

Original Article

The Effect of Peer Assessment Method on the Perception of Nursing Diagnosis and Academic Self-Efficacy in Nursing Process Teaching

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Abstract

Background: It is important for nursing students to have a positive sense of nursing diagnosis and adequate academic self-efficacy, for the development of the profession and the enhancement of the quality care. In recent years, the peer assessment has been shown as a method contributing to the development of the student in clinical practices. However, there are no studies conducted on the effect of peer assessment on the perception of nursing diagnosis and academic self-efficacy.

Aim: To determine the effect of peer assessment method on the perception of nursing diagnosis and academic self-efficacy in nursing process teaching.

Methods: A quasi-experimental study. The sample of the study consisted of 68 students (Experimental group n=34, control group n=34). The peer assessment was applied to the experimental group; the traditional discussion was applied to the control group. Data were collected with the Perceptions of Nursing Diagnoses Survey and Academic Self-Efficacy Scale. The aforementioned tools were administered to each group twice: at the beginning and end of the training.

Results: In the last measurement, the perceptions of nursing diagnoses score of the students in the experimental group were found to be lower than the control group and the academic self-efficacy scores were higher and the difference was significant ($p < 0.05$).

Conclusions: The results show that the peer assessment method improves students' perceptions of nursing diagnoses and academic self-efficacy levels more than does the traditional method.

Key Words: Nursing process, perception of nursing diagnosis, peer assessment, academic self-efficacy, nursing student.

Introduction

Nursing process is a structured form of nursing care. Students use the nursing process while dealing with a real patient in clinical practice. The use of the nursing process by the students is important in increasing the professionalism of the students, in the development of the profession, and in the placement of scientific thinking (Can & Erol, 2012). The nursing process consists of collecting data from the patients, identifying the nursing diagnoses, and planning, implementing and evaluating the nursing interventions. Of these steps, the one in which the problem is identified is the nursing diagnosis.

By determining the patient's problems and risky conditions, nursing diagnosis ensures the identification of the etiology the problem, planning of diagnosis-oriented interventions in healthcare, selection and evaluation of appropriate interventions (Halverson et al., 2011). Therefore, nursing diagnoses should be well taught to nursing students. If nursing students are not well acquainted with the nursing process, they will have difficulty in using the nursing diagnoses and they will be inadequate on this subject when they graduate (Halverson et al., 2011). Feeling inadequate in making nursing diagnosis causes its contribution to the care to be

perceived differently and may affect the use of nursing diagnoses. Positive perception of the use of nursing diagnoses affects the definition of patient problems and the planning of patient care positively (Abed El-Rahman et al., 2017; Halverson et al., 2011). The positive perceptions of nursing diagnosis in both student and professional life are important for the development of the profession and quality care. Therefore, it is necessary to determine and improve the nursing students' perception of the nursing diagnosis (Halverson et al., 2011). In studies conducted to investigate the participants' perceptions of nursing diagnosis, students and nurses were determined to have negative perceptions of nursing diagnoses (Halverson et al., 2011), the students were inadequate in putting the nursing diagnosis into clinical practice and they experienced problems in such situations (Can & Erol, 2012). The most important task of clinical counselors is to find out the students' problems, to produce solutions, and to use methods that will maximize learning (Burrell, 2014). One of the proposed methods for the development of learning in recent years is peer assessment. Peer assessment is a process in which an individual's work is assessed by their peers from their own perspective within certain criteria. This process is fulfilled among students in the same class group with similar experience and development level (Casey et al., 2011; Topping, 2009; Fertelli, 2019). It is stated that students can better understand through this method. It has been determined that this method that improves learning also improves some skills of students, such as critical thinking (Stone et al., 2013; Fertelli, 2019). However, there is no study to improve the perception of nursing diagnosis by peer evaluation method. Academic self-efficacy is one of the characteristics that should be developed in students, where the effect of the peer assessment method is not examined. Academic self-efficacy is the individual's personal judgment as to their ability in order to succeed in an academic position at a certain level or to achieve an academic purpose (Bandura, 1997). It has been reported that the nursing students often lack of academic self-efficacy (Tower et al., 2014). In nursing education that is primarily composed of courses related to biological sciences, it is explained that students perceive these courses as difficult and do not believe their ability to be successful (Tower et al., 2014). It is recommended that different methods should be used for students to be

successful, to make them believe in themselves and to support their learning (Tower et al., 2014). In this respect, peer assessment can be an effective method. In addition, considering the problem of insufficient number of teaching staff despite the increase in the number of students in nursing education both in the world and in Turkey (Stone et al., 2013), peer assessment may help to improve some of the characteristics of students in clinical education. Accordingly, this study was carried out in order to determine the effect of peer assessment method on the perception of nursing diagnosis and academic self-efficacy in nursing process teaching.

Methods

Design and Sample

The study was conducted as a quasi-experimental study. The research was carried out in the clinical practice of the second grade students in the Internal Medicine Nursing Course at the Department of Nursing at the Faculty of Health Sciences at a university. The research population was composed of 236 second grade students who were in the clinical practice phase of the Internal Medicine Nursing Course (IMNC) at the Department of Nursing. The inclusion criteria were as follows: Being 18 years of age or older, being a student in internal medicine nursing class. The exclusion criteria were as follows: want to leave from study of the students. The students were informed about the study and were told that participation was voluntary, and that they could withdraw from the study at any time and that their nonparticipating would not affect their grades. These 236 students were assigned into seven groups, each of which included either 33 or 34 students. Of the seven groups, 2 were included in the sample as the experimental (n=34) and control (n=34) groups. A total of 236 students meet the inclusion criteria, and 236 students were randomised using the Research Randomiser into either intervention group (n = 34) or a control group (n = 34). The Research randomizer generated a set of 17 unique numbers ranging from 1–34. Students took a number from the box. If the selected number corresponded to any generated number, he/she would be assigned to the intervention group, or else, to the control group. At the end of study, students not excluded from both the experimental group and the control group. The IMNC clinical internship, which takes place during the fall semester of the second grade, is conducted in the internal

medicine clinics of the university hospital. At each clinic, a consultant teacher took responsibility and worked in the clinic together with the students throughout the clinical practice. The clinical practice of the IMNC covered a period of ten weeks. At the end of the five-week practice, the two student groups worked in two separate clinical settings, on a rotational basis. During the course of clinical practice, a trainer always worked in the same clinic and evaluated two different groups.

Data collection tools

Student Information Form (SIF): This form consists of the items questioning the socio-demographic characteristics of the students (age, gender, educational status, whether they preferred the profession of their own free will etc.).

Perceptions of Nursing Diagnoses Survey (PNDS): The validity and reliability study of the Turkish version of the scale developed by Frost, Olsen and Orth (1991) was conducted by Korhan et al. (2013). The scale consists of 26 statements reflecting the perceptions of nurses in the subjects such as the use, usefulness, and purpose of nursing diagnoses. The scale is of five-point Likert-type. The lowest and highest possible scores to be obtained from the scale were 26 and 130 respectively. The low score on the scale indicates that the nursing diagnoses are perceived positively by the nurses. The internal consistency coefficient of the scale is 0.84 (Korhan et al., 2013).

Academic self-efficacy scale (ASES): The validity and reliability study of the Turkish version of the scale was performed by Yılmaz et al. (2007). 4-point Likert-type scale consists of 7 items. High scores obtained from the survey show that the participants had high academic self-efficacy levels. The minimum and maximum possible scores to be obtained from the scale were 7 and 28 respectively. The Cronbach alpha reliability of the scale is .79 (Yılmaz et al., 2007).

Procedure

In the study, the students were assigned to the experimental and control groups. When the clinical practice began, the study was started with the experimental group. The SIF, PNDS and ASES were administered to the students in the experimental group in the first interview. An example of how a care plan should be made was explained by the researcher to the students by

showing on a sample case. On another care plan, it was shown how the student's care plan should be assessed and examined and what should be considered. It is stated that inappropriate matches in peer assessment may be a problem (Seconmb, 2008; Fertelli, 2019) and that the studies may be one-on-one (Stone et al., 2013, Fertelli, 2019). Therefore, the students in the experimental group were matched with their chosen peers. Later, each student began to work by making a care plan for the patient in the clinic. Students who made a care plan and wanted to show it to their advisor were asked to exchange their care plan with their matched friend and were asked to review each other's care plans. During this review, the person reviewing the maintenance plan was asked to write the assessments of the maintenance plan as positive-negative or true-false on the plan with the red pen. Every student studied the care plan of his or her matched friend in this way. To ensure the exchange of correct and latest information, it is stated that supervision and surveillance are necessary in all peer education and that unsupervised learning will not be effective (Stone et al., 2013; Brooks & Moriarty, 2009; Fertelli, 2019). For this purpose, following peer reviewing and discussion on care plans, two peers who were matched for the peer review and a counselor discussed and assessed the care plans together. It is stated that the peer support work should last at least one week (Brooks & Moriarty, 2009; Fertelli, 2019). In this study, the peers worked for five weeks. At the end of the five-week internship, a student made four care plans and evaluated four care plans made by his or her partner. Thus, a student had the opportunity to think on eight care plans. At the end of the internship, the related scales were administered to the students for the second and last time.

The SIF, PNDS and ASES were also administered to the students in the control group in the first interview. An example of how a care plan should be made was explained by the researcher to the students by showing on a sample case. On another care plan, it was shown how the student's care plan should be assessed and examined and what should be considered. During the routine clinical evaluation in the five-week internship, the advisor made a one-on-one interview with the students, and the care plan was discussed and evaluated. At the end of the five-week internship, a student made four care plans and evaluated four care plans made by his

or her advisor. At the end of the internship, the related scales were administered to the students for the second and last time. The response time for the SIF, and the other two scales took 20-25 minutes on average.

Ethical considerations

The study was carried out in accordance with the principles of the Helsinki Declaration. Approvals were obtained from the Medical Faculty Clinical Trials Ethics Committee (No. 2018-01/31) and the Health Sciences Faculty, Nursing Department, before the study was started.

Data Analysis

The study data were analyzed with the SPSS (Version 21.0, SPSS Inc., Chicago, IL, USA) package program. In the analysis of the data, frequency, percentage calculation, Chi square test, significance test between two means were used. $p < 0.05$ was considered statistically significant. While the analyses were performed, the Cohen's d effect size was calculated for the t -test when the intragroup differences were significant. For the effect size, the Cohen's d values of .20, .50, and .80 were defined as small, medium, and large, respectively (Cohen, 1988).

Results

The mean age of the students in experimental group was 20.01 ± 0.43 years. Of them, 82.4% were in the age group of 17-20 years, 82.4% were female, 91.2% were high school graduates and 76.5% chose their occupation willingly (Table 1).

There was no statistically significant difference between the variables in the analysis conducted in order to determine the similarities between experimental and control groups in terms of age, gender, educational status, occupational choice variables ($p > 0.05$). This result shows that the individuals in both groups had similar characteristics (Table 1).

In the first measurement, it was found out that the students in the experimental group had higher PNDS scores (against the experimental group) and the ASES scores (in favor of the control group) than did the students in the control group, and there was no significant difference between the groups ($p > 0.05$). In the last measurement, the PNDS scores of the students in the experimental group were found to be lower than

were those of the students in the control group and the ASES scores were higher and the difference was significant ($p < 0.05$) (Table 2).

Table 3 reveals statistically significant difference between the mean scores of the participants in the experimental group obtained from the PNDS and the ASES at the pre-test and post-test in favor of the post-test scores ($p < 0.05$). In the intragroup comparison of the control group although the ASES mean revealed no statistically significant difference between the pre-test and post-test scores ($p > 0.05$), PNDS mean revealed statistically significant difference between the pre-test and post-test scores ($p > 0.05$).

In addition, when the Cohen's d value for the difference between the pre-test and post-test scores was considered, it was determined that the PNDS in the experimental group ($d = 1.25$) had a large effect size while the control group had a medium effect size ($d = 0.69$). Besides, it was determined that the ASES in the experimental group ($d = 0.48$) has a medium effect size (Table 3).

Discussion

In this study in which the effect of peer assessment method on perception of nursing diagnosis and academic self-efficacy was investigated in the teaching of nursing process, there was no significant difference ($p > 0.05$) between the variables related to the sociodemographic characteristics of the students in the experimental and control groups. At the first measurement, the students in the groups were found to have a higher PND score, which is against the experimental group, and a lower ASES score, and the difference between them was not significant. This result is important because it shows that students in both groups had similar scores and similar characteristics. The perception of nursing diagnosis is important in the use of the care plan and in the provision of quality care (Korhan et al., 2013). As a matter of fact, the positive or negative perception of nursing diagnoses affects the nurses' use of diagnosis and care practices (Plase 2009; Abed El-Rahman et al., 2017). In the literature, it is seen that the majority of the studies are aimed at determining the nurses' perception of nursing diagnosis, and that there were few studies conducted with students.

Table 1. Distribution of sociodemographic characteristics of the students in the experimental and control groups

Features of students	Experimental group (n=34)		Control group (n= 34)		X ^{2a}	p
	n	%	n	%		
Mean Age	Mean±SD=20.01±0.43		Mean±SD=19.99±0.69			
Age						
17-20 age	28	82.4	29	85.3	0.168	0.732
21-25 age	6	17.6	5	14.7		
Gender						
Female	28	82.4	31	91.2	1.153	0.283
Male	6	17.6	3	8.8		
Education status						
High school	31	91.2	32	94.1	0.216	0.642
University	3	8.8	2	5.9		
Selection status of the profession willingly						
The profession willingly prefer	26	76.5	24	70.6	0.302	0.582
The profession willingly don't prefer	8	23.5	10	29.4		

Not: SD, standard deviation; ^a Chi-square test for independence; *p<.05.

Table 2. Students' perception of nursing diagnosis and academic self-efficacy scores in the first and last measurements

Scales	First measurement			Last measurement		
	Experimental group	Control group	t ^a , p	Experimental group	Control group	t ^a , p
	Mean±SD	Mean±SD		Mean±SD	Mean±SD	
PNDS	61.32±8.98	58.17±7.44	0.120 t=1.57	49.25±7.07	53.87±8.13	0.020* t=2.62
ASES	19.02±2.83	20.08±2.53	0.116 t=1.62	21.65±3.41	20.21±2.45	0.000* t=2.00

Not. ^a Independent t test; SD, standard deviation; PNDS =Perceptions of Nursing Diagnoses Survey; ASES Academic self-efficacy scale *p<.05.

Table 3. Comparison within the group of the mean scores obtained from the PNDS and the ASES in the pre-test and post-test measurements by the students in the experimental group and the control group

Experimental group					
Scale	Pre-test X±SD	Post-test X±SD	t ^a	p	Cohen's d
PNDS	61.32±8.98	49.00±7.03	7.31	0.000*	1.25
ASES	19.02±2.83	21.65±3.41	4.03	0.000*	0.48
Control group					
PNDS	58.17±7.44	53.76±7.92	7.31	0.008*	0.69
ASES	20.08±2.53	20.21±2.45	4.03	0.735*	0.05

Not. ^a Paired Samples t Test; SD, standard deviation; PNDS =Perceptions of Nursing Diagnoses Survey; ASES Academic self-efficacy scale *p<.05.

It was determined that the nurse's perception of diagnosis was negative in studies conducted with nurses (Korhan et al., 2013; Halverson et al., 2011; Frost et al., 1991). Halverson et al. (2011) found that the majority of the nurses had negative perceptions of nursing diagnosis even after 30 years of using the nursing diagnosis. In other studies, it was determined that nursing students were inadequate in perceiving nursing diagnoses and were not satisfied with determining the patient needs in the field of nursing (Paans, et al., 2011; Palese, et al., 2009). Palese et al. (2009) state that this condition cannot be used correctly because nursing diagnoses are not well known. The fact that the students' perception of nursing diagnosis in both groups was not positive at the first measurement in the study supports the results of the aforementioned study. This result suggests that different methods of nurses related to changing or improving the nurses' perception of the diagnosis should be developed as soon as possible. In addition, there are studies showing that nursing students are confident in use of nursing diagnoses (Palese et al., 2009) and that their attitudes and perceptions about NANDA-1 diagnoses are positive (Abed El-Rahman et al., 2017). It is believed that the different outcomes may be due to educational curricula and cultural differences.

It was found that while the diagnosis perception of the students in the experimental group whose PND score was negative changed positively at the last measurement, the change in the scores of the students in the control group changed to a positive perception at a very low level and the difference between the groups was significant. When the results are examined, it can be said that the traditional method developed the students' perception of nursing diagnosis. However, it seems that the peer assessment method is more effective in improving the perception of nursing diagnosis Silva et al. (2012) noted that nursing diagnoses increased students' learning and motivated them by improving their motivation and clinical judgment. Indeed, feedback provided during peer assessment can be confirmatory, suggestive and corrective, reducing mistakes and increasing learning. Self-regulation is also necessary for the development and implementation of skills (Topping, 2009). Considering this situation, it is considered that after assessing each other's nursing process during the peer assessment, students learn well how to use the data, how to establish cause and effect relation, and how to make the diagnosis, and thus it provides positive change in the perception of nursing diagnosis. The result could not be compared with different studies because there has been no other study related to the subject.

Another finding that was examined in the study is academic self-efficacy. In a study conducted with nursing students, the students' self-efficacy was found to be above the medium level (AnceI et al, 2015), while in another study the students' self-efficacy was found to be inadequate (Tower et al., 2014). In this study, the academic self-efficacy scores of the students in both groups were at the medium level at the first measurement. This result can be interpreted as a finding showing that academic self-efficacy should be developed in students given that students contribute to their success by providing better learning of academic self-efficacy.

In recent years, more efforts have been made to learn more about how students' academic self-efficacy can be improved in the learning environment (Alt, 2015). Gurvitch and Metzler (2009) have shown that authentic learning methods at different levels can enhance self-efficacy for learning. Tseng et al. (2010) found that online peer assessment is effective in increasing self-efficacy. In another study, it was found that the students using peer learning method in clinical practices had better self-efficacy levels than the students using traditional methods (Palsson et al., 2017). In this study, the peer assessment method rather than the conventional method was found to be more effective in increasing the academic self-efficacy. It is thought that the opportunity to examine and ponder more care plan given the students together with peer assessment method is of significance in increasing students' academic self-efficacy. In one study, it was determined that the use of nursing process in nursing students improved the ability of problem solving and, it was concluded that the additional information given about nursing diagnosis could pave the way for an increase in the performance of the students when the nursing process was explained (Lee & Brysiewicz, 2009). Seconmb (2008) found that students working with their peers perceived an increase in their ability of patient care. In a qualitative study, it was determined that peers' supporting each other contributed to students' coping with the deficiencies in the clinic and finding the answers to the questions (Roberts, 2008).

Conclusion

In this study, it was found that the peer assessment method used in nursing students' evaluation of each other's nursing process in

clinical practices was effective in increasing the participants' perception of nursing diagnosis and academic self-efficacy. In line with these results, it is recommended that advisors use peer assessment instead of traditional education/evaluation methods in clinics, and employ such methods in educational programs, and that educational institutions make arrangements to implement such programs, and that investigation of the subject be performed with a larger sample group.

Nursing diagnoses show the success and results of the care. Therefore, nursing diagnoses should be well taught to nursing students. Students learn nursing diagnoses while performing the nursing process. The use of peer assessment method in nursing education will increase the students' positive perception of nursing diagnoses and academic self-efficacy.

Limitations: The present study has some limitations. First, because of the use of a small sample size from a single class, the results cannot be generalized to other students. Second, the long-term effect of the training was not investigated.

References

- Abed El-Rahman, M., Al Kalaldehy, M.T., & Malak, M.Z. (2017). Perceptions and attitudes toward NANDA-I Nursing Diagnoses: A cross-sectional study of Jordanian nursing students. *International Journal of Nursing Knowledge*, 28, 13-18.
- Alt, D. (2015). Assessing the contribution of a constructivist learning environment to academic self-efficacy in higher education. *Learning Environments Research*, 18, 47-67.
- AnceI, G., Ilhan, S. E., & Gencturk, Z.B. (2015). An analysis of the relationship between self-efficacy beliefs and perceived problem solving ability among nursing and midwifery students. *Turkey Clinics Journal of Nursing*, 7, 20-8.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman and Company. New York:W.H.
- Brooks, N., & Moriarty, A. (2009). Implementation of a peer-support system in the clinical setting. *Nursing Standard*, 23, 35-39.
- Burrell, L.A. (2014). Integrating critical thinking strategies into nursing curricula. *Teaching and Learning in Nursing*, 9, 53-58.
- Can, G., & Erol, O. (2012). Nursing students' perceptions about nursing care plans: A Turkish perspective *International Journal of Nursing Practice*, 18, 12-19.
- Casey, D., Burke, E., Houghton, C., Mee, L., Smith, R., Putten, D.V.D., Bradley, H. & Folan, M. (2011). Use of peer assessment as a student

- engagement strategy in nurse education. *Nursing and Health Sciences*, 13, 514–520.
- Cohen, J. C. (1988). *Statistical Power Analysis for The Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Fertelli, T. K. (2019). Peer Assessment in Learning of Nursing Process: Critical Thinking and Peer Support. *International Journal of Caring Sciences*, 12(1), 331-339
- Frost, M., Olsen, G., & Orth, K. (1991). Perceptions of nursing diagnosis survey: Instrument development. Unpublished manuscript, Winona State University.
- Gurvitch, R., & Metzler, M.W. (2009). The effects of laboratory-based and field-based practicum experience on pre-service teachers' self-efficacy. *Training and Teacher Education*, 25, 437–443.
- Halverson, E.L., Beetcher, E.L., Scherb, C.A., Olsen, G., Frost, M., & Orth, K. (2011). Minnesota nurses' perceptions of nursing diagnoses. *International Journal of Nursing Terminologies and Classifications*, 22, 123–132.
- Korhan, E.A., Yönt, G., H., Ak, B., & Erdemir, F. (2013). Analysis of Turkish validity and reliability of perception of nursing diagnosis. *Turkish Journal of Research and Development in Nursing*, 15, 13-25. (in turkish). http://hemarge.org.tr/ckfinder/userfiles/files/2013/SAYI3/2_gulendamhakverdiogluguyontSA.pdf
- Lee, M.B., & Brysiewicz, P. (2009). Enhancing problem solving and nursing diagnosis in year III Bachelor of Nursing students. *Nurse Education Today*, 29, 389–397.
- Paans, W., Nieweg, R.M.B., Van der Schans, C.P., & Sermeus, W. (2011). What factors influence the prevalence and accuracy of nursing diagnoses documentation in clinical practice? A systematic literature review. *Journal of Clinical Nursing*, 20, 1-18.
- Palese, A., De Silvestre, D., Valoppi, G., & Marco Tomietto, M. (2009). A 10-year retrospective study of teaching nursing diagnosis to baccalaureate students in Italy. *International Journal of Nursing Terminologies and Classifications*, 20, 64–75.
- Pålsson, Y., Mårtensson, G., Swenne, C. L., Ädel, E., & Engström, M. (2017). A peer learning intervention for nursing students in clinical practice education: A quasi-experimental study. *Nurse Education Today*, 51, 81-87.
- Seconmb, J. (2008). A systematic review of peer teaching and learning in clinical education. *Journal of Clinical Nursing*, 17, 703–716.
- Silva, M.B., Ceretta, R.S.R., Zuse, C.L., & Fontana, R.T. (2012). Nursing diagnosis in the perception of nursing undergraduates. *Revista de Pesquisa: Cuidado Fundamental Online*, 4, 2964-72.
- Stone, R., Cooper, S., & Cant, R. (2013). The Value of Peer Learning in Undergraduate Nursing Education: A Systematic Review. *International Scholarly Research Notices*, 2013, 1-10.
- Topping, K.J. (2009). Peer Assessment, *Theory into Practice* 48, 20-27.
- Tower, M., Latimer, S., & Hewitt, J. (2014). Social networking as a learning tool: Nursing students' perception of efficacy. *Nurse Education Today*, 34, 1012-1017.
- Tseng, S.C., & Tsai, C.C. (2010). Taiwan college students' self-efficacy and motivation of learning in online peer assessment environments. *The Internet and Higher Education*, 13, 164-169.
- Yılmaz, M., Gurcay, D., & Ekici, G. (2007). Adaptation of the academic self-efficacy scale to Turkish. *Hacettepe University Journal of Education*, 33, 253-259. (in Turkish)