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Students' attitudes toward maternity nursing training

— Changes prior to, during, and following training and gender differences —

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Abstract

Purpose: The present study examined students' images and thoughts of maternity nursing training, including their changes and gender differences, to help improve maternity nursing training.

Methods: The subjects were nine male and fourteen female students who underwent maternity nursing training in 2012 and consented to participate in the study. Semi-structured interviews were conducted with due ethical consideration. The interviews were recorded with their approval, documented verbatim, and analyzed using text-mining.

Results: Text analysis conducted prior to training extracted the characteristic words "male", "female", and "go + want to do ...?" used by male students, and "image" and "good" used by female students. Text analysis conducted following training extracted the characteristic words "father" and "experience + can..." used by male students, and "child-birth" and "mother" used by female students. "correspondence analysis with bubble charting" was conducted to examine the relationships between the attributes of subjects and their characteristic words, and the words used by male students prior to training deviated from the remainder. As "featured-word-analysis" results, separate clusters were formed for characteristic words used by males and females both prior to and during training. However, following training, no significant differences were noted between male and female students.

Conclusion: Female students had positive images of maternity nursing training prior to participating in it, whereas male students had not understood its necessity prior to undergoing the training, presumably because male nurses would not work on the maternity ward. However, after undergoing training, male students were able to view what they had experienced during the training on the maternity ward and develop future images of themselves as fathers, in the same manner as female students focusing on child-birth and becoming mothers.

Key words: Maternity nursing training, Thoughts of students, Gender differences, Text-mining

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1. INTRODUCTION

Clinical training, during which students implement nursing practices based on the knowledge and techniques they have previously acquired, and improve their practical nursing abilities, is an important opportunity for them to integrate their academic knowledge and practical skills.

In maternity nursing training, it is necessary for students to implement nursing practices for their clients within a short period of 2 weeks. Through this experience, they learn about nursing aimed at the maintenance and improvement of health conditions and prevention of abnormalities, while examining health-related issues in the maternity cycle from the viewpoint of wellness, based on maternal and neonatal physiologic changes during the gestation, intra-, and postpartum periods.

Therefore, knowledge and techniques specific to maternity nursing, which are different from those in other domains, are needed. Prompt approaches are also essential due to various factors, such as the necessity of simultaneously providing the mother and newborn with nursing care, their marked daily changes, and a short-term hospital stay. Furthermore, during maternity nursing training, male students need to form a pair with female students, as it is difficult for the former to independently deal with clients due to gender differences.

Prior to maternity nursing training with such specificity, students tend to believe that training is a learning opportunity involving difficulty, tension, and anxiety¹⁾. In addition to positive feelings, such as <willingness to observe delivery or attend a birth>, <expectations for training>, and <motivation and personal goals for training>, they also express negative feelings, such as <concerns over maternity nursing and skills>, <anxiety about training behavior and methods>, and <a vague uneasiness with training>. It has been reported that positive and negative feelings become dominant in female and male students, respectively, with time²⁾.

Male students frequently show a passive attitude toward training involving pregnant and parturient

females due to gender differences, creating a feeling of difficulty and an inferiority complex³⁾.

Although some previous studies structured students' experiences, and compared them between prior to and following training or among prior to, during, and following training⁴⁾⁵⁾, there have been no studies focusing on sex differences prior to, during, and following training.

The present study examined students' perceptions and thoughts of maternity nursing training, including changes in perceptions and thoughts and gender differences, to help improve maternity nursing training.

2. METHODS

2.1 Period of the study

From May to June 2013

2.2 Subjects

The subjects included 9 male and 14 female students who attended a nursing university and completed a maternity nursing training program in 2013.

2.3 Methods

Semi-structured interviews were conducted in a quiet room, focusing on the perceptions of maternity nursing training prior to training, feelings during training, and thoughts following training. Each interview was recorded, with the students' consent.

2.4 Analysis

In this study, the verbatim records were analyzed using Text Mining Studio 4.2. Text mining is a word analysis technique based on the information theory, and comprises the following 2 mechanisms: morphological analysis to divide textual sources into minimum semantic units, while considering their conjugation (word segmentation); and the processing of numbers in a large cross table based on morphemes. This technique allows the extraction of unbiased results, independently of analyzers' arbitrariness, to convert abstract and intuitive experiences into measurable items, such as scales and standards to manipulate, and determine the direction of

analysis. Furthermore, in this study, this software developed based on the linguistic characteristics of Japanese was used, as it also aims to clarify metaphors by combining cognitive linguistics⁶⁾, and, therefore, was likely to facilitate objective analysis of students' attitudes toward maternity nursing training, such as views and impressions.

2.4.1 Word Frequency Analysis

Word frequency analysis was performed by counting the appearance of the 10 most frequently observed nouns, verbs, and adjectives, based on the results of frequency analysis. Through this approach, the word frequency was compared between all, male, and female students prior to, during, and following training.

2.4.2 Characteristic Word Analysis

In consideration of the possibility of overlooking important words, which are not highly ranked due to a low frequency of appearance on word frequency analysis, characteristic word analysis was also performed based on complementary similarities. When the frequency of a word's appearance markedly varies, in other words, when there are marked differences between the frequencies of specific and all words, the complementary similarity measure is more useful than the chi-square test⁷⁾. In line with this, adopting the characteristic word and dependency extraction techniques with complementary similarity as an index value, words and expressions characteristically appearing in male and female students prior to, during, and following training were examined.

2.4.3 Featured Word Analysis

Featured word analysis was performed to extract words appearing at a minimum confidence of 60% and those co-occurring at least twice, and examine the expressions and co-occurrence of the most frequently observed words.

2.4.4 Topic Analysis

As a part of topic analysis, correspondence analysis with bubble charting was also performed to clarify the distribution of attributes in words. This technique converts variables into quantities by scoring each category based on the frequency matrix (cross table) of 2

types of category variable; corresponding categories are located close to each other when two-dimensionally distributing data using the scores converted from categories. Based on the results of this analysis, the association between words in male and female students prior to, during, and following training was examined, in addition to close and distant attributes based on the distance between them.

2.5 Ethical considerations

Oral and written explanations regarding the study objective and significance, anonymity, confidentiality and strict data management, unconditional participation, and the absolute right to withdraw were provided to students prior to obtaining their consent to undergo interviews.

The interviews were conducted in a lockable room with arrangements to prevent the inside of the room from being seen from the outside during each session.

The study was conducted with the approval of the Committee on Research Ethics of Hiroshima Cosmopolitan University.

3. RESULTS

3.1 Text Frequency Analysis

Using word frequency analysis, the following words were extracted in relation to the students' perceptions of maternity nursing training prior to commencement: females: <image>; <newborn>; <good>; <make a commitment>; and <anxiety>; and males: <male>; <female>; <training>; <mother>; and <go> (Fig. 1).

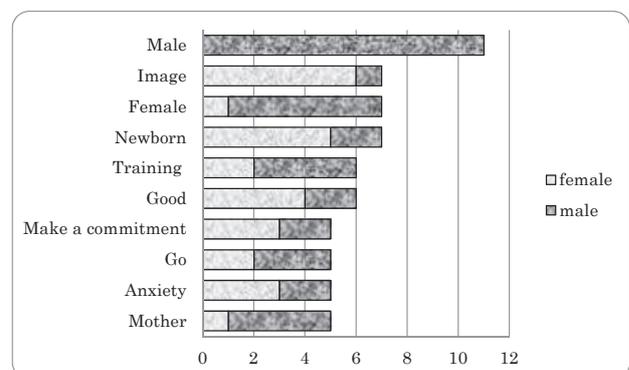


Fig. 1 Word Frequency Analysis: Prior to training

In relation to their feelings during training, the following words were extracted: females: <newborn>; <feel>; <ward>; <nurse>; <midwife>; and <mother>; and males: <training>; <newborn>; <make a commitment>; <parturient female>; <nurse>; and <mother> (Fig. 2).

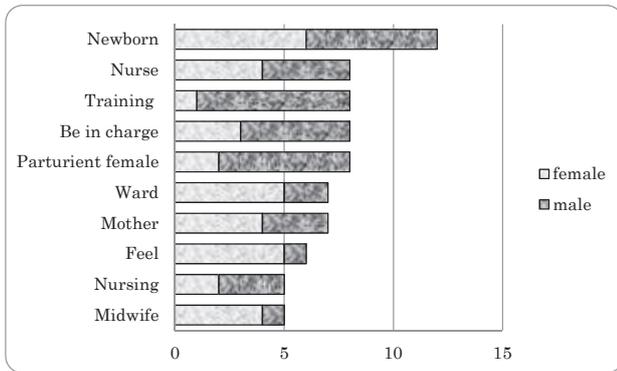


Fig. 2 Word Frequency Analysis: During training

In relation to their thoughts following training, the following words were extracted: females: <mother>; <childbirth>; <newborn>; <nurse>; <training>; <midwife>; and <difficult>; and males: <father>; <nurse>; <mother>; <newborn>; <training>; <difference>; and <good> (Fig. 3).

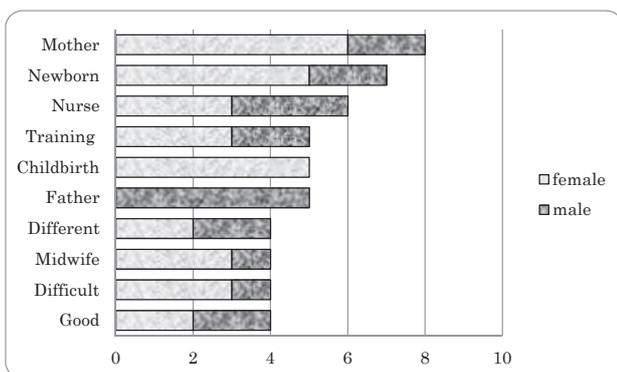


Fig. 3 Word Frequency Analysis: Following training

3.2 Characteristic Text Analysis

Using characteristic word extraction, the following words were extracted prior to, during, and following training: prior to: females: <image>; <good>; <make a commitment>; and <newborn>; and males: <male>; <female>; and <go + want to do...?>; during: females:

<feel>; <atmosphere>; and <ward>; and males: <parturient female>; <training>; <be in charge>; and <client>; and following: females: <childbirth>; and <mother>; and males: <father>; and <experience + can> (Table 1).

Table 1 Characteristic Text Analysis: Characteristic Word Extraction

	Prior to training	During training	Following training
Female	Image Good Make a commitment Newborn	Feel Atmosphere Ward	Childbirth Mother
Male	Male Female Go + want to do ...?	Parturient female Training Be in charge Client	Father Experience + can

Using characteristic dependency extraction, the following words were extracted prior to, during, and following training: prior to: females: <newborn: see the light>; and <life: birth>; and males: <training: go + want to do...?>; and <male: go + want to do...?>; during: females: <communication: difficult>; and males: <parturient female: be in charge>; and <nurse: can become + cannot be come>; and following: females: <life: birth>; and males: <condition: discharge> (Table 2).

Table 2 Characteristic Text Analysis: Characteristic Dependency Extraction

	Prior to training	During training	Following training
Female	Newborn: see the light Life: birth	Communication: difficult	Life: birth
Male	Training: go + want to do ...? Male: go + want to do ...?	Parturient female: be in charge Nurse: can become + cannot become	Condition: discharge

3.3 Featured Word Analysis

Using featured word information, the following words were extracted prior to training: females: <image>; <anxiety>; <birth>; <see the light>; and <life>; and males: <male>; <female>; <ward>; <anxiety>; <marked>; <training>; <feeling of alienation>; and <go + want to do...?>. Except for <anxiety>, the extracted words differed between males and females (Fig. 4). The

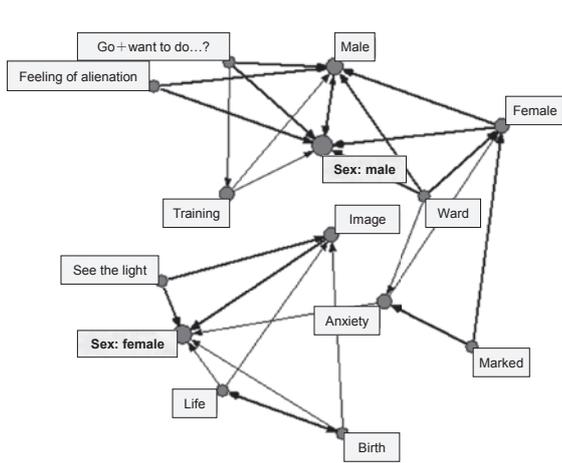


Fig. 4 Featured Word Analysis: Prior tottraining

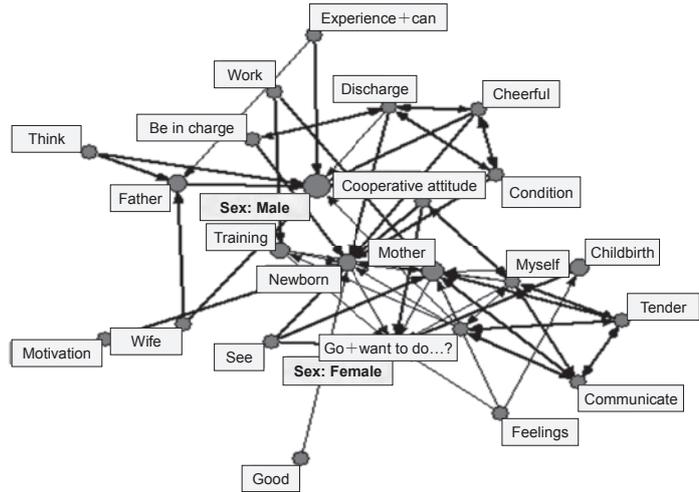


Fig. 6 Featured Word Analysis: Following training

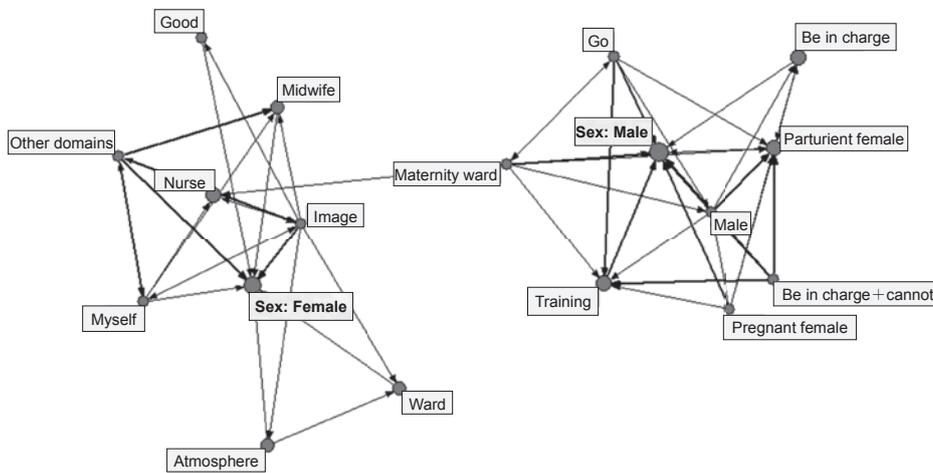


Fig. 5 Featured Word Analysis: During training

heavy and light lines connect words having strong and weak collocations, respectively. The direction of each arrow indicates that of a collocation (an association between words).

Those extracted during training, except for <maternity ward>, also differed between them, forming 2 gender-specific clusters: females: <nurse>; <midwife>; <ward>; <atmosphere>; <image>; <good>; <myself>; and <other domains>; and males: <training>; <parturient female>; <go>; <male>; <pregnant female>; <be in charge>; and <be in charge + cannot> (Fig. 5).

In contrast, following training, such clusters were not observed, as <mother> and <father> were mainly featured (Fig. 6). Similar changes were also observed in the results of correspondence analysis with bubble

charting as a part of topic analysis, highlighting male students' attributes prior to training (Fig. 7).

4. DISCUSSION

Female students had a positive image of maternity nursing training prior to commencement, relating it to childbirth as the beginning of life and newborns. On the other hand, they felt anxiety due to marked differences from those they previously dealt with in other domains of nursing and the knowledge and techniques they had acquired through previous training programs. During training, they became aware of the kinds of nursing practiced by nurses and midwives in actual clinical environments, the atmosphere of the ward, and the difficulty in communicating with mothers and newborns.

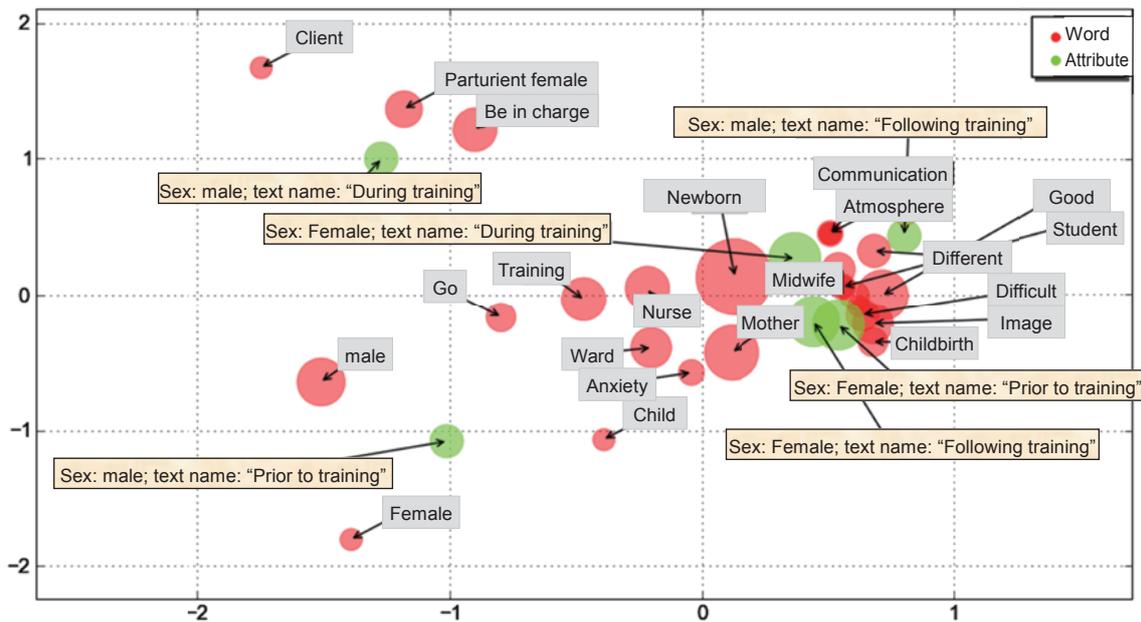


Fig. 7 Correspondence Analysis with Bubble charting

Consequently, they felt that maternity nursing training was different from what they had previously imagined. Following training, during which time they learned and experienced various aspects of nursing, such as attending a live childbirth, realizing the pleasures of motherhood, and the necessity and importance of nursing and midwifery, their maternal feelings had increased, as they began to imagine themselves becoming a mother in the future. At the same time, they realized the difficulty of clinical training goals.

The health levels and self-care ability of pregnant and parturient females treated by students during maternity nursing training tended to be higher than those of patients suffering from diseases, and they need indirect support, such as confirmation and observation, rather than direct nursing assistance⁸⁾, and health guidance more frequently. The necessity of dealing with clients in a healthy condition of the same age as themselves, unlike those in other domains, may increase anxiety and feelings of difficulty in students who are still learning the science of nursing. To reduce such feelings of students, preparations for clinical training through lectures and exercises to develop a sufficient knowledge of the physical, mental, and social characteristics of pregnant

and parturient females and health guidance may be essential.

In contrast, feeling alienated in the female domain of the maternity ward, it was difficult for male students to realize the significance of participating in maternity nursing training, leading to a passive attitude toward such training. However, during training, they appeared to appreciate the opportunity to be in charge of parturient females and newborns despite their expectations that there would be gender-related limitations in such a clinical environment. Furthermore, through communication with their clients, they developed nursing perspectives on pregnancy, childbirth, puerperium, and parenting. Although it would be highly unlikely that they would work in a maternity ward, male students became aware of the possibility of supporting clients from a male's viewpoint, such as providing support to fathers, and such a realization may have enabled them to recognize the significance of the training. Following training, recalling their days caring for mothers and their newborns, who were discharged in good health, they began to imagine themselves becoming fathers and considered the training a useful experience for their futures, highlighting their paternal perspectives on

maternity nursing training. Maternity nursing training for male students has been reported to have significance in enabling them to use the knowledge and skills obtained from 4 standpoints: as a nurse, male, father, and person of the same gender, to support those who need it⁹⁾.

After witnessing a birth, both men and women nursing students are given the opportunity to experience the preciousness of life and a chance to contemplate their future plans. However, gender differences forbid men from the thought of pursuing midwifery as a vocation. Midwifery in modern Japan is a profession for only women, men are not allowed to become midwives. Thus female students can both consider birthing their own children as well as becoming a practicing midwife, but for men the thought of becoming a midwife is an impossible career dream. On the other hand, they feel that pregnancy and childbirth are mysterious, something they will never experience; in addition, maternal feelings are more developed in males than in females during young adulthood¹⁰⁾. Therefore, male students are likely to focus on clients' husbands or partners as important role models for their futures.

And even with the increase in male nursing students, a defining feature of Japanese midwifery training is the absence of male instructors. Nursing instructors strive to understand the situation and feelings of their male students, but it is impossible for the instructors to understand the feelings and position of the male nursing students. On the maternity ward where all staff members, excluding doctors, and patients are female, male students are in a minority, and this increases the stress loaded on them¹¹⁾. Therefore, it may be desirable to assign multiple male students to each training facility, although the circumstances may not allow for such an arrangement in some cases. Furthermore, it is important for supervisors of male students to provide appropriate and receptive support to promote positive psychological changes through training, in order to help students recognize the necessity of undergoing the training.

5. STUDY LIMITATIONS AND FUTURE PERSPECTIVES

Despite the low number of subjects, 23, analyzable data were sufficiently obtained through detailed and long-term interviews with individuals in this study. However, as the students who participated in this study were all capable of stating their opinions during the interviews, the subjects may not be representative of university nursing students in general. Therefore, further studies involving a greater number of subjects may be necessary. It may also be important to focus on students' maternal and paternal feelings, in addition to providing them with the opportunity to learn about nursing, during maternity nursing training, in order to develop their maternal and paternal skills.

6. CONCLUSION

Anxiety was present in both female and male students prior to training, with some differences; while the former were anxious about the contents of the training, the latter had anxieties related to gender differences. In addition, during training, they had different views of the maternity ward, although both focused on it as the location of training; while the former felt the atmosphere of the maternity ward was different from that of other domains of nursing, focusing on nurses' and midwives' activities, the latter focused on pregnant and parturient females, and were concerned about whether they could care for them. However, following training, all students began to consider this issue from maternal and paternal viewpoints, respectively, which had been developed through communication with clients, and recognized that their experiences during training were meaningful.

In this study, it was suggested that male students' perspectives on life and gender, which differ from those of females, may also contribute to the deepening of the learning of both female and male students. In order to maximize the educational benefits within limited hours of clinical training, it may be necessary to help students

deepen their learning and awareness during training.

The results of this study were reported at the 3rd World Academy of Nursing Science.

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