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Acquisition and Sharing of Knowledge and Skills of Visiting Nurses in Japan

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ABSTRACT

The purpose of this study is to clarify, through ethnographic research, how nurses acquire and share their knowledge and skills of home nursing in clinical settings. The paper revealed the following: The visiting nurse "co-creates" with the patient to produce a nursing technique that fits the patient's needs based on the "sticky information" obtained at the patient's home. At the visiting nurse station, the nurses reported new information collected at the patient's home or communicated to the patient during daily conferences. The nurse illustrated and demonstrated the nursing techniques that fit the patient to colleague nurses. In addition, the nurses had a joint conference with physical, occupational, and speech therapists working in the same station. The participants reported to each other the new findings about the patient during their stay at the patient's home and described the techniques of each specialist for fulfilling the patients' needs. The disclosed information in the conference was recorded into the patient's medical chart each time. The nursing skills created in the patient's home through co-creation with the patient are sticky information that is difficult to transfer, but they are shared and accumulated through gestural demonstrations at conferences by the health professionals.

Keywords: Visiting nurses, Co-creation, Ethnography, Knowledge sharing

INTRODUCTION

In Japan where one out of every four elderly citizens are over 65 years old, there is a structured system being developed for the elderly to spend their last years in their homes instead of the hospital. In 2020, there are around 12,000 visiting nursing stations in Japan. There are some 40,000 visiting nurses who are affiliated to visiting nurse stations in Japan.

In Japanese law, performing ADL support based on medical care assistance is permitted to nurses only. In-home ADL support refers to Activity of Daily Living (ADL) which involves bathing, toileting, eating, sleeping, performing daily activities, grooming, and oral care. Medical care assistance involves understanding and analyzing the patient's conditions and illnesses. This is also called physical assessment. Nurses' task is to perform physical assessment, assist in treatment and check up on the patient's condition to make sure it is stable. Aside from that, nurses assist in treatment by managing respiratory apparatus, and checking oral administration (drug compliance). Nurses understand that In-home ADL supports the patient's quality of life.

The visiting nurse works together with the patient to seek the way of life the patient wishes. Visiting nurses provide nursing skills to help patients recover or continue on with their daily lives.

The authors have examined nursing from the perspective of service studies and service design as an auxiliary axis. Nursing is not a one-way care where the nurse is the provider and the patient the recipient-user. Nursing is created through the dialogue between the nurse and the patient. Vargo and Lusch pointed out the important perspective of creating value through "co-creation", together with providers and consumers, and that the co-created value differs depending on the customer (Vargo and Lusch, 2014). Nursing is really a collaborative creation between nurses and patients.

Visiting nurses consider patients and family as partners in creating tailored care and explore the preferred care together with the patient. (Otani and Ito, 2021). The visiting nurses decipher the patient's lifestyle, social background and personal values, and investigate the lifestyle wished by the patient and propose several methods to realize this lifestyle. Patients respond to such care by the visiting nurses and nurses in turn make decisions based on their responses. Through this process, care goes through changes. In our study, the "co-creation" between the visiting nurse and the patient sustains the "patient's lifestyle as it has always been" one the patient wishes (Otani and Ito, 2021).

By the way, how do nurses acquire and share the knowledge and skills of the visiting nurses that underpin this "co-creation"? In nursing education in Japan, university nursing faculties and nursing schools educate students in basic knowledge and skills, from nursing in wards to home nursing visits. However, the co-creative practices and techniques of visiting nursing cannot be learned in nursing schools. It has to be learned while working in a clinical setting as a licensed nurse. The purpose of this paper is to clarify, through ethnographic research, how visiting nurses acquire and share the knowledge and skills of home-visit nursing that are not taught in nursing schools. In addition, in the study of visiting nurses in Japan there is hardly any case of study analysis on nursing as services that are co-created between nurses and patients. In international research, there are several papers on co-creation of healthcare services and values using literature review and quantitative research methods (Ding et al, 2019; Zang et al, 2015), but analysis from the perspective of co-creation between patients and nurses is rarely found in conventional research. Therefore, the findings of this paper on co-creative practices and techniques of visiting nursing in clinical settings holds significant meaning and can contribute to home-visit nursing education.

METHOD

The investigation took place at the visiting nurse station X in Nagoya city. In this nurse station, monthly home visits amount to around 120 cases. The total number of visits per month is about 550. Investigation of this nursing station is conducted through participant observation and interviews. The interview subjects are eight nurses from this station (Table 1). There are two office

Table 1. Nurse attributes.

Nurse	Age	Distinction by Sex	Working Experience
A	60s	female	Over 40 years
B	60s	female	Over 40 years
C	60s	female	Over 40 years
D	50s	female	Over 30 years
E	50s	female	Over 30 years
F	50s	female	Over 30 years
G	40s	female	Over 20 years
H	30s	female	Over10 years

Table 2. Patient attributes.

Age	Distinction by Sex	Disease	Contents of Nursing
70s	female	Dementia	Health check
90s	male	Chronic subdural hematoma, Chronic heart failure	Health check, washing face and brushing dentures
70s	female	Chronic pyothorax, Bronchopleural fistula	Health check, bathing support, wound care

administrators, two physical therapists, one occupational therapist, and two speech-language-hearing therapists working at this visiting nurse station.

The nurses take care of patients with various diseases including muscular dystrophy, Parkinson's disease, cerebral infarction sequelae, heart failure, cancer, COPD, ALS, kidney failure, and diabetes. The study conducted at the patients' home included thirteen patients of which three will be presented in this paper (Table 2).

RESULT AND DISCUSSION

According to the research results, the three characteristics of visiting nurses for acquiring and sharing nursing knowledge and skills are as follows.

Nurse Creates Nursing Skills in Patient's Home

The place where a visiting nurse co-creates with a patient is the patient's home. The information in the patient's life can only be understood in the patient's home. The meaning of information becomes difficult to understand away from the patient's home. A nurse develops nursing techniques that satisfy the patients' needs through "co-creation" with the patient in the patient's home. After returning to the visiting nurse station, the nurse records in the patient's chart the appropriate nursing skills co-created with the patient. Below shows the case study of a female patient in her seventies.

> "The patient (a female in 70s with a Chronic pyothorax and a Bronchopleural fistula) sat on her bed with a peaceful and relaxed expression,

waiting for the nurse. She suffered from a chronic pyothorax and received an open window thoracostomy. As a result, she had a hollow on her back that was about 2" x 6" in size. The hollow was stuffed with several gauze sheets. The patient liked to sit in a bathtub filled with hot water. She had to take a bath with the help of a nurse because of the hollow space in her back. She bathed four times a week with the support of a nurse. The nurse asked her how she was feeling. She said, "same as usual." But I couldn't hear her voice very well, because every time she talked, her breath escaped from the hollow of her back. The nurse smiled back to her and said, "You're more vocal than usual today." The nurse asked, "How long would you like to bathe?" The patient replied, "About the same as usual." The nurse went to the bathroom next to the patient's room, preparing the patient for bathing. The temperature of the hot water was 107°F. The hot water was slightly over-flowing from the tub. An aluminum shower chair floated in the middle of the tub. Generally, the chair was used outside the bathtub, but in this patient's case, she sat in the chair inside the bathtub to prevent the hot water from getting into her back hollow. She walked slowly to the bathroom, groping for the oxygen tube, which seems to be more than five meters long. She took off her pajamas, grabbed the tube, went into the bathroom, and got in the tub. I heard the sound of hot water flowing vigorously. I looked through the gaps in the bathroom door and saw her back. She sat relaxed in the shower chair in the tub. Her back was pink. She looked very relaxed and comfortable. Then the nurse washed the head and body of the patient sitting in the tub. She held onto the bathroom railing and moved in the direction of the nurse's movement accordingly. The nurse carefully washed the part of the body the patient had turned. The patient seemed to feel good. The total bathing time for the patient was 20 minutes. After bathing, she put on her clothes and sat down on a chair. The nurse asked the patient, "The direction of the hair ends was this way, right?" and dried the patient's hair with a hair dryer. I was surprised that the nurse could remember the direction of the patient's hair ends. After drying the patient returned to bed, sat on the bed, and took off her pajama top. The nurse took out a pair of tweezers and some gauze and removed a total of six pieces of gauze that were stuffed into the hollow in the patient's back. Those gauzes were covered with leachate and a small amount of blood. When the nurse removed those gauzes, the patient coughed. The nurse proceeded to check up on the patient. The nurse reinserted six pieces of sterile gauze into the hollow of the patient's back. Each time the nurse put a piece of gauze in, the patient coughed. She seemed to be in a lot of distress. The nurse asked, "Are you okay?" and proceeded to put on a sterile gauze in rhythm with the patient's breathing. The patient seemed to be in anguish coughing up until the fifth piece of gauze went in. After a sixth piece was put in, the patient stopped coughing. The nurse returned to the visiting nurse station and entered this patient's nursing care into the electronic medical record. " (From a description of author's field notes on Oct 30, 2021).

Sharing Nursing Skills and New Information at a Nurses' Meeting

When the nurse returned to the visiting nurse station from the patient's home, she wrote down in her chart the nursing techniques that she created in the patient's home and which the patient felt comfortable with, as well as any new information she had found in the patient's home. This was a daily routine of nurses. The information entered refers to a patient's Activities of Daily Living (ADL) such as cleanliness, elimination, nutrition, sleep, activities, dressing and grooming, a patient's condition, and treatment methods. In this visiting nurse station, there are two types of medical records: electronic medical records and paper medical records. The nurse entered the information into the electronic medical record. The visiting nurse took the tablet with her when she visited the patient's home. The paper chart files include records of discussions with a patient and a patient's family about a patient's nursing plan, a floor plan of a patient's home, a nursing care plan, and a doctor's prescription.

The nurse also shared any nursing skills which suited the patient and any new information obtained during the visit at the patient's home. At visiting nurse station X, nurses' meetings were held every morning from 8:30 to 8:50 a.m., Monday through Thursday and Saturday. This meeting was attended by the night shift nurse who responded to any urgent cases the previous evening and the nurses who are on-duty that day. In the meeting, the emergency response nurse from last night informed the nurses about the patients who were not feeling well, patients who had just started home nursing, and the conditions and nursing methods of the patients to be visited on that day. Next, the head nurse of this visiting nurse station gave the following special information about each of the patients just reported. The head nurse explained the information that must be obtained at the patient's home and the key points of nursing care for the patient. Afterwards, the nurses shared the information and nursing points that they had acquired while caring for the patient. Because the information was "sticky" (von Hippel, 1994), the nurses also used body movements and hand gestures to explain and share the information. The nurses noted down the information they were interested in or which they thought was essential in a notebook or on a piece of notepaper on a clipboard. In the case where information was explained through body movements and hand motions it was recorded as a drawing in a notebook or on a paper. The nurses did not look at these notes and notepads at the patients' homes, but when they visited the patients' homes, the nurses carried these notes and notepads in their bags. Below shows a summary of one morning meeting.

> "This morning, the meeting started at 8:30. There were five nurses who participated in the meeting. Nurse D explained about patients who have not been well lately, patients who have just started visiting care, and shared special information on patients to be visited on that day. One patient suffered from dementia and forgot to take her meals. She was losing weight, and nurses discussed ways to get her to take parenteral nutrition, which her doctor had prescribed. One of the nurses suggested that if we freeze parenteral nutrition into a sorbet, she would take it.

That patient had a refrigerator-freezer in her home. According to Nurse D, the patient's refrigerator had books instead of food, but the freezer had nothing in it. When she saw this patient's refrigerator freezer, she thought that maybe the patient would like to have a cold dessert, nurse D said.

The nurses discussed it. And they concluded that since the parenteral nutrition prescribed by the doctor was vanilla-flavored, if they put it in a cup for making creme caramel and put it in the freezer, the patient would eat it. And the next time Nurse D visited the patient, she would bring a parenteral nutrition sorbet with her. After this meeting, Nurse D went to the one dollar store and bought a cup for making creme caramel. After Nurse D came back from the one dollar store, I asked what made her think that the patient might want to eat a cold dessert when she saw this patient's freezer. Nurse D said, "The patient's room was messy, but if you look closely, you can see her pattern. When I imagined her room, I had an image that if I put a sorbet made with parenteral nutrition in the freezer, she would open the freezer and eat it". " (From a description of author's field notes on Aug 23 2021).

Sharing Knowledge and Skills of Medical Professionals Other than Nurses

Nurses also hold meetings with other medical professionals (non-nurses) who work in the same station. At Visiting Nurse Station X, a joint meeting is held every Friday morning from 8:30 to 8:50. In the meeting, participants picked up patients whose conditions they were concerned about. First, the nurse reported on the status of those patients. Next, the occupational therapists and speech therapists added information they had found on the patients. Since the information reported was "sticky information" (von Hippel, 1994), the presenter used body and hand movements to explain it. The nurses wrote down the information they were interested in or needed in a notebook or on a piece of notepaper in a clip board. The following is a case of a 90-year-old male patient shared in a meeting.

"The patient (a male in 90s with a chronic subdural hematoma, chronic heart failure) was a retired police officer. He lived with his wife who had dementia, and a daughter. The visiting nurses checked his health condition once a week. He had a bed in the living room of his house and spent most of his time watching TV. He had severe hearing loss. The occupational therapist went for walks with the patient and did joint mobility exercises in his bed twice a week. According to the nurse, he was not well since the beginning of the week. When she visited his house, he was lying in bed without drinking or eating. When the nurse offered him a glass of water, he drank it down and smiled. He was in a similar situation when the occupational therapist visited his home. The occupational therapist told the patient to sit on the bed, then shaved his beard, and wiped the patient's face with a steamed towel. The occupational therapist added that the patient seemed to be getting weaker and that just getting up out

of bed would help keep his muscle strength. The nurse said that the patient was old and might get sick suddenly, and that she wanted to follow the advice of the occupational therapist to take care of maintaining this patient's muscle strength." (From a description of author's field notes on Nov 12, 2021).

CONCLUSION

What became apparent in this paper was how visiting nursing acquired and shared their knowledge and skills. The nursing skills produced by the nurses in the patients' homes were sticky information that was difficult to transfer. After returning to the visiting nurse station from the patient's home, the nurse recorded in the patient's chart the nursing skills the nurse had performed in the patient's home and any new information obtained in the patient's home. In meetings with nurses and medical professionals, sticky information was also explained using body movements and hand motions. The nurses wrote down the information they were interested in or needed on notebooks or notepads. It was evident that the information shared in this way was accumulated in the visiting nurse station and by individual nurses. Further in-depth research on how individual nurses accumulate their knowledge and skills is a future issue to be investigated.

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