

# Tacit Process for Obtaining Nursing Skills Focusing on Nurse's Sense of Patients Close to Death

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**Abstract.** In Japan, it is no secret among nurses that some hospital nurses can sense that a patient is close to death in spite of there being no obvious changes. However, no empirical data about this phenomenon have ever been compiled. The purpose of this study is to clarify the characteristics of nurses with such ability. A questionnaire survey was given to 262 nurses anonymously during November 2013. The items to be asked in the questionnaire were whether or not they had ever sensed a patients' being close to death as a dependent variable, and their characteristics as independent variables. 143 nurses were responded. The mean age of the respondents was 50.2. 47 respondents responded "yes", and 92 responded "no" to the question, "whether they had ever sensed that a patient was close to death without obvious changes in their vital signs". As a result of chi-square test, significantly relevant to this variable were "educational background (BScN and Junior College)", and "possessed license (RN and LPN)". The t-test showed that a significant difference was noticed in years of experience as an RN between "yes" and "no" groups. These results suggest that the ability to sense patients' coming close to the end of life without the presence of obviously objective signs depends not on their natural abilities, but on their experience. Of course, we must consider that these responses were based on self-report, so the issues such as confirmation or hindsight bias related to heuristics may take place. However, the frequency of nurses who self-reported they were able to sense patients close to death without any obvious changes shows something more than just a rumor among nurses.

**Keywords:** Expertization · Heuristics · Nursing skill · Tacit knowing · Tacit knowledge

## 1 Introduction

In Japan, as in many other countries, persons who have received a certain amount of education at a nursing educational institution are allowed to take the national examination for nurses. The curriculum to become a nurse is determined by the

Ministry of Health, Labour and Welfare, and it includes not only knowledge relating to nursing, but fundamental nursing skills such as helping patients in their daily lives and helping doctors in medical exams, as well as practice in hospitals, etc. Only those who pass this curriculum with a certain level of success can graduate the nursing educational institution and take the national examination for nurses.

The fact that nursing skills education is organized within the school education means that on the other hand, in the instructor-student framework it goes without saying that the skills instructors have obtained can be transferred to the students. According to a survey by the Japanese Nursing Association, out of 103 fundamental nursing skills there were only 4 of the skills regarding which 7 out of 10 or more of the new nursing graduates answered that they could “do by themselves” at the time of starting work. We believe that this fact suggests a need to review methods of teaching nursing skills, as well as a need to rethink the premise that nursing skills are capable of being transferred.

One basis for this idea is that there are cases of nurses who can sense that patients in the hospital are near death in spite of there being no changes which are obvious to anyone such as lowered blood pressure and weakened respiration. “The ability to know when a person is near death”, which is well known in clinical settings, is obviously not something to be studied in nursing curriculum and is not part of the education, nor are there textbooks which handle it. Therefore, if this skill does indeed exist, it is not a skill which has been acquired by being taught by someone else, but can rather be called a skill which is tacitly acquired by oneself.

This skill is fundamentally connected with the “tacit knowledge” which was proposed by Polanyi [2]. If it can be confirmed that there exists a skill which nurses acquire tacitly without learning it from an instructor, we can anticipate a basis for creating a new methodology for nursing education which doesn’t presume transmission from an instructor. “The ability to know when a patient will die” is not a topic for discussion in traditional curriculum based upon transfer of knowledge, so it can be called a superior subject inasmuch as it allows one to refute the argument that acquired skills are acquired by being transferred.

Considering the above, the goal of this research is to clarify the existence of the skill to know that hospitalized patients are near death as well as the process by which it is acquired. This paper will clarify the existence of nurses who know when patients are near death in spite of clear indicative changes, as well as independent variables that relate to the cultivation of this skill.

## 2 Method

### 2.1 Study Framework

In this research we conduct an analysis based upon the framework of nurses collecting some kind of data from patients or their surroundings and then processing that data and using the results to make clinical judgment that “the patient’s

death is near”. We would like to emphasize the fact that this is in no way premised upon such things as a sixth sense or sense of foreboding on the parts of the nurse.

As shown in Fig. 1, nurses collect data from a patient. The collected data are processed to form or organize information using the nurse’s knowledge. The relationship among data, information, and knowledge is based on Blum’s definition [1]. We will never observe nurses’ information processing directly unless they give details in words. However, such types of skills as predicting patient death without obvious changes in vital signs are difficult to explain how they become to know. So, in this study, we focus on nurse’s clinical judgment as a conclusion of such information processing. In fact, we know some nurses utilize the information that patient was close to death. For instance, to inform the patient’s family so as to come to the hospital, to share the information with other nurses, to check if the patient has a will for DNAR, and to locate physician in charge are done on the basis of their clinical judgment.

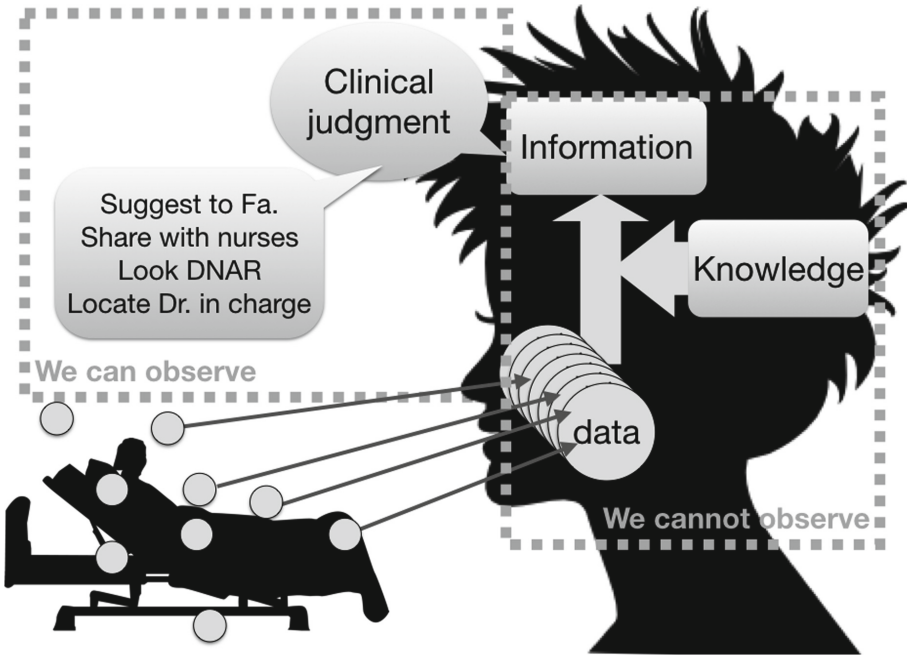


Fig. 1. Framework of information processing by nurses

## 2.2 Subjects

In Japan there are 4 nursing qualifications (registered nurse, practical nurse, midwife, and public health nurse). The parent set comprises persons holding one of those qualifications. The subjects of this survey were 43 trainees who were taking a certified nurse manager training lecture given by the researcher, 99

teaching staff and graduate students participating in an FD workshop of a nursing university, and 120 nursing staff from a psychiatric hospital who gave their cooperation, for a total of 262 subjects. The time of the survey was November 2013.

### **2.3 Data Collection**

A questionnaire survey was given to the subjects anonymously. In the workshop, the questionnaire was passed out to the participants, who submitted them at the end of the training or answered via a web form containing the same contents. In the hospital, we had the head nurse pass out and collect the questionnaires and had them answered in a week.

### **2.4 Questionnaire Items**

The subjects were asked questions necessary to know their characteristics such age, sex, and other population statistics items, as well as the licenses they held (registered nurse, practical nurse, midwife, and public health nurse) and the number of years experience in each license. They were also asked whether or not they had ever sensed that patients in the hospital are near death in spite of there being no changes which are obvious to anyone, and if so, their feelings at that time. Furthermore, they were asked if there were any other nurses who could make such predictions, and if so, they were asked to list characteristics they shared in common with said nurses, etc.

### **2.5 Analysis**

With a dependent variable of “whether or not they had ever sensed that patients in the hospital are near death in spite of there being no obvious changes”, and independent variables of “age”, “sex”, “marriage status”, “possessed licenses”, “number of children”, “number of children”, and “number of years experience in each license, they were asked regarding each independent variable based upon the relative level of measurement, and we investigated regarding significant relations between two variables using chi-square test (and Fisher’s exact test) or the Student’s t-test. We also investigated variables predicting the existence of awareness of patients’ being near death within the independent variables via logistic regression. We set the standard for significance for each of these tests at 5% (two-tails test).

### **2.6 Ethical Considerations**

Before the research, we received approval from the ethics committees of the universities to which the researchers belong, and implemented the research as per the approved plan (approval number: Ariake University of Medical and Health Sciences ethics approval no. 75).

### 3 Results

#### 3.1 Characteristics of the Respondents

Responses were received from 143 persons (54.6%). The age group distribution of the respondents was shown in Fig. 2. The mean age of the respondents was 50.2 ( $SD=13.1$ ), while the lowest value was 20 and the highest 72. Regarding nominal measurements, as shown in Table 1, there were 117 women, 17 men, 79 staff nurses, 16 senior staff nurses, 12 head nurses, one director nurse, and 21 faculty members of nursing. As for the possessed licenses (multiple answers allowed), there were 89 RNs, 79 LPNs, 14 midwives, and 13 public health nurses. The educational backgrounds for acquiring nursing qualifications were 56 from 3-year diploma courses, 53 from LPN schools, 23 from BScN programs, and 5 from junior colleges. The mean number of years of experience per each license was 21.8 ( $SD=14.1$ ) for practical nurses, 16.6 ( $SD=11.2$ ) for nurses, 13.7 ( $SD=10.8$ ) for midwives, and 1.3 ( $SD=3.0$ ) for public health nurses, and the overall average number of years of experience was 20.7 ( $SD=12.6$ ).

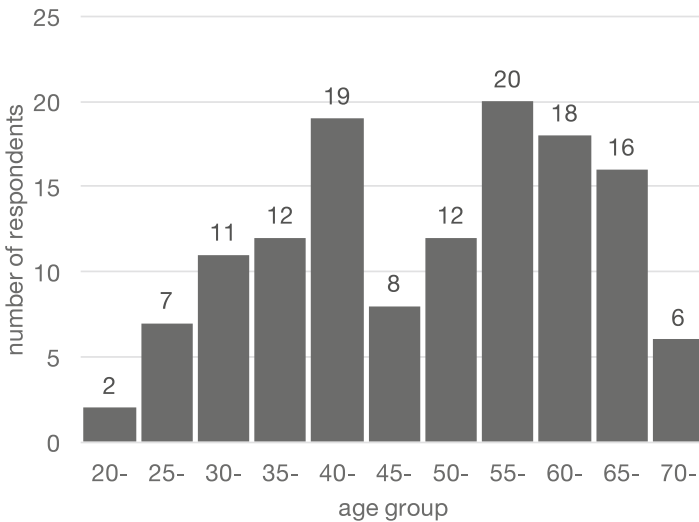


Fig. 2. Age group distribution of respondents

#### 3.2 The Relation Between Experience of Awareness of Death and Each Variable

47 respondents (33.8%) responded “yes” and 92 (66.2%) responded “no” to whether they had ever sensed that patients in the hospital were near death in spite of there being no obvious changes, while 4 respondents did not answer.

Table 1 shows the t-test results regarding relations between experience of patient’s death perception without apparent changes in vital signs, and each continuous variable. A significant relation was only noticed in number of years of experience as a registered nurse (RN). No test results indicating a relationship with number of years experience with other licenses, age, number of children, were found.

**Table 1.** Relation between experience of patient’s death perception without apparent changes in vitals and continuous variables

| Variables           |              | Experience of Pt. death perception |      |      |               |    |      |      |               | t     | p <sup>a</sup> | d <sup>b</sup> |
|---------------------|--------------|------------------------------------|------|------|---------------|----|------|------|---------------|-------|----------------|----------------|
|                     |              | Yes                                |      |      |               | No |      |      |               |       |                |                |
|                     |              | n                                  | M    | SD   | 95%CI         | n  | M    | SD   | 95%CI         |       |                |                |
| Age                 |              | 45                                 | 48.7 | 12.0 | [45.1, 52.3]  | 92 | 50.9 | 13.6 | [48.0, 53.8]  | 0.91  | .3621          | 0.17           |
| Number of children  |              | 35                                 | 1.9  | 1.2  | [1.44, 2.27]  | 78 | 1.5  | 1.1  | [1.26, 1.74]  | -1.58 | .1180          | 0.31           |
| Years of experience | LPN          | 47                                 | 6.7  | 13.2 | [2.79, 10.5]  | 92 | 11.0 | 14.6 | [8.01, 14.1]  | 1.73  | .0868          | 0.31           |
|                     | RN           | 47                                 | 13.7 | 12.3 | [10.1, 17.3]  | 92 | 6.3  | 10.3 | [4.18, 8.43]  | -3.75 | .0003          | 0.65           |
|                     | MW           | 47                                 | 0.2  | 1.5  | [-0.22, 0.64] | 92 | 1.7  | 5.9  | [0.46, 2.91]  | 1.67  | .0964          | 0.34           |
|                     | PHN          | 47                                 | 0.0  | 0.1  | [-0.01, 0.06] | 92 | 0.0  | 0.4  | [-0.04, 0.13] | 0.33  | .7424          | 0.07           |
|                     | Whole career | 44                                 | 21.8 | 12.7 | [17.9, 25.6]  | 87 | 20.1 | 12.6 | [17.4, 22.7]  | -0.73 | .4663          | 0.14           |

<sup>a</sup>Two-tailed Student’s t-test, <sup>b</sup>Effect Size (Cohen’s d)

Next, Table 2 shows the relation between the dependant variable and each categorical variable. No relation was seen between the variables by sex and marriage status. However, a significantly larger number of nurses who had graduated universities or junior colleges compared to nurses who had graduated trade schools, as well as a significantly larger number of nurses with nursing licenses compared to those who did not, answered “yes” to whether they had ever sensed that patients in the hospital are near death in spite of there being no obvious changes.

## 4 Discussion

The concept of tacit knowledge was proposed by Polanyi [2] and became widely known in Japan as well due to Nonaka [3,4]. When we conducted this survey, as a result of searching literatures including the word “tacit knowledge”, using the Japan Medical Abstracts Society Web ([www.jamas.or.jp](http://www.jamas.or.jp)), a major medical paper database in Japan, there were 12 original articles since 2005, 12 meeting minutes since 2003, and 12 expositions since 2006, suggesting that research dealing with tacit knowledge in the nursing field had only just begun. Leading research regarding tacit knowledge in the nursing field deals with “drawing blood”, “information gathering”, and other skills which nurses are supposed

**Table 2.** Relation between experience of patient’s death perception without apparent changes in vitals and categorical variables

|                | Variables                    | n   | Experience of Pt. death perception |    |                    |
|----------------|------------------------------|-----|------------------------------------|----|--------------------|
|                |                              |     | Yes                                | No | <i>P</i> value     |
| Sex            | Female                       | 117 | 43                                 | 70 | <sup>a</sup> .0527 |
|                | Male                         | 17  | 2                                  | 15 |                    |
| Marital status | Not married                  | 27  | 10                                 | 16 | <sup>b</sup> .6478 |
|                | Married                      | 96  | 29                                 | 65 |                    |
|                | Divorced/separated           | 15  | 6                                  | 9  |                    |
| Job title      | Staff nurse                  | 79  | 23                                 | 54 | <sup>b</sup> .2578 |
|                | Chief nurse                  | 16  | 8                                  | 8  |                    |
|                | Head nurse                   | 12  | 6                                  | 6  |                    |
|                | Director of nursing          | 1   | 1                                  | 0  |                    |
|                | Nurse educator               | 21  | 7                                  | 13 |                    |
|                | Others (Grad. students etc.) | 11  | 2                                  | 8  |                    |
| License (RN)   | Yes                          | 89  | 37                                 | 48 | <sup>a</sup> .0031 |
|                | No                           |     | 10                                 | 44 |                    |
| License (LPN)  | Yes                          | 79  | 19                                 | 60 | <sup>a</sup> .0067 |
|                | No                           |     | 28                                 | 32 |                    |
| License (MW)   | Yes                          | 13  | 1                                  | 12 | <sup>a</sup> .0603 |
|                | No                           |     | 46                                 | 80 |                    |
| License (PHN)  | Yes                          | 14  | 7                                  | 5  | <sup>a</sup> .1059 |
|                | No                           |     | 40                                 | 87 |                    |
| Education      | Diploma (LPN)                | 53  | 10                                 | 43 | <sup>b</sup> .0022 |
|                | Diploma (RN)                 | 56  | 21                                 | 34 |                    |
|                | BScN/Associate degree        | 28  | 15                                 | 11 |                    |

*Note.* RN = Registered Nurse. LPN = Licensed Practice Nurse. MW = Nurse Midwife. PHN = Public Health Nurse.

<sup>a</sup>Two-tailed Fisher’s exact test.

<sup>b</sup>Two-tailed chi-square test.

to possess—that is to say skills which are established by education within the teacher-student framework—and their purpose is to create explicit knowledge from the tacit knowledge which exists therein. We believe this is problematic in two ways. The first is that nursing research which advocates the explication of tacit knowledge is being conducted based upon the idea that changing tacit knowledge to explicit knowledge will make it a skill which can be transferred, based on the premise that “skills can be transferred”. The second is that the focus has been shifted from how this kind of tacit knowledge is acquired in the first place to the changing of the acquired “skill called tacit knowledge” into

explicit knowledge. In such cases, in addition to the issue of it not having been made clear whether skills which have been made into explicit knowledge can be transferred through this "explicit knowledge", there is also the issue of it being impossible to discern whether this skill was acquired by the transfer of whether it was acquired via one's own experience.

The position of this research is that there exist knowledge and skills which cannot be transferred. "Knowing when a patient will die", which this research covers, is not recognized as a skill which should be acquired as a nurse, and of course, it has never been taught at nursing schools. Therefore, if this skill is acquired a posteriori, it can be said that it was not learned from teachers or senior nurses, but rather naturally through genuine experience of the nurses' own. The reason why it is called "tacit knowledge" is that it was acquired tacitly, and the nurses with such skills cannot say verbally what it is. The results of this questionnaire survey shows that those who had experienced sensing that patients are near death without any changes in vital signs were uniquely the "registered nurses" with more years of experience, suggest that experience is important in predicting patients' being near death. This is also supported by the fact that there is a significantly larger number of persons who can make such predictions among those with registered nurse than those without it. So why do registered nurse and years of experience as a registered nurse increase the ability to sense a patient being near death more than other nursing qualifications and experience? This is a matter of speculation, but it would seem that experience caring for dying patients is important. Midwives mainly deal with births, which is the opposite of death. The main role of public health nurses is the improvement of public health, so they do not come across individual deaths very much. Under Japanese law, practical nurses are able to conduct the same work as registered nurses, but the local rules of hospitals and medical facilities often impose restrictions upon them such as not being able to work at night shifts or work as leaders. These things suggest that there is a limitation for licensed practical nurses to the "experience", and that limit may hinder their acquisition of the ability to sense dying patients without changes in visible signs. In order to verify these, it is necessary to collect further empirical data and gather more information regarding the existence of ability to sense, e.g. number of dying patients they caring for in the past, or hospital departments they worked in.

An interesting phenomenon is the fact that it became clear that more persons who received nursing education in universities or junior colleges can significantly sense a patient being near death. University and junior college graduates possess registered nurse without exception. Until now, new graduate registered nurses from higher education often received criticism that "they have knowledge not along with skills". However, it is easy to imagine that, within the nurses who have done training which not only accumulated knowledge but creates it, there are not a few nurses who accumulate experience as knowledge in a clinical setting or create new knowledge from their experience. The number of BScN nurses in Japan will be increasing in the future due to the increase of nursing universities.



We believe that it is worthwhile to consider the construction of a body of nursing knowledge which considers their individual characteristics.

There were not a few nurses who self-reported they were able to sense patients close to death without any changes obvious to anyone. This frequency shows something more than just a rumor. However, still, there is no denying that it is a product of their cognitive bias such as confirmation bias or hindsight bias. Brabrand et al. [5] conducted a cohort study to evaluate if nurses and physicians could accurately predict mortality of acutely admitted patients, just using their clinical intuition. The study clarified To avoid cognitive biases, it will be necessary for us to obtain prospective data as well as retrospective data like presented on this paper.

## 5 Conclusion

As a result of a questionnaire survey for nurses;

- 47 out of 143 nurses self-reported that they had ever sensed hospitalized patients were close to death without apparent changes in their vital signs.
- Presence or absence of the experience depended on the type of nursing license obtained, years of experience, and educational background statistically.
- There was a tendency that a person with a long experience as an RN (registered nurse) had experiences to sense patients close to death.
- Also, RNs who graduated from university or junior college tended to have the experiences.
- Prospective study will be desirable to reduce cognitive bias of participants.

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