RCL and the PCL by the Mean Competence Level (MCL), which is the average of the RCLs. This product is then divided by the total number of cases (N). In other words, this formula is used to produce the final scores for educational needs for the relevant items by calculating the difference between RCL and PCL for each item, assigning a weight (MCL) to the difference, and dividing the weighted value by the total number of the respondents. When the scores for educational needs for each item are calculated by the method described above, a higher score for educational needs is considered to indicate a greater educational need for the area.

Second, this study employed the Locus for Focus model to visually represent priorities by arranging 85 tasks of home care nurses on a coordinate plane divided into four quadrants according to educational needs. In the coordinate plane divided into four quadrants, the x-axis represents the RCL, the y-axis represents the difference between the RCL and PCL, and the intersection point of the axes is determined by the average RCL and the average difference between the RCL and PCL. The items located in the first quadrant (HH) were rated as activities with the most urgent educational needs because the RCLs of the items were higher than the average RCL and there was a large positive difference between the RCL and PCL. Activities that had low RCL but a large positive difference between RCL and PCL were placed in the second quadrant (LH). Activities that had a low RCL and a small difference between the RCL and PCL were placed in the third quadrant (LL), and activities that had a high

$$\text{Borich's Educational Need} = \frac{\sum(RCL - PCL) \times MCL}{N}$$

RCL = Required Competency Level
PCL = Present Competency Level
MCL = Mean Competency Level
N = Total number of cases

Figure 1. Equation of Borich need assessment

RCL but a small difference between RCL and PCL were placed in the fourth quadrant (HL).

Third, activities were classified into the following four categories based on the key areas of community nursing: 'A. Assessment of community nursing needs'; 'B. Health program planning and resource utilization'; 'C. Health promotion and maintenance of each population group'; and 'D. Safety and environmental management' [13]. This classification is based on the learning objectives of community nursing for nursing students, but this classification method comprehensively covers the key areas of the work of home care nurses, so it was considered to be suitable for the present research purpose of educational needs analysis. 'Community care needs assessment' is directly related to home care nurses' work of assessing the health status of care recipients and identifying their needs. The category of 'Health project planning and resource utilization' includes the process in which home care nurses plan and implement programs for individual care recipients or the community. 'Population health promotion and maintenance' reflects health promotion activities of nursing recipients as a core duty of home care nurses. 'Safety and environment management' is related to the activities of evaluating the home environment of service recipients and improving the environment. In this study, the above four categories were used as the main categories of the areas of the job duties of home care nurses, and their activities were divided into a total of five categories by adding the category of 'E. Other.'

Ethical considerations

This study was conducted as part of 'A study on the estimation of the standard workload of the professional workforce of the home care service' and is a study that utilized a secondary data collected as part of the organizational management work of Seoul Metropolitan City. This study utilized a secondary data provided after deleting personally identifiable information from it, and received approval from the relevant institution for the use of the data. All the procedures of this study were carried out after obtaining approval from the Institutional Review Board of Konkuk University (IRB No. 7001355-202403-HR-764).

Results

General characteristics of the participants

Table 1 shows the results of analyzing the demographic characteristics and employment types of the study participants, who were nurses working for the home care service. The mean age of the participants was 46.65 years (SD = 10.82), and the age of the

participants ranged from 29 to 63 years. For gender, 100 people (100%) were female, showing that home care nurses are mostly women.

The mean length of career in home care service was 66.11 months (SD = 40.88), and the participants had various lengths of work experience, ranging from 14 months to 224 months (18 years and 8 months). As for employment type, the participants consisted of 18 civil servants (33.3%), 33 indefinite-term employees (61.1%), and 3 temporary or part-time workers (5.6%). These results showed that indefinite-term employees account for a large proportion of the workforce of the home care service.

Educational needs analysis using Borich needs assessment and the LFF model

The RCL and PCL for each task element of home care nurses were assessed, and the educational needs were analyzed based on the differences between the RCL and PCL. The overall analysis results obtained using the priorities according to the Borich formula and the LFF model are presented in Appendix 1 and Fig. 2. The interpretation and analysis of the research results were focused on tasks with a large difference between the RCL and PCL and tasks with high Borich needs scores. In addition, this study mainly considered the core tasks of home care nurses that directly affect the effective delivery of the home care service and the health outcomes of care recipients along with tasks that are more likely to be improved.

As a result, tasks corresponding to the first quadrant (HH) were shown to be areas that most urgently require training because they had a high RCL and a large difference between the RCL and PCL. In the area of health screening, measuring blood sugar levels (Borich needs score: 9.37, ranked 1st), measuring vital signs (Borich needs score: 9.28, ranked 2nd), surveying care

Table 1. General Characteristics of home care nurses (N=54)

Categories		Mean $\pm$ SD or n (%)
Age		46.65 $\pm$ 10.82
Sex	Male	0(0.0)
	Female	100(100.0)
Career of Home care service (Months)		66.11 $\pm$ 40.88
Years of employment	12~24 months	15(27.8)
	24~36 months	4(7.4)
	36~60 months	2(3.7)
	60 months	33(61.1)
Employment type	Civil servants	18(33.3)
	Indefinite-term employees	33(61.1)
	Part-time	3(5.6)

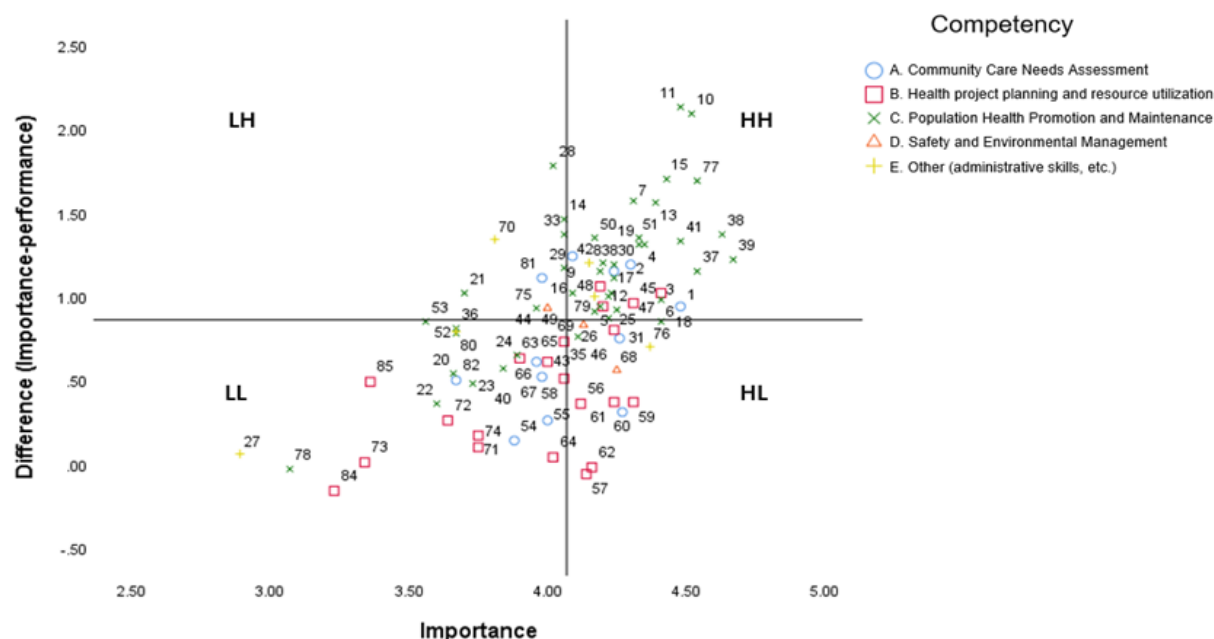


Figure 2. The Locus for Focus priorities of home visiting nurse's educational need

recipients about chronic disease morbidity status (Borich needs score: 7.40, ranked 4th), and administering a health behavior questionnaire (Borich needs score: 6.70, ranked 6th) were areas for which the participants showed high educational needs. In the area of recording and reporting, the participants showed a high educational need for entering data into the community public health information system (PHIS) (Borich needs score: 7.75, ranked 3rd). In the area of direct nursing activities, the participants showed high educational needs for providing disease management consultation and education (Borich needs score: 6.23, ranked 8th), providing consultation on healthy lifestyle practices (Borich needs score: 5.87, ranked 9th), and providing medication management education (Borich needs score: 5.60, ranked 13th). In the area of identifying new care recipients, introducing oneself and explaining the purpose of visit (Borich needs score: 6.67, 7th place) was a high priority area.

Tasks corresponding to the second quadrant (LH) are areas where training is required because the tasks have a low RCL but have a large difference between the RCL and PCL. The tasks of the second quadrant (LH) include inspecting and preparing relevant items for visits (Borich needs score: 7.01, ranked 5th place) and categorizing service recipients into severity groups (Borich needs score: 5.46, ranked 16th place)

The tasks corresponding to the third quadrant (LL) and the fourth quadrant (HL) were found to have relatively low educa-

tional needs. The tasks corresponding to the third quadrant (LL) are activities such as identifying community nursing issues from secondary data and information sources (Borich needs score: 0.78, ranked 77th), periodically operating small group sessions (Borich needs score: 0.15, ranked 81st), and periodically consulting small group participants on developing health issues (Borich needs score: 2.73, ranked 55th). In the fourth quadrant, activities such as securing the budget and location for small group programs (Borich needs score: 1.49, ranked 70th) were included.

Analysis of educational needs according to the classification of learning objectives of community nurses

A total of 85 activities of home care nurses were classified according to the 4 kinds of competencies of home care nurses and the mean Borich needs scores of the activities were calculated (Table 2). The mean Borich needs score of 'A: Community care needs assessment' was 3.03 (SD 1.62), and 12 activities (14.1%) out of the total activities of home care nurses belonged to this category. For 'B: Health project planning and resource utilization', the mean Borich needs score was 1.83 (SD 1.51), and 21 activities (24.7%) out of the total activities belonged to this category. For 'C: Population health promotion and maintenance', the mean Borich needs score was 4.61 (SD 2.00), indicating the highest educational need, and 43 out of the total activities belonged to this category, accounting for 50.6%. For 'D: Safety and environ-

Table 2. Borich Needs Assessment by Community Nurses' Learning Objectives Classification (N=85)

Learning objectives		n (%)	Mean $\pm$ SD	Min ~ Max
Borich needs assessment	A: Community care needs assessment	12(14.1)	3.03 $\pm$ 1.62	0.78 ~ 5.00
	B: Health project planning and resource utilization	21(24.7)	1.83 $\pm$ 1.51	-0.41 ~ 4.41
	C: Population health promotion and maintenance	43(50.6)	4.61 $\pm$ 2.00	0.11 ~ 9.37
	D: Safety and environmental management	3(3.5)	3.16 $\pm$ 0.56	2.55 ~ 3.64
	E: Other (administrative skills, etc.)	6(7.1)	3.32 $\pm$ 1.88	0.16 ~ 5.13

Table 3. Analysis of LFF model based on Community Nurses' Learning Objectives Classification (N=85)

LFF model quadrant / Learning objectives		Community care needs assessment	Health project planning and resource utilization	Population health promotion and maintenance	Safety and environmental management	Other (administrative skills, etc.)
HH: quadrant 1	Row%	4(11.1)	4(11.1)	26(72.2)	0(0.0)	2(5.6)
	Column%	4(33.3)	4(19.1)	26(60.5)	0(0.0)	2(33.3)
LH: quadrant 2	Row%	1(11.1)	0(0.0)	6(66.7)	1(11.1)	1(11.1)
	Column%	1(8.3)	0(0.0)	6(14.0)	1(33.3)	1(16.7)
LL: quadrant 3	Row%	5(18.5)	11(40.7)	9(33.3)	0(0.0)	2(7.4)
	Column%	5(41.7)	11(52.4)	9(20.9)	0(0.0)	2(33.3)
HL: quadrant 4	Row%	2(15.4)	6(46.2)	2(15.4)	2(15.4)	1(7.7)
	Column%	2(16.7)	6(28.6)	2(4.7)	2(66.7)	1(16.7)

mental management)', the mean Borich needs score was 3.16 (SD 0.56), and 3 (3.5%) out of the total activities belonged to this category. Lastly, the mean Borich needs score for 'E: Other' was 3.32 (SD 1.88). The activities corresponding to 'E: Other' were 6 kinds of activities, including material management, reporting and performance management, and training and professional development, and these 6 kinds of activities accounted for 7.1% of the total activities.

In addition, the educational needs for each learning objective of home care nurses were identified by classifying them according to the four quadrants of the LFF model (Table 3). In the first quadrant (HH), which represents activities with a high RCL and a large difference between the RCL and PCL, activities related to 'Population health promotion and maintenance' accounted for the majority with the row ratio of 72.2%, and the column ratio within the same area was also high at 60.5%. These results indicate that many of the activities that home care nurses consider important but have difficulty performing are direct nursing activities related to population-based health promotion and maintenance. In the case of the second quadrant (LH), which represents activities which have a relatively lower RCL than the MCL, but are perceived as difficult to perform, and 6 activities (66.7%) among the activities of 'C: Population health promotion and maintenance' were included in this quadrant. In addition, one ac-

tivity for each of the three areas of 'Safety and environmental management', 'Community care needs assessment', and 'Other' was included. The third quadrant (LL) represent activities that were perceived as having a low RCL by home care nurses and have a small difference between the RCL and PCL. In the third quadrant, the activities of 'health project planning and resource utilization' took up the largest proportion at 40.7%, and the column ratio was also high at 52.4%, which shows that activities of 'health project planning and resource utilization' took up a large proportion among activities in the same area. These activities mainly consist of identifying community nursing issues through statistical data, running small group programs and periodically offering consultations on health issues to small group participants, supporting the specialized projects of public health centers and community service centers, and establishing promotional strategies. The fourth quadrant (HL) represents activities that can be performed without difficulty since they have a high RCL but have a small difference between RCL and PCL. In this quadrant, activities of 'health project planning and resource utilization' accounted for 46.2%, and they included tasks related to program operation such as securing the budget and location for small group programs, securing community resources, and selecting service recipients.

Discussion

Home care nurses are self-directed people who make decisions on and take responsibilities for their learning as adult learners [14]. They have very diverse individual experiences as home care nurses, and these experiences become important resources for learning. In particular, adult learners are competency-based learners, and are mainly interested in acquiring knowledge and skills they can immediately apply to actual daily activities or tasks at work [15,16]. In education, these characteristics are explained by the theory of 'andragogy', and it is stated that education for adult learners should be planned by considering different characteristics from the traditional learning process for children. In other words, it is claimed that in the education of adults, it is necessary to evaluate conformity to their understanding rather than simply transmitting knowledge [17]. To implement training for home care nurses efficiently in consideration of these characteristics, it is necessary to identify tasks that are perceived as very important but difficult to perform, and develop a training program based on the identified tasks. Therefore, first, a Borich needs assessment and LFF model analysis were performed to identify high priority activities. Based on the results of needs analysis and LFF model analysis, this study attempted to suggest the education subjects reflecting the educational needs of home care nurses, and thereby lay the basis for the development of a practical education program that can contribute to the capacity enhancement of home care nurses and the improvement of the quality of nursing services.

The results of this study revealed that competencies that need to be primarily considered as top priorities are abilities for activities corresponding to 'population health promotion and maintenance', and these activities are located in the first quadrant (HH) and the second quadrant (LH), and thus need to be more urgently considered. In particular, activities in the first quadrant are areas where education is most urgently required because they are activities with a high RCL and a low PCL. In this study, these activities included health screening, recording and reporting, direct nursing activities, and identifying new service recipients. Activities for the second quadrant included inspecting and preparing relevant items for visits and categorizing service recipients into severity groups. Therefore, the key items of educational content were derived as follows: 1) improvement of health assessment and monitoring competencies; 2) acquisition of standardized nursing records and information management skills; 3) effective health education and counseling skills; 4) strengthening the competency for home care supplies management for safe home

care; 5) discovery of new home care recipients and improvement of communication skills; 6) understanding care recipient classification and management. These results are closely related to the main tasks home care nurses encounter in practice, and reflect the essential elements for effectively performing their job duties in the field.

With respect to research on the education of home care nurses implementing the home care service in public health center, a number of studies on the job analysis of home care nurses have been conducted [18,19], and there have also been studies on the development of educational programs for specific areas such as infection and safety management [20,21]. However, the only previous study on the overall educational needs of home care nurses in charge of the home care service at public health centers is a study conducted in 2018 on the development of a training program for home care nurses in Seoul [22]. In previous studies, health screening including physical assessment and counseling on exercise therapy among health management counseling and health education were found to be activities with a high level of importance but with a low level of performance, and these findings are similar to the results of this study. A comparison of the research results of the previous study and this study revealed that the educational need for the area of health assessment and monitoring was high in both studies, indicating the necessity for continuous training for this area. In particular, the needs for accurate measurement and interpretation of blood sugar levels and vital signs were found to be the first and second highest, respectively, in Borich needs assessment, showing that the educational needs for these basic health screening skills are continuously high.

Consistent with the previous study, health education for service recipients and counseling techniques were derived as a high priority item in this study. However, compared to the results of the previous study, the educational need for medication management was higher in this study. These results are in agreement with a prior study of educational needs among home care nurses of the long-term care system, which reported that oral medication management was identified as the top priority educational task [23]. In Korea, the rate of older people taking multiple drugs is reported to be very high with 41.3% in older males and 58.7% in older females [24], and these results show that the management of major drugs related to chronic conditions is an important axis in nursing services based on all homes.

A previous study on priority tasks for the training and management of home care nurses claimed that since education at nursing colleges is focused on hospital nursing and acute nursing worldwide, there is a need to apply a training curriculum requir-

ing several weeks or several months for newly employed home care nurses without prior experience in community nursing [4]. In addition, the previous study also discussed the importance of the development of evidence-based practice guidelines that can be applied to the practice of home care service, and suggested that such guidelines should be reflected in the training curriculum. In particular, in addition to subject areas focused on nursing activities dealt with in this study, leadership competency enhancement and the interdisciplinary team cooperation ability have been reported as top priorities, and the ability to utilize up-to-date technologies has also been presented as an important subtopic [25,26].

When analyzing educational needs, there is a need to pay attention to relatedness, agreement, and differences between the changing needs of the organization and the needs of employees [27]. As a result of a comparison with the results of a previous study conducted in 2018 [22], the planning and operation of small group programs showed low levels of importance and performance in the previous study, but in the present study conducted 5 years after the prior study, matters related to the planning and operation of small group programs mostly corresponded to the third quadrant (LL), showing that although the difference between the RCL and PCL was decreased, the RCL was still perceived as low. These results are slightly different from the current policy direction of attempting to strengthen community health assessment and the operation of small group programs in order to realize population-based preventive healthcare [28,29]. This may be attributed to home care nurses' perception that it is difficult to put additional time and effort into small group operation due to the work burden regarding individual visits, or the lack of recognition of the effects of small group programs compared to the effects of the personalized home care service.

One of the limitations of this study is that since this study examined the RCL for each activity only among the nurses performing home care services, the opinions of academic experts, managers of the home care service, and policy makers on the policy direction of healthcare were not included in the analysis. Therefore, in a follow-up study, it is necessary to examine the opinions of various stakeholders as well, investigate differences in the opinions of various stakeholders, such as practitioners, managers, and policy makers, and reflect the analysis results in the training curriculum. In addition, since the participants were not evenly distributed in terms of the length of career, it was not possible to analyze differences in educational needs according to the length of career. Therefore, to develop training programs suitable for each career stage, further research should be conducted to an-

alyze differences in educational needs according to career stages.

Lastly, since education and training programs need to be continuously modified according to the constantly changing environment and needs, it is necessary to establish the educational needs assessment as part of the system of the home care service, and conduct periodic monitoring [4]. The competency of home care nurses can be maintained by identifying continuously changing needs in the field through the periodic assessment of educational needs and rapidly reflecting them in educational programs for home care nurse.

Conclusions

This study presented the educational priorities of home care nurses by using the Borich needs assessment model and the LFF model in order to provide basic data for the development of a systematic training program for the quality improvement of the home care service. To sum up, the following six subjects were derived as high priority subjects: 1) improvement of health assessment and monitoring competency; 2) acquisition of standardized data and information management skills; 3) effective care recipient education and counseling skills; 4) enhancement of nursing supplies management competency for performing safe home care nursing; 5) care recipient identification and improvement of communication skills; 6) care recipient classification according to disease severity and the management system. In particular, in terms of the classification based on the learning objectives of community nursing, subjects related to 'population health promotion and maintenance' were derived as high priority subjects.

This study provided a basis for the development of a practical training program reflecting the educational needs of home care nurses implementing the home care service of public health centers. Hopefully, the results of this study can serve as a basis for the future development and application of a systematic training program that can contribute to the enhancement of the competencies of home care nurses and quality improvement in nursing services.

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Conflict of interest

Young Ko has been editorial board member of the Journal of Korean Community Health Nursing since January 2018. She was not involved in the review process of this manuscript. Otherwise, there was no conflict of interest.

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Authors' contributions

Dasom Kim contributed to conceptualization, data curation, formal analysis, visualization, writing-original draft, review & editing, and investigation. Hyeongsu Kim contributed to project administration, writing - review & editing, resources, supervision, and validation. Young Ko contributed to conceptualization, methodology, writing-original draft, review & editing, supervision, and validation.

Data availability

Please contact the corresponding author for data availability.

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Appendix 1. Educational Need Analysis of Home Care Nurses by Borich Need Assessment and The Locus for Focus Analysis (N=54)

Task	Task element	Learning objectives [†]	RCL	PCL	Difference (RCL-PCL)	Paired t (<i>p</i>)	Borich need	Borich priority [‡]	LFF priorities
			Mean ± SD		Δ (95% CI)				
1. Identify new care recipients	1. Obtain a list of new potential recipients	A	4.48 ± 0.61	3.54 ± 0.99	0.94 (0.69, 1.20)	7.38 (< .001)	4.16	33	HH
	2. Check the list of beneficiaries	A	4.30 ± 0.63	3.11 ± 0.88	1.19 (0.90, 1.47)	8.46 (< .001)	5.00	19	HH
	3. Coordinate visit schedule by phone	C	4.41 ± 0.82	3.43 ± 0.12	0.98 (0.73, 1.23)	7.83 (< .001)	4.25	32	HH
	4. Identify subjects using computerized data	C	4.35 ± 0.80	3.04 ± 0.91	1.31 (1.08, 1.54)	11.46 (< .001)	5.62	12	HH
	5. Confirm visit appointment by phone	C	4.19 ± 0.96	3.04 ± 0.11	1.15 (0.88, 1.42)	8.62 (< .001)	4.72	25	HH
	6. Confirm potential service recipients' residence through home visit	C	4.41 ± 0.1	3.56 ± 0.12	0.85 (0.55, 1.16)	5.58 (< .001)	3.69	44	HL
2. Building rapport	7. Introduce yourself and explain purpose of visit	C	4.31 ± 0.09	2.74 ± 0.12	1.57 (1.28, 1.87)	10.76 (< .001)	6.67	7	HH
3. Health screening	8. Conduct general information survey of subject	C	4.24 ± 0.08	3.06 ± 0.1	1.19 (0.98, 1.39)	11.55 (< .001)	4.93	22	HH
	9. Measure height and weight, body circumference	C	4.06 ± 0.08	2.89 ± 0.11	1.17 (0.95, 1.38)	10.78 (< .001)	4.65	26	LH
	10. Measure vital signs	C	4.52 ± 0.08	2.43 ± 0.1	2.09 (1.82, 2.37)	15.16 (< .001)	9.28	2	HH
	11. Measure blood sugar levels	C	4.48 ± 0.08	2.35 ± 0.12	2.13 (1.84, 2.42)	14.70 (< .001)	9.37	1	HH
	12. Perform physical assessment	C	4.22 ± 0.08	3.22 ± 0.1	1.00 (0.77, 1.23)	8.68 (< .001)	4.15	34	HH
	13. Administer health behavior questionnaire	C	4.39 ± 0.08	2.83 ± 0.09	1.56 (1.3, 1.81)	12.10 (< .001)	6.70	6	HH
	14. Survey history of health checkups	C	4.06 ± 0.08	2.59 ± 0.11	1.46 (1.23, 1.69)	12.79 (< .001)	5.83	10	LH
	15. Survey chronic disease morbidity status	C	4.43 ± 0.08	2.72 ± 0.1	1.70 (1.42, 1.98)	12.26 (< .001)	7.40	4	HH
	16. Conduct dementia screening test	C	4.09 ± 0.08	3.07 ± 0.11	1.02 (0.78, 1.25)	8.73 (< .001)	4.09	35	HH
	17. Administer elderly depression test	C	4.24 ± 0.08	3.13 ± 0.13	1.11 (0.83, 1.39)	7.99 (< .001)	4.63	27	HH
	18. Screen for suicidality	C	4.25 ± 0.08	3.33 ± 0.13	0.92 (0.65, 1.19)	6.89 (< .001)	3.94	37	HH
	19. Assess elderly frailty	C	4.33 ± 0.08	3.02 ± 0.1	1.31 (1.07, 1.56)	10.65 (< .001)	5.59	14	HH
	20. Perform balance assessment	C	3.66 ± 0.12	3.12 ± 0.13	0.54 (0.21, 0.87)	3.28 (.001)	1.80	66	LL
	21. Measure grip strength	C	3.7 ± 0.1	2.69 ± 0.11	1.02 (0.74, 1.30)	7.35 (< .001)	3.70	43	LH
	22. Perform balance test (Timed Up and Go)	C	3.6 ± 0.11	3.24 ± 0.13	0.36 (0.06, 0.66)	2.44 (.009)	1.18	74	LL
	23. Screen for alcoholism	C	3.73 ± 0.1	3.25 ± 0.16	0.48 (0.09, 0.87)	2.46 (.009)	1.70	68	LL
	24. Investigate tuberculosis and respiratory diseases	C	3.89 ± 0.11	3.24 ± 0.17	0.65 (0.29, 1.02)	3.59 (< .001)	2.12	62	LL
4. Planning today's visit	25. Select nursing home visit recipients for today's visits	C	4.19 ± 0.1	3.24 ± 0.09	0.94 (0.69, 1.20)	7.55 (< .001)	3.88	40	HH
	26. Plan, coordinate, and obtain consent for today's visit schedules	C	4.17 ± 0.11	3.26 ± 0.08	0.91 (0.66, 1.15)	7.44 (< .001)	3.71	42	HH
	27. Arrange transportation for home visits	E	2.89 ± 0.16	2.83 ± 0.14	0.06 (-0.36, 0.49)	0.30 (.382)	0.16	80	LL
5. Prepare supplies before a visit	28. Inspect and prepare relevant items for visits	C	4.02 ± 0.1	2.24 ± 0.11	1.78 (1.46, 2.09)	11.26 (< .001)	7.01	5	LH
6. Select and identify care recipients	29. Obtain service recipients data from online administrative system	A	4.09 ± 0.08	2.85 ± 0.14	1.24 (0.94, 1.55)	8.18 (< .001)	4.99	20	HH
	30. Identify requested service recipient (case management, meeting, etc.)	A	4.24 ± 0.09	3.09 ± 0.1	1.15 (0.89, 1.41)	8.79 (< .001)	4.78	24	HH
	31. Select priority care recipient among existing service users	A	4.26 ± 0.09	3.51 ± 0.11	0.75 (0.51, 1.00)	6.13 (< .001)	3.41	47	HL

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Appendix 1. (Continued)

Task	Task element	Learning objectives [†]	RCL	PCL	Difference (RCL-PCL)	Paired t (p)	Borich need	Borich priority [‡]	LFF priorities
			Mean ± SD		Δ (95% CI)				
7. Prioritize health concerns	32. Create list of nursing problems for visits	C	4.23 ± 0.09	3.17 ± 0.08	1.06(0.87, 1.25)	11.13(< .001)	3.92	38	HH
	33. Categorize service recipients into severity groups	C	4.06 ± 0.09	2.69 ± 0.09	1.37(1.14, 1.60)	11.80(< .001)	5.46	16	LH
8. Planning nursing interventions	34. Establish nursing care plan for each problem (set goals, detailed nursing activities, schedule planning)	C	4.22 ± 0.1	3.35 ± 0.09	0.87(0.63, 1.11)	7.35(< .001)	3.61	46	HH
	35. Agree on home care nursing plan with recipients	C	4.11 ± 0.09	3.35 ± 0.09	0.76(0.56, 0.96)	7.69(< .001)	3.06	50	HL
9. Home care recipients	36. Travel to recipient's home	C	3.67 ± 0.1	2.85 ± 0.12	0.81(0.52, 1.11)	5.62(< .001)	2.93	52	LL
10. Direct nursing activities	37. Conduct nursing assessment of physical, psychological and social status	C	4.54 ± 0.08	3.39 ± 0.1	1.15(0.90, 1.39)	9.39(< .001)	5.11	18	HH
	38. Provide disease management consultation and education	C	4.63 ± 0.08	3.26 ± 0.12	1.37(1.11, 1.63)	10.52(< .001)	6.23	8	HH
	39. Provide medication management education	C	4.67 ± 0.07	3.44 ± 0.09	1.22(1.01, 1.43)	11.68(< .001)	5.60	13	HH
	40. Provide support for home-based healthcare	C	3.84 ± 0.12	3.27 ± 0.11	0.57(0.26, 0.88)	3.70(< .001)	1.95	63	LL
	41. Provide consultation on healthy lifestyle practices (physical activity, nutrition, obesity, other health risks)	C	4.48 ± 0.07	3.15 ± 0.08	1.33(1.15, 1.52)	14.56(< .001)	5.87	9	HH
	42. Recommend national health checkups and consult on results (elderly, cancer, life transition)	C	4.2 ± 0.08	3 ± 0.09	1.20(1.00, 1.40)	12.01(< .001)	4.97	21	HH
	43. Provide counseling on welfare needs	B	4 ± 0.09	3.39 ± 0.1	0.61(0.38, 0.84)	5.25(< .001)	2.40	58	LL
	44. Identify and consult on residential environment risk factors	D	4 ± 0.08	3.07 ± 0.1	0.93(0.68, 1.17)	7.67(< .001)	3.64	45	LH
11. Referrals and follow up	45. Identify health and welfare resources	B	4.31 ± 0.09	3.35 ± 0.08	0.96(0.74, 1.19)	8.60(< .001)	4.08	36	HH
	46. Determine eligibility for referral among nursing home visit recipients (identify referral criteria, prepare documents)	B	4.24 ± 0.09	3.44 ± 0.09	0.8(0.58, 1.01)	7.44(< .001)	3.32	48	HL
	47. Refer home care recipients to relevant affiliated organization	B	4.41 ± 0.09	3.39 ± 0.09	1.02(0.8, 1.24)	9.21(< .001)	4.41	29	HH
	48. Check linkage results for referred home care recipients	B	4.19 ± 0.09	3.13 ± 0.08	1.06(0.85, 1.26)	10.52(< .001)	4.34	30	HH
	49. Conduct follow-up management of referred home care recipients	B	4.2 ± 0.09	3.26 ± 0.07	0.94(0.72, 1.17)	8.56(< .001)	3.90	39	HH
12. Terminating a service	50. Re-evaluate health status	C	4.17 ± 0.1	2.81 ± 0.1	1.35(1.09, 1.62)	10.20(< .001)	5.53	15	HH
	51. Consult on changes in health status	C	4.33 ± 0.08	2.98 ± 0.08	1.35(1.13, 1.58)	12.00(< .001)	5.75	11	HH
	52. Survey satisfaction with home care services	C	3.67 ± 0.09	2.89 ± 0.09	0.78(0.55, 1.01)	6.81(< .001)	2.80	54	LL
	53. If necessary, discharge recipients from service after completion	C	3.56 ± 0.09	2.7 ± 0.1	0.85(0.60, 1.10)	6.81(< .001)	2.97	51	LL

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Appendix 1. (Continued)

Task	Task element	Learning objectives [†]	RCL	PCL	Difference (RCL-PCL)	Paired t (<i>p</i>)	Borich need	Borich priority [‡]	LFF priorities
			Mean ± SD		Δ (95% CI)				
13. Planning and running a group program	54. Identify community nursing issues from secondary data and information sources	A	3.88 ± 0.12	3.74 ± 0.11	0.14(-0.19, 0.47)	0.85(.199)	0.78	77	LL
	55. Investigate needs of local community members for small group sessions	A	4 ± 0.1	3.74 ± 0.12	0.26(-0.01, 0.53)	1.91(.031)	1.24	72	LL
	56. Confirm topic for small group	B	4.12 ± 0.08	3.76 ± 0.12	0.36(0.13, 0.59)	3.17(.001)	1.65	69	HL
	57. Develop small group content (create operation/educational materials based on topic)	B	4.14 ± 0.09	4.2 ± 0.1	-0.06(-0.32, 0.20)	-0.47(.678)	0.08	83	HL
	58. Provide information to residents about holding small groups	B	4.06 ± 0.1	3.55 ± 0.12	0.51(0.22, 0.80)	3.55(< .001)	1.92	64	LL
	59. Secure budget and location for small groups	B	4.31 ± 0.09	3.94 ± 0.12	0.37(0.14, 0.60)	3.23(.001)	1.49	70	HL
	60. Select small group participants by recruiting local community residents	A	4.27 ± 0.07	3.96 ± 0.1	0.31(0.11, 0.51)	3.17(.001)	1.24	71	HL
	61. Select small group participants by recruiting community settings (senior center, welfare center, etc.)	B	4.23 ± 0.09	3.88 ± 0.12	0.35(0.11, 0.60)	2.93(.003)	1.70	67	HL
	62. Secure experts or local residents to support small groups	B	4.16 ± 0.1	4.18 ± 0.1	-0.02(-0.25, 0.21)	-0.17(.568)	-0.08	84	HL
	63. Maintain regular contact with small group program participants	B	3.9 ± 0.11	3.27 ± 0.12	0.63(0.36, 0.90)	4.68(< .001)	2.27	59	LL
	64. Periodically operate small group sessions (group training)	B	4.02 ± 0.09	3.98 ± 0.12	0.04(-0.22, 0.30)	0.30(.383)	0.15	81	LL
	65. Consult small group participants on developing health issues	B	4.06 ± 0.09	3.33 ± 0.11	0.73(0.44, 1.01)	5.07(< .001)	2.73	55	LL
	66. Evaluate changes in health indicators of participants who joined the small group program	A	3.96 ± 0.09	3.35 ± 0.11	0.61(0.36, 0.85)	4.97(< .001)	2.23	60	LL
	67. Record and report evaluation results of small group program	A	3.98 ± 0.1	3.46 ± 0.1	0.52(0.30, 0.74)	4.66(< .001)	2.17	61	LL
14. Monitoring contextual nursing needs	68. Detect and monitor emergency medical and welfare recipients	D	4.24 ± 0.09	3.68 ± 0.09	0.56(0.36, 0.76)	5.62(< .001)	2.55	56	HL
	69. Monitor high-risk recipients according to seasonal changes	D	4.12 ± 0.09	3.29 ± 0.08	0.83(0.59, 1.06)	7.15(< .001)	3.31	49	HL
15. Manage supplies and equipment	70. Manage nursing supplies	E	3.81 ± 0.1	2.48 ± 0.11	1.33(1.06, 1.59)	10.14(< .001)	4.92	23	LH
16. Conducting region-specific health work	71. Perform assigned tasks within specialized public health center projects	B	3.76 ± 0.1	3.57 ± 0.11	0.18(-0.10, 0.46)	1.32(.096)	1.09	76	LL
	72. Assist with urgent issues and other nursing tasks at public health center	B	3.74 ± 0.11	3.69 ± 0.12	0.05(-0.28, 0.38)	0.29(.386)	0.55	78	LL
	73. Perform assigned tasks within specialized community center projects	B	3.33 ± 0.12	3.33 ± 0.1	0.00(-0.25, 0.25)	0.00(.500)	0.43	79	LL
	74. Assist with urgent issues and other nursing tasks at community office	B	3.63 ± 0.12	3.38 ± 0.1	0.25(-0.05, 0.55)	1.69(.048)	1.13	75	LL
17. Safety management	75. Arranging accompanying social workers and safety personnel	C	3.96 ± 0.09	3.04 ± 0.09	0.92(0.68, 1.17)	7.52(< .001)	3.82	41	LH
	76. Report and handle safety incidents	E	4.36 ± 0.09	3.68 ± 0.12	0.68(0.43, 0.93)	5.46(< .001)	2.54	57	HL

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Task	Task element	Learning objectives [†]	RCL	PCL	Difference (RCL-PCL)	Paired t (p)	Borich need	Borich priority [‡]	LFF priorities
			Mean ± SD		Δ (95% CI)				
18. Recording and reporting	77. Enter data into public health information system	C	4.55 ± 0.08	2.85 ± 0.09	1.70(1.46, 1.94)	14.24(<.001)	7.75	3	HH
	78. Enter data into Life Welfare Integrated Information System	C	3.07 ± 0.2	3.1 ± 0.11	-0.02(-0.47, 0.42)	-0.11(.544)	0.11	82	LL
	79. Manage monthly and yearly performance metrics	E	4.17 ± 0.1	3.17 ± 0.09	1.00(0.70, 1.30)	6.78(<.001)	4.32	31	HH
	80. Manage various forms (ledgers)	E	3.66 ± 0.1	2.88 ± 0.09	0.78(0.55, 1.01)	6.76(<.001)	2.87	53	LL
19. Meeting and task coordination	81. Attend meetings at public health center and community center	A	3.98 ± 0.08	2.87 ± 0.07	1.11(0.89, 1.34)	9.83(<.001)	4.56	28	LH
	82. Delegate tasks as situations require	A	3.66 ± 0.1	3.17 ± 0.08	0.49(0.25, 0.73)	4.04(<.001)	1.80	65	LL
20. Professional development	83. Training and personal development for home care professionals	E	4.15 ± 0.1	2.94 ± 0.06	1.21(0.96, 1.46)	9.70(<.001)	5.13	17	HH
21. Promoting the health project	84. Participate in establishing promotional strategies and producing promotional materials	B	3.2 ± 0.13	3.39 ± 0.1	-0.2(-0.48, 0.09)	-1.39(.914)	-0.41	85	LL
	85. Distribute promotional materials	B	3.35 ± 0.08	2.85 ± 0.1	0.50(0.25, 0.75)	4.05(<.001)	1.22	73	LL

LFF=The Locus for Focus model; RCL= Required Competency Level; PCL=Present Competency Level

[†]Learning objectives A=Community care needs assessment, B=Health project planning and resource utilization, C=Population health promotion and maintenance,

D=Safety and environmental management, E=Other (administrative skills, etc.)

[‡]The shaded areas in the table represent the top 10 activities based on the needs assessment results.