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Effect of classmate as peer-led education on clinical performance: A mixed-method study

Roghayeh Mehdipour-Rabori, Monirsadat Nematollahi, Behnaz Bagherian

Abstract:

BACKGROUND: Achieving an excellent clinical education by nursing students is one of the primary goals of any nursing school. Nursing educators try to use different methods to enhance clinical skills. One of them is a peer-led method that can be used in theoretical and clinical education. It is developing as a suitable educational method to promote health. This study assessed the effect of classmates as peer-led education on the clinical performance of nursing students.

MATERIALS AND METHODS: This study was conducted using a mixed-method approach and a sequential explanatory design. In the quantitative phase, a quasi-experimental study with a two-group pre- and post-test design was conducted. The sample of this phase consisted of 70 nursing students (35 persons in each group) who were selected through random convenience sampling. The intervention group participated in a peer-led education program. The control group received routine training. The members of both groups completed the clinical performance checklist before, and after the intervention. The collected data were analyzed using SPSS V21 software using descriptive and inferential statistics. In the qualitative phase, the researchers interviewed 18 undergraduate students using semi-structured in-depth and face-to-face approaches. These participants were selected by purposive sampling method. Data were analyzed using conventional content analysis. MAX DATA 10 was used to categorize the data. To establish the reliability and validity of findings, Graneheim, and Landman's criteria were considered

RESULTS: In the quantitative phase of the study, the results showed that the mean score of clinical performance was not statistically significant between the control and intervention groups before the intervention ($P > 0.05$). At the same time, it was significantly different after the intervention ($P < 0.05$), implying that the peer-led education of the intervention group significantly increased compared to that of the control. The main theme was "learning based on friendship," which included two categories, namely "deep learning" and "learn in the shadow of relaxing."

CONCLUSION: Classmate as peer-led education could increase the ability of nursing students in clinical performance, and was able to enhance deep learning among them.

Keywords:

Clinical performance, clinical setting, nursing students, peer-led education

Introduction

Achieving an excellent clinical education by nursing students is one of the primary goals of any nursing school^[1,2] because nursing managers know that science and practice are the two main pillars of nursing education.^[2] Nursing

managers understand that the goal of nursing education is to provide effective and ethical care to the patient.^[3,4]

Iran is a country in which the number of older people is rising, and the provision of care to this growing population requires professional and skilled nurses.^[5] Therefore, the need to train qualified and

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Nursing Research Center,
Kerman University
of Medical Sciences,
Kerman, Iran

Address for correspondence:

Dr. Monirsadat Nematollahi,
Nursing Research Center,
Kerman University
of Medical Sciences,
Kerman, Iran.
E-mail: m.nematollahi@
kmu.ac.ir

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professional nurses is felt more than before in the country.^[6,7]

Nursing educators do their best to nurture students^[8] and use different methods to enhance clinical skills.^[9,10] One of these methods is peer-led education. Peer-led education was previously used in nursing education for teaching theoretical sciences.^[11-13]

Peer-led education is developing as a suitable plan aiming for health promotion.^[14] Peer leaders share their experiences and information with the groups that they teach.^[15] It is used in different fields of health education. Sciacca in 1987 defined peer-led education as teaching or sharing of health information, values, and behaviors by members of similar age or status.^[16,17] The success of peer teaching depends on proper communication between students and peer-led educators.^[18]

Within nursing, peer-led education has been broadly known as a good educational approach. Secomb in 2008 showed that peer teaching was an effective method for teaching health science students in a clinical setting.^[19]

Given that Iran has faced a shortage of nurses in recent years, nursing schools are trying to attract more nursing students. The lack of clinical instructors in nursing is also observed in clinics. Using peer-led educators can help educate students effectively, but a few studies are investigating the role of classmates in the clinical setting. One of the majors in the Iranian educational system that neglected in researches is clinical education in postgraduate nursing students, and the innovative aspect of this study is the mixed-method study.

By conducting a mixed-method study, different angles of this method in nursing education can be clarified. Therefore, this study was attempted to assess the effect of classmates as peer-led education on the clinical performance of nursing students.

Materials and Methods

This study was a mixed-method approach with a sequential explanatory design. The present study was carried out using two phases of quantitative and qualitative.

Quantitative phase

The quantitative phase was a quasi-experimental study that was done in 2017–2019. Firstly, the researchers chose undergraduate nursing students who were in semester three. Between 90 students, 70 participants were selected first using convenience sampling, according to inclusion criteria, and were then randomly divided into control and intervention groups by

drawing lots. Inclusion criteria were as follows: being in the third semester, Passing basic units, and at least two clinical units.

The researchers trained ten classmates as peer-led students for the intervention. The researchers chose peer-led students among paramedic nurses who were trained in paramedics' school during the 1st year of high school till diploma (4 years). They do not have an academic education but work at a hospital. Some of them were accepted in nursing schools. In this research, the researchers used paramedic nurses who were accepted in the nursing schools and were classmates with the nursing students. They were trained for peer-led in three times. Each time lasted for 2 h. The content of the training included clinical nursing skills, patient communication, ethics, and nursing care.

The researchers selected procedures commonly used in nursing. These procedures were dressing change, medication administration, blood sampling, and intravenous (IV) cauterization. After that, these procedures were trained to paramedics, and their mistakes were corrected. Then, the paramedics underwent an exam. The paramedics who passed the exam with a good grade were selected as peer-led educators.

The researchers used four nursing skill checklists for both groups (control and intervention). The checklists were extracted from the fundamental of a nursing book, Skill checklist for Tylor's clinical nursing skill.^[20,21] Dressing change checklist has 26 items, the medication administration checklist has 31 items, the blood sampling checklist has 29 items, and IV cauterization checklist has 35 items. Each item on the checklists is rated using three scales, namely needs practice (score: 0), satisfactory (score: 1), and excellent (score: 2). The range of dressing change, medication administration, blood sampling, and IV cauterization scores is 0–52, 0–62, 0–58, and 0–70, respectively. The total score ranges between 0 and 242.

These checklists were completed by a nurse, who was blinded about the grouping of the study. The nurse completed the checklist by observing the participants at nursing skill labs. If a participant received a score of less than half of the total score, he/she would be excluded from the study.

The students were divided into subgroups of 4 or 5. In the intervention group, each subgroup had two peer-led educators. Both groups went to a hospital and worked at general units (medical-surgical units). The peer-led educators and the instructors helped and guided nursing students in the intervention group. However, the control

group was helped and guided only by the instructors, and instructors were blinded about the study.

Inclusion criteria were: be able to do these procedures and achieving an acceptable score at the first exam (at least 121). The only exclusion criterion was a refusal to participate or continue the study.

Data analysis

Data analysis was performed using SPSS Statistics version 21.0, (IBM Corp., Armonk, NY, USA), and running descriptive statistics along with Kolmogorov–Smirnov, Mann–Whitney–test, and Wilcoxon.

Qualitative phase

In the qualitative phase, the researchers interviewed 20 participants (15 nursing students and five peer-led educators) using semi-structured, in-depth, face-to-face individual interviews (20 interviews in total after data saturation). These students were selected through a purposive sampling method among nursing students who were in the last semester, and they had a paramedic nurse in their team and also among nursing students who were in the intervention group. They were asked to talk about their experiences of paramedic nurses, benefits, and disadvantages of having a paramedic nurse in training groups. Nursing students with various sex, age, and the average score in the four skills were selected to have maximums variation. Interviews lasted 30–90 min on average. Sampling was continued until data saturation. The interviews were recorded on audiotape and transcribed verbatim. The sampling started in March 2017 and continued up until April 2018.

Data analysis

The content analysis was done according to the method proposed by Graneheim and Landman. The data analysis lasted from May 2017 to February 2018. To facilitate data sorting, the researchers used MAXQDA V 10.0 (VERBI Company; Berlin, Germany).

Validity and reliability of data

For achieving validity and reliability of data, Continuous comparisons of interviews and codes were made during data analysis, and Guba and Lincoln's criteria were considered. To the validity and reliability of the data, the triangulation technique was used to collect the data, in-depth interviews were performed, codes were reviewed by the interviewees, and data analysis was done by a team. To verify the researchers' perceptions, the interview transcriptions were returned to the interviewees, and their final comments on what the research team had interpreted were evaluated. A group of research experts was also recruited to help increase the confirmability of the data. Furthermore, all the steps and the way of extracting data were recorded with details.

Results

Quantitative phase

A total of 67 nursing students participated in this study, out of which 63 met the inclusion criteria. The participants were assigned to two groups of control ($n = 31$) and intervention ($n = 32$). The mean age of the participants was 23.4 ± 1.5 years old. In total, 51% of the participants were females, and 2% were married. The results showed no significant difference between the two groups in terms of age, sex, and average academic score before the study ($P > 0.05$), indicating the homogeneity of the groups.

The results showed that there was no significant difference between the two groups concerning the total mean score of questionnaires before initiating the study ($P > 0.05$). The dressing change average score of the participants in the intervention group was 31.84 ± 4.65 and 45.44 ± 4.13 before and after the intervention, respectively. The lowest score before and after the intervention was allocated to the item of "Assess the patient for the possible need for nonpharmacologic pain-reducing interventions or analgesic medication before wound cares to dress change. Administer appropriately prescribed analgesics. Allow enough time for an analgesic to achieve its effectiveness;" whereas, the highest score was allocated to the item of "review the medical orders for wound care or the nursing plan of care related to wound care."

The means of medication administration scores were 35.40 ± 3.85 and 52.60 ± 2.12 before and after the intervention, respectively. The item of "Prepare medication for one patient at a time" had the highest score before and after the intervention, while the item of "Perform hand hygiene" allocated the lowest score to itself before the intervention. After the intervention, the item of "When all medications for one patient have been prepared, recheck the label before taking them to the patient" got the lowest score.

The means of blood sampling scores were 32.19 ± 1.12 before the intervention and 43.56 ± 1.69 after the intervention. The item of "Apply gentle pressure to the puncture site for 2–3 min or until the bleeding stops" gained the highest score before and after the intervention. The item "Inform the patient that he or she is going to feel a pinch. With the bevel of the needle up, insert the needle into the vein at a 15° angle to the skin" had the lowest score before and after the intervention.

The means of IV cauterization scores were 37.32 ± 5.7 and 50.2 ± 3.18 before and after the intervention, respectively.

The item of “Maintain aseptic technique when opening sterile packages and IV solution. Remove administration set from a package. Apply label to tubing reflecting the day/date for next set change, per facility guidelines” gained the highest score before the intervention; whereas, the item of “Enter the skin gently, holding the catheter by the hub in your dominant hand, bevel side up, at a 10-to a 15° angle. Insert the catheter from directly over the vein or from the side of the vein. While following the course of the vein, advance the needle or catheter into the vein. A sensation of “give” can be felt when the needle enters the vein” obtained the lowest score after the intervention.

In a nutshell, the results yielded an improvement of clinical performance for dressing change, medication administration, blood sampling, and IV cauterization for both experimental and control groups. The Mann–Witney test showed a significant difference between the two groups after the intervention in terms of clinical performance about dressing change, medication administration, blood sampling, and IV cauterization [Table 1]. Thus, our null hypothesis was rejected. The intervention group differed significantly before and after the intervention considering the mean scores of four skills. Furthermore, the intervention led to a significant difference in the control group in terms of mean scores of only two skills, namely dressing change and medication administration. However, the extent of this improvement was lower in the control group than the intervention group.

Qualitative results

In the qualitative phase, the researchers interviewed 15 nursing students and five peer-led educators. The mean age of the participants (nursing students and peer-led educators) was 23.05 ± 2.42 years old and 28.76 ± 5.17 years old, respectively. After data analysis, one main theme with two categories was extracted.

“Learning based on friendship” was the main theme. The extracted categories were “deep learning” and “learn in the shadow of relaxing.”

Learning based on friendship

Most of the participants welcomed the peer-led education plan, especially when the peer-led educators were their friends and classmates. Two categories of “deep learning” and “learn in the shadow of relaxing” comprised this main theme. In the following, these categories are elaborated in detail.

Deep learning

The participants expressed that they learned the clinical practice better than their classmates who had not a paramedic nurse in their group.

Participant number 12 said:

“When my classmate teaches me, I learn better.”

Another participant said:

“My instructors can’t teach me because we are nine students in each group, and she doesn’t have enough time.” (P. N.5)

“Peer-led educator was my friend; he patiently taught me several times, he taught me until I mastered in IV insertion” (P. N.1). *“I do not forget anything that I learned from my friend.”* (P. N.8)

Learn in the shadow of relaxing

Most of the participants believed that when their classmates taught them, they did not feel stressed out.

One participant said:

“I have stress when my instructor teaches me. If I insert an IV in a bad site, my instructor blames me.” (P. N.4)

Another participant said:

“Because peer-led educators didn’t give me score, I felt relaxed and didn’t have stress, so I learned better, and

Table 1: The comparison between the peer-led education group and the control group regarding the clinical performance

Items		Control group	peer-led education group	P value *
Dressing change	Pre intervention	32.01±3.92	31.84 ±4.65	0.1
	Post intervention	38.09±4.18	45.44 ± 4.13	0.001
	P value**	0.04	0.001	
Medication administration	Pre intervention	34.75 ±3.42	35.40 ±3.85	0.5
	Post intervention	42.15 ±2.59	52.60 ± 2.12	0.001
	P value**	0.02	0.001	
Blood sampling	Pre intervention	33.01±2.06	32.19±1.12	0.9
	Post intervention	35.20±4.10	43.56±1.69	0.001
	P value**	0.6	0.001	
IV cauterization	Pre intervention	37.83± 4.1	37.32± 5.7	0.8
	Post intervention	39.41± 2.7	50.2±3.18	0.001
	P value**	0.7	0.001	

*Mann-Whitney-test, **Wilcoxon

I calmly asked from my peer-led educator if I didn't understand something." (P. N.11)

Discussion

This study compared the effect of peer-led education on the clinical performance of nursing students. According to the findings of the study, peer-led education could improve the clinical performance of nursing students.

Previous studies have shown that student-centered learning is more effective than teacher-centred learning.^[13,15,22] Peer-led education is a method through which students are active and learn better.^[23]

The researchers chose medication administration as a skill in this study because a previous study showed that medication administration was an important skill for nursing students, and it was a difficult skill for nursing students.^[24] Given that dressing change, blood sampling, and IV cauterization is critical to infection prevention. They also chose to dress change, blood sampling, and IV cauterization because they are in the nursing corolla.^[25]

Our results are in line with a study that found a peer-led training program had a positive effect on the performance and retention of basic life support skills.^[26] At a study in Australian, junior students were persuaded to observe more senior students while they are visiting patients.^[27] Although peer-led education is not a common method in nursing education, it has recently attracted much attention by researchers.^[15,28] Several studies revealed that peer-led education was an effective method for improving the clinical skills of nursing students.^[28,29] Palsson also showed that peer-led education was a useful educational method that was able to improve nursing students' self-efficacy^[29] Similarly, Jun Zhang concluded that peer-led education could be applied for the enhancement of knowledge, skill, and clinical ability of nursing students.^[30]

We discovered that nursing students who participated in this study had stress and anxiety when they received routine education, but they did not feel stress when undergoing peer-led education. Hamrin in 2006 evaluated the efficacy of peer-led group education for graduate nursing students and found that this education method could decrease their stress and anxiety in clinical practice.^[12] White and Pesis-Katz in 2011, explained the peer-led team learning model for the graduate-level course for nursing students. They yielded that this method could resolve educational problems and help students understand the subject matter deeper.^[31]

Limitation

The major limitation of the study regards the small sample size. However, the research includes a specific

participant (under graduated students in nursing) and a particular geographic location. However, we believe that these findings would support further investigation of broader scope and deeper reach. The results of this study, in the qualitative phase, are transferable to other nursing universities, nursing students, and faculty members.

According to the findings of this study, there is essential to do more investigations about the interventions to solve clinical education problems. Furthermore, it is suggested that the instructors do more investigations about the effects of new educational methods in clinical education.

Conclusion

The findings of this study indicated that classmates as Peer-Led education were an appropriate educational method for the practical ability of nursing students. This study also showed that peer-led education could increase the ability of nursing students in clinical performance. We also observed that peer-led education was able to enhance deep learning and remove stress and anxiety associated with learning.

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Nil

Conflicts of interest

There are no conflicts of interest.

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