

Effectiveness of an IPE Model in Home-based Nursing Training to which Transitional Home Health Care has been Introduced

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ABSTRACT

Aims

In the study, the transition from transitional home health care provided by hospitals to home-visit nursing after discharge was introduced to a course of practical home nursing training in order to investigate its effectiveness and establish an inter-professional education (IPE) model.

Methods

We reviewed the learning effects perceived by the students based on their practical home nursing training records, performed content analysis using a qualitative approach, and conducted statistical text analysis of the extracted data using text mining software by means of natural language processing. In addition, using a quantitative approach, we analyzed the results of a questionnaire that the students used to review their training.

Results

By undergoing training in multiple cross-regional medical centers as a part of a collaboration with community healthcare programs, students provided discharge support in coordination with discharge support nurses and other professionals with the same intentions. In addition, through providing home-visit nursing care, they realized that the discharge support that they had originally considered was insufficient, and learned how to care for people in a manner that enables them to live their lives as community residents rather than patients.

Keywords: transitional home health care, IPE (inter-professional education), paradigm shift, practical home nursing training, collaboration with community healthcare

Introduction

According to the Elderly Society White Paper in 2017 (Complete Edition) (PDF), the number of people aged 65 years or older in Japan is 34.59 million. This accounts for 27.3% of the total

population, which is the highest rate of population aging in history¹). In addition, the number of people aged 100 years or older has increased over the past 47 years, and reached 67, 8242). In 2030, the baby boom generation will be 80 years of age or older in an aging society with a high-death-rate, and one-third of the Japanese population is expected to be 65 years of age or older, which is an extreme modern social issue involving community healthcare. Due to ongoing variations in disease structure and rapid increase in medical needs caused by the aging population, a shorter period of hospitalization has been promoted, hospital-based medical care has been terminated, and community healthcare has focused on the establishment of “comprehensive community care systems” aimed at medical care frameworks that enable people to continue living in their hometown. Following the introduction of “Additional Discharge Coordination Fees”, which was included in the 2008 revision of healthcare fees, discharge coordination divisions have been established in medical centers, and smooth switching from hospital-based care, which is provided in collaboration with community healthcare, to home-based care has been implemented. In this super-aging society, it is imperative to develop home-based nursing practice; however, it is only regarded as an academic field of geriatric or community nursing, and its impact is not sufficient enough to practice nationwide education. Academically, it is misunderstood as home-based nursing training or home-visit nursing station training, and as a result, nursing care may not be practiced anywhere other than at home-visit nursing stations and hospitals. The lack of development of inter-professional education (IPE) in community healthcare for nursing students was of concern.

We have introduced medical center transitional home healthcare, which is a major issue in contemporary medicine, in educational settings. In addition, based on the assumption that it would be beneficial to implement a community healthcare collaboration program for nursing students that focuses on continued care practiced by home-visit nursing stations in the home-based nursing program at our school, we have planned home-based nursing training focusing on continued care from transitional home healthcare to home-visit nursing activities, and students undergo this training starting from their first year. During the 2-week home-based nursing training, students are divided into pairs. Each pair undergoes 1-week training in a community liaison medical service room focusing on transitional home healthcare, which is provided by hospital discharge coordination nurses, and works in a home-visit nursing station for 1 week. In addition, they participate in one of the programs for transitional home healthcare conducted by cancer centers, chronic-phase hospitals, convalescent rehabilitation hospitals, psychiatric hospitals, or university hospitals that have an emergency medical care center. Furthermore, after the home-visit nursing training at community home-visit nursing stations, students share their experience during a training-sharing conference on their last training day.

Many previous studies focused on learning at home-visit nursing stations during home-based nursing training, and evaluated transitional home healthcare provided by ward nurses and discharge coordination nurses from medical centers. However, few studies on home-based nursing training have examined students' learning in collaboration with community healthcare focused on transitional home healthcare.

In Japan, where the birthrate is decreasing and the population is growing older, it is imperative for nursing education to implement a paradigm shift from hospital- to home-based care in which people with diseases live at home. For students with hospital-centered values, it is important to evaluate the efficacy of systematic home-based nursing training employing transitional home healthcare, which connects ward training in hospitals and home-visit nursing stations in communities.

Aims

To incorporate healthcare and welfare services, in which transitional home healthcare by hospitals is switched to home-visit nursing, into home-based nursing training, and to evaluate its efficacy.

Definition of Terms

In the present study, medical centers have a division in which appointed discharge coordination nurses provide original transitional home healthcare. Home-based nursing training conducted in this division is defined as inter-professional training.

Study methods

1. Study design: We used a qualitative approach, which is the optimal design for clarifying students' experiences with transitional home healthcare. On the other hand, quantitative data were necessary to evaluate the effects of such healthcare. Therefore, using a mixed research methodology employing both qualitative and quantitative study designs 3), we evaluated the learning effects of home-based nursing training that introduced transitional home healthcare.

2. Study subjects: A total of 115 students who finished home-based nursing training served as subjects.

3. Study data:

1) Training record form: "Summary of Home-Based Nursing Training"

2) Self-completed questionnaire survey: “Questionnaire to Reflect on Home-Based Nursing Training”

4. Study period: Between October 2013 and March 2014

5. Method to recruit study subjects: When all students were assembled, they were requested to cooperate in the study. In addition, the same request was made on the school’s bulletin board.

6. Study methods: The study was approved by the ethics committee and was initiated in October when the students’ grade in home-based nursing training was submitted. A total of 115 students who finished home-based nursing training served as subjects, and the study was explained in written and oral forms using the study cooperation request/explanation form, study protocol summary, study cooperation consent form, study cooperation withdrawal form, and “Questionnaire to Reflect on Home-Based Nursing Training”. Placing a completed questionnaire in the collection box was interpreted as having consented to participate in the study.

Data Analysis

1. What the students learned from the home-based nursing training employing transitional home healthcare was summarized, and the data from the “Summary of Home-Based Nursing Training”, which is a training record form that we consider to represent the students’ experience in a straightforward manner, were extensively reviewed and subjected to content analysis. The data regarding learning effects were extracted, and the encoded data were categorized based on similarities. In addition, in order to ensure objectivity, reliability, and validity, we performed statistical text analysis of the extracted data using text mining software (Text Mining Studio vol.6.0) by means of natural language processing. The researchers had discussions to ensure the reliability of the data.

2. After all students finished the home-based nursing training and their grade in the training was submitted, a self-completed questionnaire survey was conducted using the “Questionnaire to Reflect on Home-Based Nursing Training”. Using SPSS Ver.22.0, we analyzed the completed questionnaires by means of simple tabulation regarding the presence/absence of learning experience in the training, as well as the understanding of the process from collaboration with community healthcare to home-visit nursing, and by means of cross-tabulation and chi-square tests to clarify the relationship between the above-mentioned presence/absence and understanding. These tests were followed by adjusted residual analysis. A p-value of less than 0.05 was considered significant.

3. Using qualitative and quantitative study designs, we evaluated the learning effects of home-based nursing training that introduced transitional home healthcare.

Ethical Considerations

The present study was conducted with approval from the ethics committee of Juntendo University Faculty of Health Sciences and Nursing (approval number: 25-06). In both written and oral forms, the subjects were informed of the study objectives, methods, and privacy protection, and understood that cooperation in the study was at their discretion. They were also guaranteed that withdrawal from the study was possible without any disadvantage, and that if they submitted their withdrawal form, the study would be discontinued for them and all their data would be disposed of. In addition, we asked the subjects to accept that the "Questionnaire to Reflect on Home-Based Nursing Training" could not be returned to them because of anonymity, and a response to and the submission of the questionnaire was interpreted as having consented to participate in the study. In order for students to have no disadvantages, the study was initiated after all of them finished the home-based nursing training and their grade was submitted. The collected data were processed anonymously in order to protect the privacy of the subjects and ensure their voluntariness of study participation. The collected data were encoded to summarize and analyze them so as not to identify the subjects.

Results

1. Of the 115 students, 107 cooperated in our study (response rate: 93%).

1) Content analysis of the "Summary of Home-Based Nursing Training", a training record form

The raw data from the "Summary of Home-Based Nursing Training" were extensively reviewed. Data regarding learning effects were extracted on a context basis and carefully encoded. This led to the extraction of 640 codes, and they were categorized based on their similarities.

(1) Learning from inter-professional training: From 255 codes, the following six categories were extracted: [discharge as beginning instead of ending], [sharing roles aimed at home-based care in inter-professional cooperation based on one's expertise], [considerations from the perspective of life in which home-based care is used], [discharge coordination nurses supporting decision-making with the use of communication skills], the [need to make specific proposals to provide families with discharge support], and [discharge coordination nurses being key persons who are responsible for hospital management].

(2) Learning from home-visit nursing station training: From 385 codes, the following 10 categories were extracted: [establishing a trusting relationship by visiting people and communicating with a sincere attitude], [values and living environment differ with each person], [respecting one’s lifestyle and integrating care into one’s life], [providing standardized care in inter-professional cooperation based on one’s expertise], [family support for the responsibility to intervene in the family’s life], [home-based care providing an individual with an opportunity to develop the strength to live their life], [home-visit nursing available at any time of day for emotional support], [home-visit nurses need extensive knowledge/education, flexibility, effort, and originality], [grief counseling in home-based end-of-life care], and [preparing for an emergency/disaster].

2) Based on the data from the “Summary of Home-Based Nursing Training”, we performed statistical text analysis using text mining software (Text Mining Studio vol.6.0) by means of natural language processing.

Figure 1 Word usage frequency analysis

Using text mining software on the 640 codes extracted from the raw data of the “Summary of Home-Based Nursing Training”, we performed word usage frequency analysis regarding learning from inter-professional training that focused on transitional home healthcare and home-visit nursing station training (Figure 1).

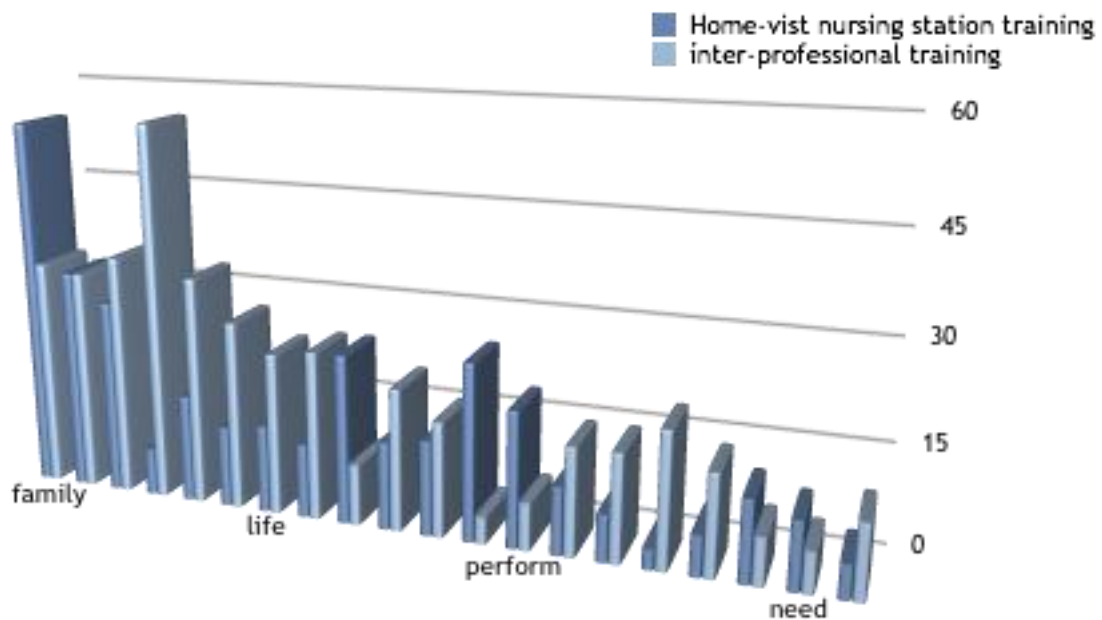


Figure 1 shows the results of word usage frequency analysis for each of the codes extracted according to home-visit nursing station training (385 codes) and inter-professional training (255 codes). For home-visit nursing station training, the words “family (55)”, “important (33)”, “home-based (29)”, “care (25)”, “users (26)”, and “perform (20)” were frequently used, suggesting that the quality of family care and the importance of care were focused on. On the other hand, for inter-professional training, the words “family (34)”, “patient (56)”, “cooperation (34)”, “home-based (36)”, “necessary (28)”, and “life (24)” were frequently used. This indicates that, compared with home-visit nursing station training, inter-professional training focuses more on life. Thus, the minor differences between the two types of training were visualized with a diagram.

Figure 2 Grouping through sentence classification analysis inter-professional training

Figure 3 Grouping through sentence classification analysis

Using the grouping function of Text Mining Studio vol.6.0 on the 640 codes extracted from learning through inter-professional training focusing on transitional home healthcare as well as through home-visit nursing stations, we performed grouping by means of sentence classification analysis. Using sentence classification, the codes were classified into the following five factors as main topics: “family”; “home-based care”; “after discharge”; “expertise, inter-professional cooperation, and standardized care”; and “life”. As a result of classifying these factors according to inter-professional





training (Figure 2) and home-visit nursing training (Figure 3), for home-visit nursing station training, “family” accounted for 47% of the topics, followed by “home-based care” (31%), “life” (10%), “expertise, inter-professional cooperation, and standardized care” (7%), and “after discharge” (2%). Thus, “family” and “home-based care” combined accounted for 78% of all topics. On the other hand, for inter-professional training, “family” accounted for 28.7% of the topics, followed by “home-based care” (21.5%), “after discharge” (20%), “expertise, inter-professional cooperation, and standardized care” (16.4%), and “life” (13.3%). Thus, all five topics were used somewhat equally.

Through a qualitative study in which content analysis was performed based on students’ raw data, as well as through statistical text analysis using text mining software, we diagrammed the learning content in a more objective manner.

2. Analyzing the results from the “Questionnaire to Reflect on Home-Based Nursing Training”

Table 1 Learning experience in inter-professional training (n=107)

Quality of social resources	86.9%	13.1%
Interprofessional cooperation settings	84.9%	15.1%
Discharge conferences	62.6%	37.4%

Pre-discharge visits	40.2%	59.8%
Discharge support settings	74.8%	25.2%
Advanced medical cooperation settings	45.8%	54.2%
Family support settings	59.8%	40.2%

Table 2 Learning experience in home-visit nursing station training (n=107)

	Learned	Did not learn
Quality of social resources	99.4%	5.6%
Interprofessional cooperation settings	83.2%	16.8%
Interprofessional cooperation settings	39.3%	60.7%

Home-visit nursing for people receiving care for mental illnesses	16.8%	83.2%
Home-visit nursing for people wearing advanced medical equipment	58.9%	41.1%
Home-visit nursing for children	33.6%	66.4%
Advancing ideas regarding supplies	98.1%	1.9%

Table 3 Understanding the process from collaboration with community healthcare to home-visit nursing (n=107)

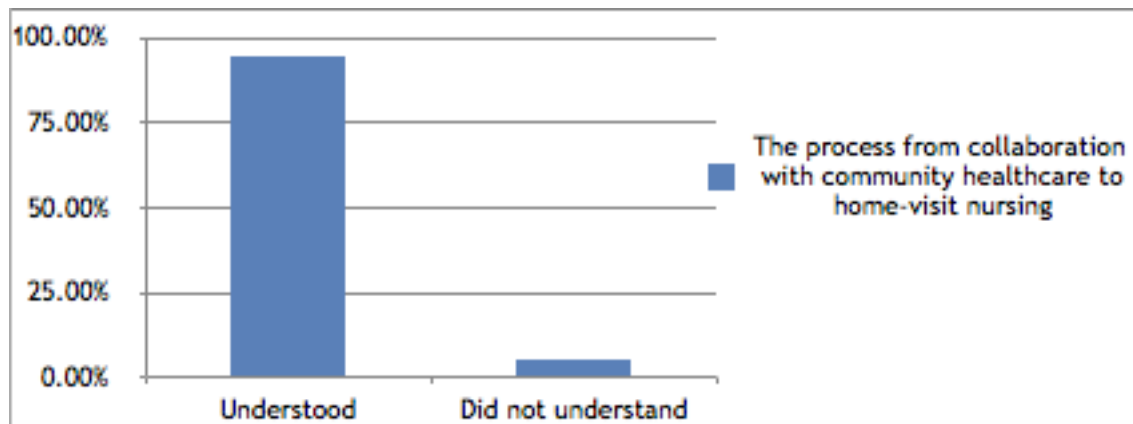
	Understood	Did not understand
The process from collaboration with community healthcare to home-visit nursing	94.4%	Did not understand

Table 4 Relationship between the presence/absence of learning experience in training, and the understanding of the process from collaboration with community healthcare to home-visit nursing

The process from collaboration with community healthcare to home-visit nursing

		Understood		Did not understand		P value
		n	%	n	%	
The quality of social resources in interprofessional training	Learned	90	89.1	3	50.0	0.029
	Did not learn	11	10.9	3	50.0	
Interprofessional cooperation settings in interprofessional training	Learned	89	88.1	2	33.3	0.004
	Did not learn	12	19.1	4	66.7	
Family support settings in interprofessional training	Learned	63	62.4	1	16.7	0.037
	Did not learn	38	37.6	5	83.3	
Interprofessional cooperation settings in home-visit nursing training	Learned	86	85.1	3	50.0	0.058
	Did not learn	15	14.9	3	50.0	

Understood	Did not understand
94.40%	5.60%



between the presence/absence of learning experience in training and the understanding of the process from collaboration with community healthcare to home-visit nursing. These tests were followed by adjusted residual analysis. The items with a p-value of less than 0.05 were the quality of social resources in inter-professional training (p=0.029), inter-professional cooperation settings (p=0.004), family support settings (p=0.037), and inter-professional cooperation settings in home-visit nursing station training (p=0.058). Among the students with learning experience, the percentage of those understanding the above-mentioned process was significantly higher (Table 4).

Discussion

Quantitative analysis demonstrated that many students learned about the quality of social resources and experienced inter-professional cooperation settings through our home-based nursing training, in which home-visit nursing station training was combined with inter-professional training focusing on transitional home healthcare by hospitals that had a discharge support program. In addition, more than 90% of the students understood the process from collaboration with community healthcare to home-visit nursing, indicating that our school’s systematic home-based nursing training is beneficial. Furthermore, a correlation was noted between understanding the process from collaboration with community healthcare to home-visit nursing and the presence/absence of learning experience in inter-professional training and home-visit nursing station training. In particular, understanding of the process was correlated with the quality of social resources, as well as the presence/absence of experience in inter-professional cooperation settings, family support settings, and inter-professional cooperation settings in home-visit nursing station training. This suggests that our school’s home-based nursing training, which includes inter-professional training, is significantly effective.

We extensively reviewed the students' accounts using qualitative analysis, which indicated that by observing discharge support/coordination that shares the same goal in multi-disciplinary cooperation through inter-professional training, students realized that the discharge support they had originally considered was not sufficient. In addition, by learning the quality of family support and the activities provide by home-visit nurses who cooperate with care managers, home-based doctors, and other professionals, students understood the importance of "sincerity" for respecting individuals as community residents rather than patients, felt the need to establish a trusting relationship with them and integrate care into their lives, and realized the current state of current issues with community care systems. Understanding the quality of inter-professional cooperation provides students with opportunities to learn about many things, such as the necessity of inter-professional cooperation, and that nursing alone is not sufficient and non-nursing professions should also be respected.

Statistical text analysis was performed using text mining software by means of natural language processing (word usage frequency and sentence classification analyses). This revealed that the quality of family care and the importance of care were focused on in home-visit nursing station training, and indicated that students may become narrow-minded due to paying the most attention to home-based care and the burden imposed on family caregivers. With conventional training, in which training at home-visit nursing stations alone is regarded as home-based nursing training, students may consider hospital- and home-based nursing to be different. Students who desire to work at a hospital may think that they will have to provide nursing in places other than hospitals. By observing cooperation in inter-professional training during home-visit nursing station training, students were able to actively participate in the process from hospital- to home-based nursing. In addition, by systematically experiencing transitional home healthcare provided through inter-professional cooperation with the same goal shared by hospitals and communities, students were able to receive inter-professional education (IPE) in community healthcare.

Students gave comments, such as "I understood that discharge is not the goal and patients' lives still continue after discharge", and "Everything I have learned so far became linked", which indicates that students' awareness regarding switching from hospital- to home-based care can be improved through training. Therefore, our education system changed the home-based-nursing awareness of students who had developed hospital-centered values.

Students experienced the shift from the medical model to the life model through the second-week home-visit nursing training, which is taught by home-based doctors and home-visit nurses who have attended a discharge conference on first-week transitional home healthcare for hospitalized patients.

The hospital-centered ideas that existed in the 20th century have ended, and the era of comprehensive community care has begun. Nightingale mentioned that “hospitals are at the intermediate stage of civilization”, and predicted in the 19th century that deinstitutionalization would be necessary as soon as possible for patients who survived their acute phase, and individualized home-based nursing would be initiated by the year 2000 4). In Japan, home-visit nurses are expected to be the main conductors of comprehensive community care systems. In addition to caring for home-based patients, home-visit nurses need to intervene with their family caregivers, assist them with their lives in a way different from when assisting them at a hospital, and continue providing medical care based on reality. Nightingale stressed the necessity of practical, visitation, and educational skills on the part of home-visit nurses, as well as the need for education without the feel of being taught 5). Nursing was considered to be both a treatment-centered science and art that creates people’s lives 6). In the 20th century with hospital-centered ideas, both medical care and nursing were preoccupied with science, and art was undervalued. However, the era of comprehensive community care, in which the essential aspects (science and art) of nursing are required, has begun.

Based on the students’ records, the following categories were extracted: [home-visit nurses need extensive knowledge/education, flexibility, effort, and originality], [establishing a trusting relationship by visiting people and communicating with a sincere attitude], [respecting one’s lifestyle and integrating care into their life], and [family support for the responsibility to intervene in the family’s life]. This suggests that students perceived a life-model concept similar with Nightingale’s principles from 150 years ago.

Due to the shorter average period of hospitalization, nursing care has become increasingly advanced and diversified, and higher-level expertise will be required of discharge coordination and home-visit nurses who are key persons connecting hospitals and homes. Students were able to effectively study the paradigm shift from hospital- to home-based care from the medical to life model, and were also able to learn about the current state of and issues regarding comprehensive community care systems, by which smooth switching from hospital- to home-based care is implemented. Thus, they were able to experience the inter-professional education model (IPE model) of community healthcare.

As a process that integrates the learning/understanding of a vertically segmented training field comprising nursing by home-visit nursing stations, public hygiene nursing by public health nurses, and geriatric nursing by regional facilities for the elderly, it is necessary to learn about transitional home healthcare that is provided by medical centers in collaboration with community healthcare. In addition, learning about transitional home healthcare, which is a major issue in

contemporary medicine in terms of shifting from hospital- to home-based care, is beneficial for the paradigm shift in nursing education.

Conclusion

In the present study, we incorporated healthcare and welfare service cooperation, in which transitional home healthcare by hospitals is switched to home-visit nursing, into home-based nursing training, and evaluated its efficacy. A home-based nursing training IPE model aimed at shifting from hospital- to home-based care, as well as from the medical to life model, is beneficial for educational settings.

The home-based nursing training IPE model at our school was suggested to be of academic significance as a pre-experiment of a community care model that involves communities and is implemented in cooperation with inter-professional/multi-centered healthcare and welfare services. In addition, we may be able to promote the academic systematization of home-based nursing practice in nursing education, and contribute to establishing an academic system of home-based nursing and its prompt dissemination.

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