

RELATIONSHIP BETWEEN CLINICAL COMPETENCE OF UNDERGRADUATE NURSING STUDENTS AND THEIR UNDERSTANDING OF CHILDREN

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Abstract : The objective of this study is to examine the relationship between clinical competence of undergraduate nursing students and their understanding of children. Study methods consisted of a questionnaire survey that used scales developed to measure nursing students' clinical competence and understanding of children. The study was conducted with the approval of the ethics committee of Nara Medical University. Two hundred and fifty-seven nursing students participated in this survey, and of these, two hundred and thirty-three were subject to analysis. Of the nursing students surveyed, 183 (79%) reported having experience with children, and there was no significant difference in experience with children between students in different years of study. Nursing students' experience with children involved playing with them, helping them with learning or playing sports, and raising them. The children they had experience with were pre-school and school-aged children. The study found a correlation between the nursing students' understanding of children and clinical competence. In addition, there was a significant relationship between nursing students' experience with children and their understanding of children. There was no significant difference in third-year students' understanding of children as compared to that of fourth-year students, who had completed practical training. There was, however, a significant difference in clinical competence between these two groups. These results indicate that nursing students' understanding of children is connected to their clinical competence, and that practical nursing training is necessary to increase the clinical competence of nursing students. In addition, educational intervention that deepens nursing students' understanding of sick children is important to improving clinical competence.

Key words : nursing students, clinical competence, understanding of children, experience with children

Introduction

Clinical competence is an important and necessary facet of the basic education of nursing students. However, the conceptions of clinical competence are varied, and not set in stone. In general, clinical competence is taken to mean the effective application of knowledge and skills¹⁾. It is also thought of as a combination of multiple other factors such as attitude, thinking faculty, and a sense of values^{2), 3), 4), 5)}. Clinical competence is identified with important individual characteristics needed in order to carry out one's duties, such as the ability to apply knowledge

(assessment ability), the ability to form human relationships (communication ability), nursing care, ethicality, the ability to develop professional knowledge, thinking faculty (with respect to knowledge and judgment), and personality^{6, 7, 8)}. In this study, we focused on the ability to form relationships (communication ability), which nursing students have identified as a weakness¹³⁾. It is one of the necessary components of clinical competence, and improving communication ability may lead to an increase in clinical competence. Furthermore, communication ability has been identified as the ability to come to mutual understandings with others, such as those receiving physician and nursing care^{4, 9, 10, 11)}. Hence, an understanding of those receiving care is necessary to improve communication ability.

Nursing & Midwifery Council¹²⁾ identifies “communication and interpersonal skills competencies” as necessary skills in the field of childcare, as are the ability to communicate with children receiving nursing care, and the ability to form relationships. Clinical competence is also a component of practical pediatric nursing ability, and understanding the developing emotions of children is vital in communication with them. This means that understanding the emotions of hospitalized children and forming relationships with them is an important part of their treatment.

With a declining trend towards nuclear families and birth rates in Japan, however, it is increasingly common for nursing students to have grown up without the opportunity to interact with small children through care of younger siblings. As a result, during practical pediatric nursing training, students are at a loss when a child cries or refuses to do something, and may think that they themselves are problematic, making it difficult for them to grasp children’s feelings¹³⁾. Because practical pediatric nursing training falls in a short timeframe during basic nursing education in Japan, nursing students may feel that it is difficult to grasp the characteristics of children, build relationships, and practice nursing in such a short training period.

This study focuses on nursing students’ ability to understand the characteristics of children who have been hospitalized for illnesses, the lack of which students have identified as a weakness. This study aims to examine the relationship between nursing students’ understanding of children and their clinical competence. Further, this study also investigates the state of pediatric nursing education in order to help nursing students understand children and encourages them to think about childcare in practice. Lastly, this study focuses on interpreting the meaning of the behaviors, responses, and characteristics of children, alongside interactions with their environment from a nursing perspective, and on defining terminology for understanding children¹⁴⁾.

Methods

The participants in this study were 257 undergraduate nursing students between their second and fourth years of study. Recruitment was completed by distributing research requests and opt-out documents to potential study participants alongside a questionnaire. Interested students individually dropped off their completed questionnaires in a drop box set up at the university. The questionnaires were distributed to second-year students (who had completed

training in the concepts of pediatric nursing), third-year students (who had completed lecture courses in pediatric nursing but not started practical training), and fourth-year students (who had completed all courses in pediatric nursing). Responses were anonymous and the questionnaires included a scale to measure understanding of children¹⁴, as well as a scale of clinical competence¹⁵. Descriptive statistical analysis was used to study the attributes of study participants, and multiple comparison (Tukey's HSD) tests were conducted to compare nursing students in different years of study. Clinical competence and understanding of children were treated as latent variables, and the scores on the sub-scales for each observed variable were used in a covariance structure analysis using a model with multiple indicators. The computer programs of SPSS v24.0 and Amos v25.0 were used for statistical analysis.

Study indicators: A four-point Likert scale was used as the scale for the understanding of Children¹⁴, which was composed of 30 items falling under 4 sub-scales: body physiology characteristics, autonomy, development of intellectual/emotional/social functions, and experience with children with health issues. The reliability and validity of the scales for participating nursing students were high (understanding of children $\alpha = 0.92$, body physiology characteristics $\alpha = 0.75$, autonomy $\alpha = 0.80$, development of intellectual/emotional/social functions $\alpha = 0.86$, experience with children with health issues $\alpha = 0.86$)¹⁴. The clinical competence scale¹⁵ was a five-point Likert scale composed of 20 items falling under 4 sub-scales: —competence of orientation, competence of development, competence of practice, and competence of evaluation. The reliability and validity of the scales developed for participating nursing students were high (clinical competence $\alpha = 0.91$, competence of orientation $\alpha = 0.70$, competence of development $\alpha = 0.82$, competence of practice $\alpha = 0.73$, competence of evaluation $\alpha = 0.81$)¹⁵.

Ethical considerations: The study was conducted with the approval of the ethics committee of Nara Medical University. The distribution of the documents was not done during class time; a time which would not disturb students' learning was chosen. In addition, the research request documents sent to participants explained the objective and methods of the study, cited optional participation, identified no cost of participation, noted that university grades would not be affected, established anonymity, and declared that submitting the questionnaire would signify consent to participate in the study. The strictness of data management was also explained, in addition to the fact that the results of the research would be published. The scales that were used in this study were used with the consent of their developers.

Results

Attributes of study participants

A total of 239 questionnaires were collected, signifying a 93% collection rate. Of the nursing students surveyed, 183 (79%) reported having experience with children, and there was no significant difference in experience with children between students from different years of study. Forty-nine (21%) of the nursing students surveyed reported having no experience with children. One participant did not answer this question on the questionnaire.

Responses indicated that the participants had experience playing with children (50%),

assisting them in learning or sports (20%), raising them (giving milk, bathing, diaper changing, reading to them, etc.: 20%), and communicating with them (10%). They had cared for infants (10%), pre-school children (50%), school-aged children (30%), and teens (10%), who were their siblings, extended family members, friends' children, children in their neighborhood, or were their students or participants encountered through their activities as cram schoolteachers, tutors or volunteers.

The relationships between experience with children, clinical competence, and understanding of children

Nursing students' experience with children, understanding of children, and clinical competence were analyzed using t-tests. There was a significant relationship between nursing students' experience with children and their understanding of children ($t=2.18$, $p<0.05$). There was no significant relationship, however, between nursing students' experience with children and clinical competence (Table 1.)

Table 1. Nursing students' experience with children (n=232)

	Experience with children		No experience with children		t
	M	SD	M	SD	
Understanding of children	3.19	0.50	3.01	0.54	2.18 *
Clinical competence	77.50	10.13	75.33	12.44	1.27

Note : Questionnaires with no response relating to experience with children have been omitted. * $p<0.05$

Comparisons by year of study

Comparison of students' understanding of children by school year: There was a significant difference between the median values for second, third, and fourth-year students (Fig. 1.) Multiple comparison (Tukey's HSD) tests showed a significant difference between school years in the points scored for nursing students' understanding of children ($F=10.94$ $p<0.01$).

Comparison of students' clinical competence by school year: There were significant differences between the median values of clinical competence in each school year ($p<0.05$). No significant differences were found in the depth of understanding of children, but fourth-year students had a higher median value of understanding (Fig. 2.) Multiple comparison (Tukey's HSD) tests showed that there was a significant difference in clinical competence between nursing students from different school years, in that those with more years of education were more clinically competent ($F=10.25$, $p<0.01$). Both third and fourth year students had significantly higher scores of clinical competence than second year students ($p<0.05$). Furthermore, fourth-year students had significantly higher scores than both second and third-year students ($p < 0.05$) (Table 2.)

RELATIONSHIP BETWEEN CLINICAL COMPETENCE OF UNDERGRADUATE NURSING STUDENTS AND THEIR UNDERSTANDING OF CHILDREN

(29)

Table 2. Comparison of clinical competence and understanding of children by year of study (n=233)

	Year	n	M	SD		F
Understanding of children	2 nd year	77	2.94	0.52] *]	* 10.94 **
	3 rd year	79	3.22	0.56		
	4 th year	77	3.30	0.37		
Clinical competence	2 nd year	77	73.70	10.04] *]	* 10.25 **
	3 rd year	79	76.35	9.77		
	4 th year	77	81.08	10.89		

***p* < 0.01 * *p* < 0.05

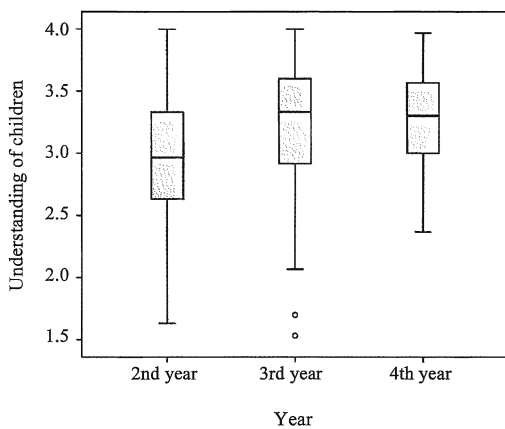


Fig. 1. Comparison of students' understanding of children by school year

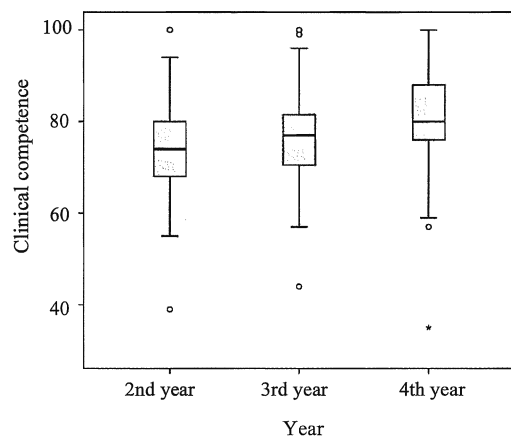


Fig. 2. Comparison of students' clinical competence by school year

Relationship between nursing students' understanding of children and clinical competence (Fig. 3.)

The Pearson product-moment correlation coefficient for the relationship between nursing students' understanding of children and clinical competence was found to be weak ($r=0.28, p < 0.01$).

A covariance structure analysis was conducted to investigate the effect of nursing students' understanding of children on clinical competence. The compatibility indices were as follows: $\chi^2 = 36.130, df = 19, p < 0.01, GFI=.966, AGFI=.936, RMSEA=.062$, and $AIC=70.130$. The coefficient (standardized estimated value) of the path diagram showing the influence of an understanding of children on clinical competence was dominant, with a value of 0.31.

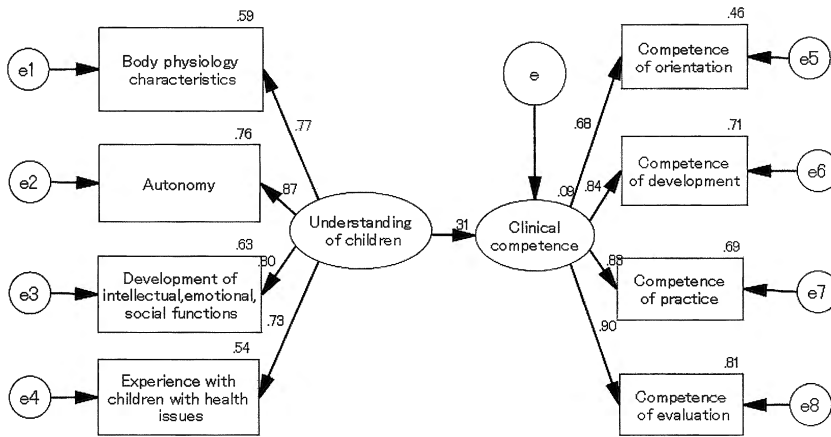


Fig. 3. The relationship between clinical competence of undergraduate nursing students and understanding of children (standardized estimated value)

Discussion

First, we will discuss the relationships between nursing students' experience with children, understanding of children, and clinical competence. Analysis found a significant relationship between nursing students' experience with children and understanding of children ($p < 0.05$). However, no significant relationship between experience with children and clinical competence was found. This data indicates that while nursing students' experience with children deepens their understanding of children, it does not influence their level of clinical competence.

Next, we compared nursing students' understanding of children and their clinical competence by year of study. Third and fourth-year students had significantly higher median values for understanding children for each year of study than their second-year student counterparts ($p < 0.05$). This may be because the study of care for children with health issues, which starts in the second semester of the second year, deepens students' understanding of children through lectures and case studies. There was no significant difference, however, in students' understanding of children between third and fourth-year students. This may be because in practical training, experience with hospitalized children with illnesses is not related to an understanding of children. This contradicts the result shown above that nursing students' experience with children deepens their understanding of children, perhaps because it is difficult for nursing students to understand hospitalized children. The moods of hospitalized children change owing to their symptoms and treatment, and many children are unable to express their pain in words or are not at an age where they can express it. This inability to identify the expression of symptoms may be the reason why nursing students have difficulties in understanding children¹³. On the other hand, fourth-year nursing students, who have completed all practical training, had significantly higher clinical competence than second or third-year students who had not received practical training. This indicates that students' practical nursing training is critical in increasing clinical competence.

Lastly, we will discuss the relationship between nursing students' understanding of children

and clinical competence, where a weak correlation was observed ($r=0.28$, $p<0.01$). The results of the covariance structure analysis showed that the path coefficient (standardized estimated value) for understanding of children and clinical competence was dominant, with a value of 0.31. This indicates that nursing students' understanding of children influences their clinical competence. The correlation coefficient was weak, which suggests that to improve clinical competence, it is necessary to improve not only the understanding of patients, which falls under communication ability, but also skills such as the application of knowledge (assessment ability), nursing care, and ethicality^{6), 7), 8)}. In other words, the ability to understand patients is an important component of clinical competence. On the other hand, because there was no significant difference in the understanding of children between third-year students, who had not received practical training, and fourth-year students, who had completed their practical training, it may be possible that clinical competence increases with nursing student understanding of hospitalized sick children. Further research is recommended to have a better understanding of this relationship.

This study has revealed that practical nursing training is necessary to increase the clinical competence of nursing students, and that it is important for nursing students to understand children to improve their clinical competence. Nursing students have difficulty understanding children during practical training, and educational intervention that deepens students' understanding of hospitalized children is necessary to increase their clinical competence. In practical training for pediatric nursing, it is important for instructors to give nursing students individual guidance to improve understanding of sick children they meet during their practical training¹⁶⁾. Nursing students' understanding of sick children is connected to clinical competence and will result in higher quality practical training.

Conclusions

1. There was a correlation between the nursing students' understanding of children and clinical competence, in that nursing students' understanding of children influences their clinical competence.
2. There was a significant relationship between nursing students' experience with children and understanding of children, but no significant difference with students' level of clinical competence. Nursing students' experience with children deepens their understanding of children but does not influence clinical competence.
3. There was no significant difference in students' understanding of children between third- and fourth-year students, of whom the latter had completed all practical training.
4. Experience with sick children during practical training does not influence students' understanding of children. Overall, it is difficult for nursing students to understand children with illnesses.
5. Practical nursing training is necessary to increase the clinical competence of nursing students, and it is important for nursing students to understand children to improve their clinical competence. Thus, educational intervention that deepens students' understanding of sick children is necessary.

Limitations of the study

A limitation of this study that must be acknowledged is that the number of students in each program year was as small as 77–79. In the future, I would like to expand on this study by reviewing pediatric nursing education with an increased number of subjects.

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Conflicts of interest

The authors have no conflicts of interest directly relevant to the content of this article.

References

- 1) Del Bueno, D., Weeks, L., and Brown–Stewart, P.: Clinical assessment centers: a cost-effective alternative for competency development. *Nursing Economics*, **5** (1): 21–26. 1987.
- 2) Benner P: From novice to expert; *American journal of Nursing*, **82** (3): 402–407. 1982.
- 3) David T.Cowan.,Jan Norman.,Vinoda P: Competence in nursing practice: A controversial concept–A focused review of literature. *Accident and Emergency Nursing*. **15**: 20–26. 2007.
- 4) David T.Cowan., Wilson–Barnett, D.J., Norman, I.J., Murrells, M.: Measuring nursing competence: Development of a self-assessment tool for general nurses across Europe. *International Journal of Nursing studies*. **45**: 902–913. 2008.
- 5) Notarnicola, I., Petrucci, C., De Jesus Barbosa, M.R., Giorgi, F., Stievano, A., Lancia, L.: Clinical competence in nursing: A concept analysis. *Professioni Infermieristiche*. **69**(3): 181–189. 2016.
- 6) Miwako Matsutani, Yuriko Miura, Yuko Hirabayashi, Yumi Sakyo, Takeshi Unoki, Kaoru Osumi, Hiromi Oku, Narumi Hori, Toshiko Ibe, Takako Takaya, Rie Nishino, Asako Terada, Masako Iida, Ekiko Sato: Nursing competency: Concept, Structure of dimensions, and assessment. *Journal of St. Luke's Society of Nursing Research*, **14**: 18–28. 2010.
- 7) Sarah A.S.: Nurse competence: A concept analysis. *International Journal of Nursing Knowledge*. **23**(3): 172–182. 2012.
- 8) Miyuki Takase, Sachiko Teraoka, Yukiko Miyakoshi, Ayako Kawada: A concept analysis of nursing competence: A review of international literature. *Journal of Japan Society of Nursing Research*, **34** (4): 103–109. 2011.
- 9) Calman L.: Patient's "views of nurses" competence. *Nurses Education Today*, **26**: 719–725. 2006.
- 10) Klen C.J. and Fowles E.R.: An investigation of nursing competence and the competency outcomes performance assessment curricular approach: senior student's self-reported perceptions. *Journal of Professional Nursing*. **25**: 109–121. 2009.
- 11) Shattell M.: Nurse–patient interaction: A review of the literature. *Journal of clinical Nursing*. **13**: 714–722. 2004.
- 12) Nursing & Midwifery Council.: Standards for competence for registered nurses.

[Cited Mach 2019] Available online : <https://www.nmc.org.uk/standards/standards-for-nurses/pre-2018-standards/standards-for-competence-for-registered-nurses/>. 2015.

- 13) Hitomi Ojio, Hiromi Naragino: Factors Affecting Nursing Students' Hesitation to become Involved with Children in a Child Nursing Practicum. *Journal of Japan Society of Nursing Research*, **33** (2): 69-76, 2010.
- 14) Miyuki Nishihara, Keiko Yamaguchi: Development of an Evaluation scale related to the understanding of children by nursing students -targeting students of three-year courses at nursing vocational schools. *Journal of Japan Society of Nursing Research*, **35** (1):127-136. 2012.
- 15) Hosoda Yasuko, Takaharu Araki, Miho Furuyama, Shoji Yoshikawa, Kazue Mori, Kazumi Hoshi, Miyuki Nakayama, Yukie Majima, Yumiko Nakamura: Association between the practical skills employed in using information and the practical skills used in nursing among undergraduate nursing students: comparison by grade achieved before introducing e-Learning. *Journal of School of Nursing Osaka Prefecture University*, **13** (1) : 19-26. 2007.
- 16) Hitomi Ojio, Hiromi Naragino : Factors affecting the first steps towards the formation of interpersonal relationships with children for nursing students in a child nursing practicum. *Journal of Japanese Society of Child Health Nursing*, **18** (2) : 9-15. 2009