

Exploring Peer Learning Experience among Undergraduate Nursing Students

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Abstract

background: For the nursing education to be effective and achieve its objectives, many teaching methods are used in theoretical and clinical education among these methods is peer learning, which allows students to teach and supervise others, reducing the burden on the responsible faculty members and making more effective use of resources. **Aim:** this study aimed to assess the peer learning experience among the undergraduate nursing students. **Design:** A quasi experimental design was used to achieve the aim of the study. **Setting:** The study was conducted in the Nursing Department at Alexandria Technical Health Institute, Damanhur Branch. **Subject:** A convenient sample of the first year nursing students who enrolled in nursing course at the second semester of the academic year 2019/2020. **Tools:** one tool was used, “peer learning strategy experience questionnaire”. It consists of three parts, part I: “Sociodemographic data”, part II: “Peer Learning Strategy Tutees’ Preference Questionnaire” and part III: “Peer Learning Strategy Tutors’ Experience Questionnaire”. **Results:** All the students’ tutors had high positive experience regarding peer learning strategy. Adding to that, 87.1% of the students’ tutees had high level of preference regarding the peer learning strategy. A positive significant correlation was noticed between the students’ tutees’ total score of knowledge and practice at the post peer learning implementation phase and their preference of the peer learning total score. **Conclusion:** Peer learning is a significantly effective teaching strategy compared with the traditional method in improving nursing students’ clinical performance. The study advised implementing the peer learning technique as a formal method in the clinical settings to improve students’ knowledge and practice. **Recommendations:** Develop a structured formal written peer learning strategy guidelines with outlined desired outcomes and annual assessment.

Key words: peer learning, Experience and nursing student

Introduction

Professional nurses must be able to address and handle the nursing clinical problems through their abilities of critical thinking, analysis, and synthesis. This might support to fulfill their complex responsibilities as caregivers, managers, educators, researchers and lifelong learners. Traditional teaching methods, however, alone cannot adequately develop these essential advanced skills. To nurture these abilities, it is necessary to engage in a dynamic educational process that incorporates chances for collaborative learning with peers and emphasizes active participation (Choi et al., 2021).

In order to make the education future more student-centric rather than teacher-centric, teachers must upgrade their own teaching modules from a

one-size-fits-all style to the multimodal teaching one. Through that every student can gain and subsequently become engaged learner. Due to the students’ increasing number and the shortage of the clinical preceptors, PL presented in the nursing education field as an instructional paradigm that is particularly well suited for the clinical placements (Nelwati, 2020& Solheim et al., 2018).

Over the last years, nursing clinical education has received heightened attention with a particular focus on the learning environment. Various learning models, including PL, have been examined by partnering nursing students, teaching and supporting each other, without direct preceptor guidance. Collaborative learning provides a platform for the development of critical thinking, problem-solving, reflection, and independence among students. As a result, PL has been

recognized as a valuable approach to enhancing nursing education (Alnajjar et al., 2020).

There is an increasing demand to enhance the nursing students' learning environment, especially in the resources limited settings, to enable them to acquiring clinical skills, enhance their logical reasoning, and grow as professionals.

In the clinical placements, students should have the chance to learn the practical nursing skills and get hands-on experience. Even if, in areas where simulation learning is possible, nursing students must be exposed to the real-world experiences to get the necessary experience. Peer learning provides students with an actual environment for active engagement and promotes a deeper understanding of the subject matter through shared learning experiences (Rojo et al., 2020).

Peer learning defined as learning from and with each other, both in formal and informal ways which requires that students reciprocally exchange knowledge, experiences, and ideas among their peers. Peer learning is commonly referred to "peer teaching", "peer mentoring," "peer instruction", and "peer tutoring". Evaluations of tutoring sessions by tutees suggest that peer tutoring as an adjunctive teaching and learning strategy can positively impact the students' academic performance (Hawkins 2022& Topping, 1996).

Peer learning is used as a general concept for a group of teaching approaches. It reflects the ability to gain knowledge and skill through vibrant support and assistance among students at the same status or level in both formal and informal manners. It includes members of comparable social groups who are not originally teachers to help each other and in turn they also learn a long with the process. (Núñez-Andrés et al., 2022& Choi et al., 2021).

Significance of the Study:

The quality of the clinical learning environment considers an indicator which significantly presents the quality of the curriculums of any nursing association. The complexity of the learning in a the clinical settings has made it necessary for the researchers to study the effect of different variables on the clinical learning because it can be difficult for the nursing educators to develop novel paradigms in nursing pedagogy that foster students' creativity, aptitude, and motivation. Leading to using PL strategy as a successful educational intervention since it motivates students to take an active part in the

educational system and provides them with the chance to grow as competent learners (Carey et al., 2018).

The increase in the number of the critical care students without a corresponding increase in the number of educators presents a hinder in training nursing skills. It becomes challenging for one educators to handle large groups while ensuring that all students acquire practical skills. Being up-to-date, well-prepared, and professionally competent with the life-saving procedures such as cardiac resuscitation (CPR) in the emergency is essential for nurses to quickly and effectively response to cardiac arrest. Therefore, peer learning has been recognized as an effective and valuable approach for delivering undergraduate CPR training, which is fundamental in emergency situations (Kodikara, 2022).

Training nursing students to perform CPR in high-quality promises the increase in the sudden cardiac arrest survival rates by increasing the professionally trained care providers. Moreover, using well skilled students as basic life support trainers can help as an alternative for the public training which can positively enhance the emergency response during the crisis. Currently, more efficient methods are being utilized as PL strategy to promote student-centered approach and insure active students' involvement and innovative thinking rather than conventional teaching approaches (Cheung, 2021 & Fatima 2018).

Hence, this study will assess the PL experience among the under graduate nursing students. Hopefully the findings will enrich the nursing education with an approach which encourages engagement, facilitates interaction during the learning process and also increases the nursing students' personal development for their future role.

Aim Of The Study

This study aims to assess the peer learning experience among the undergraduate nursing students

Research Hypothesis:

The current study hypothesized that:

- The nursing students will exhibit positive experience regarding the peer learning strategy.
- The nursing students will report high preference level regarding peer learning strategy.

Operational Definitions:

"Peer" A person who is at the same age or at the same social position or has the

same abilities as other people in the group (Cambridge University Press, 2018).

“Peer Learning” is the process of gaining, refining or improving knowledge and/or practice due to interaction with someone of the same age or attending the same university who is more knowledgeable or more experienced (Stone et al., 2013).

“Tutor” A student who has expressed adequate competency in a subject or a skill to help another student acquire a trade or idea. Peer tutors often receive a little training or help from the instructors (Cambridge University Press 2018).

“Tutee” person who is being tutored; the student of a tutor (Cambridge University Press, 2018).

4. SUBJECT & METHODS

4.1. Research Design

Quasi-experimental design (study & control groups) was used in carrying out this study.

4.2. Study setting

The study conducted in the Nursing Department at Alexandria Technical Health Institute, Damanhur Branch. Nursing department in the third and fifth floor consists of 4 nursing clinical labs, each lab capacity is 20 students, 2 mannequins for performing adult CPR and data show projector.

4.3. Subjects

A convenient sample of first-year nursing students who enrolled in nursing courses at the second semester of the academic year 2019/2020 was selected to participate in the study.

All subjects were divided into two groups as the following; **study group** including (peer tutors and tutees). **Peer tutors:** In total six students who were selected to be the peer tutors from the study group, had previous experience of the selected procedure (CPR) and performed these procedures with highest performance score prior to the study and they perceived benefits of having presented their work to their peers. **Peer Tutees:** the rest of study groups were 62 students divided randomly and assigned into 6 subgroups of about 10 or 11 students in each group. **Control group:** were 67 students who exposed to the regular instructors teaching as the routine traditional teaching method.

Inclusion criteria ; Peer tutors will be selected from the whole enrolled students in the study group who have learning, teaching abilities (through recording 3 minutes presentation video about interested topic), good practical skills

according to the previous semester academic achievement, results of CPR pretest (knowledge and practice) and agreed to participate as peer tutors.

Exclusion criteria; Will include students who attended previous adult CPR training courses, repeaters and those who will refuse to participate.

4.4. Tools for Data Collection:

One tool was utilized by the researchers to achieve the aim of the study and to collect the necessary data;

Tool I: “Peer Learning Strategy Experience Questionnaire”: It consists of 3 parts;

Part I: concerned with assessment of students' demographic characteristics as age, gender, marital status, residence, attendance of previous clinical peer learning sessions and previous academic achievement in the first semester.

Part II: “Peer Learning Strategy Tutees’ Preference Questionnaire”: adapted from Iwasiw & Goldenberg, 1993 to assess nursing tutees’ preference of peer learning strategy. This tool applied only once for the **tutees** in the study group after the application of peer learning strategy. It consists of 4 subscales (11 statements). Divided into the following;

➤ **Teaching and Learning:** four Statements.

➤ **Assessment and feedback:** Two Statements.

➤ **Skills Development:** Three Statements.

➤ **Engagement:** Two Statements.

Scoring System:

The Likert scale was assessed against three points scale of agree, somewhat, and disagree. "Agree" equal to 3, "Somewhat" equal to 2 and "disagree" equal 1. The maximum possible total score was (33).

• High Level of Preference $\geq 75\%$ score (25-33)

• Average Level of Preference 60%: $< 75\%$ score (20-24)

• Low Level of Preference if the percent $< 60\%$ score (11-19)

Part III: “Peer Learning Strategy Tutors’ Experience Questionnaire”: This tool adapted from McKenna and French, (2011) to assess nursing tutors’ experience gained from peer learning strategy practice. This tool applied only once for the **tutors** in the study group after the application of the peer learning strategy. It consists of 3 subscales (14 statements).

Divided into the following;

➤ **Academic Performance and**

Learning: Three Statements.

➤ **Self-Confidence and**

Fulfillment: Five Statements.

➤ **Professional and Social Skills:**

Three Statements.

Scoring system:

The scale's statements were scored against three point scale of "agree" equal to 3, "Somewhat" equal to 2 and "disagree" equal 1. The maximum total score was (42)

- High if the percent $\geq 75\%$ score (32- 42)
- Average if the percent 60%: $< 75\%$ score (26-31)
- Low if the percent $< 60\%$ score (14- 25)

4.5. Procedures

The preparatory phase included reviewing related literature and theoretical knowledge of various aspects of the study using books, articles, internet periodicals, and journals to develop tools for data collection.

Tool's content validity was ascertained by a panel of seven experts from Medical-Surgical and Critical Care Nursing academic staff who reviewed the content of tools for clarity, accuracy, relevance, and comprehensiveness, and the necessary modifications had done accordingly.

Reliability: was applied by the researcher for testing the internal consistency of the tools using Cronbach Alpha for the peer learning strategy tutees' preference questionnaire it was 0.895 and for peer learning strategy tutors' experience questionnaire it was 0.885.

Pilot Study:

A Pilot study was carried out on 10% of the total sample size to test the applicability and clarity of the designed tools also to determine the time needed for filling the structured questionnaires, and the feasibility of the research process. The pilot sample was included in the study sample as there were no modifications required.

Official permission was obtained by submission of official letters issued from the dean of the faculty of nursing, Ain Shams University, to the dean of Alexandria Technical Health Institute and the head of Nursing Department, Damanhur Branch at which the study conducted.

The ethical considerations in the study included the following:

▪ The research approval obtained from the scientific Research and Ethical Committee in the faculty of nursing, Ain Shams University before starting the study.

▪ The researcher obtained students' consent after clarifying the aim and the objectives of the study.

▪ The researcher assured anonymity and confidentiality of subjects' data.

▪ The students were informed that they are allowed to choose to participate or not in the study and that they have the right to withdraw from the study at any time without any penalty.

Fieldwork:

Assessment phase: data related to students' were obtained. The teaching learning environment and educational content were assessed and prepared. Only 6 teachers will participate in the study according to the teaching plan. The researcher interviewed the all enrolled students and teaching staff for explaining the aim of the study and took their approval to participate in the study prior to data collection.

Tool I, part I was used for the study and control groups for sociodemographic characteristics.

The studied sample (135) was divided by the researcher using stratified random sampling method according to the previous semester academic achievement (to exclude students' grades as extraneous variable) into study group were 68 students and control group 67 students.

To select the peer tutors, the researcher asked all the study group to record a video for 3 minutes presentation about interested topic and evaluated by the researcher. The peer tutors were chosen based on the evaluation of the recorded videos, results of the CPR pre-test (knowledge and practice) and the previous semester academic achievement. The study group was divided into 2 parts; peer tutors (6) and peer tutees (62) students.

Implementation phase: The researcher conducted a meeting with the peer tutors and the teachers to discuss the peer tutoring/ learning process and introduce the tools which supposed to be used by the teachers and peer tutors to evaluate the study and control groups at the end of the clinical training.

Clinical demonstration and re-demonstration for adult CPR procedure was done for the peer tutors in the clinical lab using

mannequins and each peer tutor done redemonstration using the checklist and knowledge questioner under the supervision of the researcher in order to master the skill before assigning the peer tutoring roles. Educational materials as handouts and videos concerning adult CPR procedure were provided for peer tutors and the teachers as well.

The peer tutors group revised the content, prepare the skill lab, formulate the training schedule, students' allocation, design the lesson plan and attached all schedules and tutees' groups on the announcement board under the supervision of the researcher. Study and control groups similarly allocated into traditional and peer learning strategy through subgroup.

Evaluation phase: Posttest was conducted for the both groups study and control (knowledge and practice).

Evaluation of the study group (tutees) preference using Tool I, part II and tutors experience using Tool I, part III with the peer learning strategy was conducted at the end of the study by the researcher.

4.6. Data Analysis

The collected data were organized, categorized, tabulated, and statistically analyzed using the statistical package for social science using SPSS program version 26. The obtained data were organized, analyzed and represented in tables and graphs as required. It were presented using descriptive statistics in the form of (frequency, Mean score, Standard deviation). The used tests were;

- Chi-square test: For categorical variables, to compare between different groups.
- Monte Carlo correction: correction for chi-square when more than 20 of the cells have expected count less than
- One Way ANOVA Test: used to compare between more than two groups
- Student t-test: used to compare two groups for normally distributed quantitative variables.
- Paired t-test: used to compare between pre and post phases in each group.
- Pearson correlation: Pearson coefficient was used to correlate between quantitative variables.
- The observed differences and association were considered as follows:
- on-significant at $P > 0.05$

- ignificant at $P \leq 0.05$.

Results

Table (1): illustrates that 59.7% of control group aged from 17: ≤ 18 years old, 100% of them were females, 89.6% of them were singles, and 62.7 % of them lived in rural area. Concerning the study group; 62.9% of the tutees were aged from 17: ≤ 18 years, all of them were females, 95.2% of them were singles and 64.5% of them lived at rural area. Regarding Tutors; 66.6% of them were aged from 17: ≤ 18 years, all of them were females, all of them were singles and 83.3% of them lived at rural area. All of the study and control groups (100%) did not attend any previous clinical peer learning sessions. No significant difference noticed between the study and control groups.

Figure (1): Shows that 37.1% of the tutees, 33.3% of the tutors, and 38.8% of control group had a very good grade in the previous semester academic achievement. At the same time, 51.6% of tutees, 50% of tutors, and 49.3% of the control group had an excellent grades in the previous semester.

Table 2: illustrates that there was highly statistical significant difference between mean and standard deviation of the students' tutees' total knowledge and practices scores regarding cardiopulmonary resuscitation at the pre and post phases of the peer learning implementation ($p < 0.001$). Also, there was highly statistical significant difference between mean and standard deviation of the control's group total knowledge and practices scores regarding cardiopulmonary resuscitation at the pre and post study phases ($p < 0.001$).

Table (3): Regarding the “teaching and learning aspects”; it illustrates that 88.8% of tutees agreed that “Anxiety decreased when performed the nursing skill in the presence of the peer than the instructor”, and 98.4% agreed that “Teaching is an important role for nurses”. According to “assessment and feedback aspects” 88.7% of them agreed that “feedback from peer was from a student's viewpoint, more honest, reliable, and helpful than from the instructor” and 79% of them agreed that “Peer was more supportive during performing the nursing skill than the instructor”.

Furthermore, regarding “skills development” 88.7%, 88.7% & 87.1% of them are agreed on “Clinical skills taught by peer increased sense of responsibility more than being taught by

instructor” and “Clinical skills taught by peer increased the interaction and collaboration with other students more than being taught by the instructor” & “Self-confidence & ability to perform independently increased because of being taught by peer, more than by the instructor” respectively.

Also related to the “**engagement aspect**” it shows that 62.9% of them agreed that “Communicate more freely with peer than with the instructor” and 98.4% agreed that “Feel freer to approach peer for help than the instructor”.

Figure(2): Reveals that 87.1% of the students’ tutees had high level of total score preference regarding the peer learning strategy, while 11.3% & 1.6% of them reflected low and average level of preference regarding the peer learning strategy respectively.

Table (4): Regarding to “**Academic Performance & Learning**”; all of studied tutors agreed on “Teaching other colleagues was comfortable” & “Peer learning experience was personally rewarding”. While, 66.7% of them reported somewhat “Initial apprehensive about the peer teaching requirement in the clinical session”. On other hand, according to “**Self-Confidence &**

Fulfillment” all of them (100%) agreed on “Confident teaching a clinical skill after this experience”, “Assessing the other students’ skills is comfortable”, “reflection on own previous learning”, “There should be more opportunities or peer teaching in the curriculum”.

According to “**Professional & Social Skills**”; all of them (100%) agreed that “The peer teaching experience was time and effort well spent”, “Development of abilities for teaching basic clinical skills”, “Learning with the other colleagues was enjoyable experience”, “Nurses have a professional responsibility to teach students and their peers”, “This experience will help with the graduate nurse role” and “Teaching is an important role for nurses”.

Figure (3) shows that 100% of the students’ tutors had high total score of positive experience toward the peer learning strategy.

Table (5): Shows that there was a positive significant correlation between the students’ tutee’s total knowledge and practice scores at the post peer learning implementation phase and their preference of the peer learning total score $p=0.002$ and $p=0.008$ respectively.

Table (1): Frequency and Percentage Distribution of nursing students' Socio-Demographic Characteristics; Study (n=62), and Control (n=67) Groups.

Socio-Demographic Characteristics	Study (n=68)				Control (n=67)	
	Tutees (n=62)		Tutors (n= 6)			
	No	%	No	%	No	%
Age						
17 : ≤ 18	39	62.9	4	66.6	40	59.7
> 18: ≤ 19	21	33.9	2	33.3	25	37.3
20 +	2	3.2	0	0	2	3
M±SD	17.56 ± 1.21		17.96 ± 1.43		18.01 ± 3.61	
Sex						
Male	0	0	0	0	0	0
Female	62	100	6	100	67	100
Marital status						
Single	59	95.2	6	100	60	89.6
Married	3	4.8	0	0	7	10.4
Residence						
Rural	40	64.5	5	83.3	42	62.7
Urban	22	35.5	1	16.6	25	37.3
Previous Peer Learning Clinical Sessions						
Yes						
No	62	100	6	100	67	100

Previous semester academic achievement

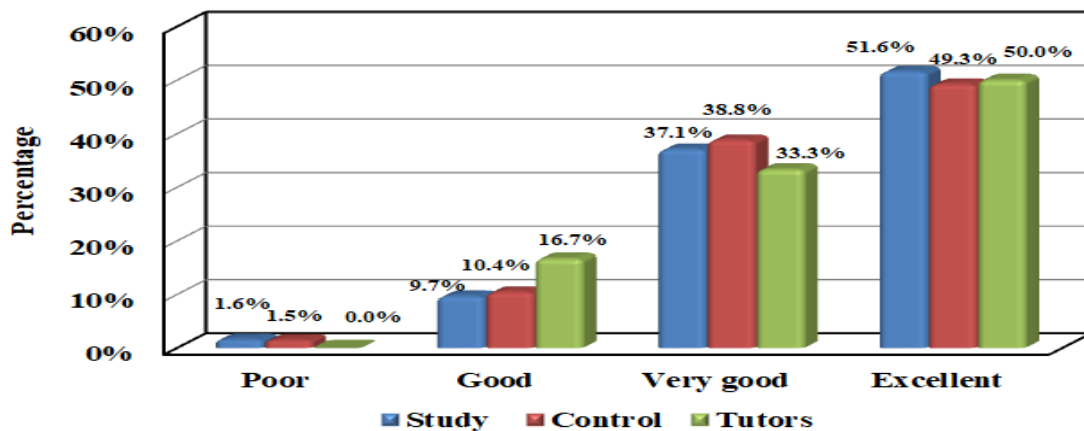


Figure (1): Percentage distribution of previous semester academic achievement of the studied nursing students; Tutees (n=62), Tutors (n=6), and Control (n=67) Groups.

Table (2) Comparison between Mean and Standard deviation of the Students' Tutees and Control Group Total Scores of Cardiopulmonary Resuscitation Knowledge and Practices at Pre and Post peer learning implementation phases.

Total Scores	Study (Tutees) (n=62)				Control (n=67)			
	Pre	Post	t (1)	p-value	Pre	Post	t (2)	p-value
Knowledge	4.77±2.37	18.50±2.25	29.912*	<0.001**	5.43±2.52	13.06±5.31	8.928*	<0.001**
Practices	12.37±3.24	41.23±2.49	49.997*	<0.001**	13.43±2.67	41.18±2.17	27.001*	<0.001**

T. test (1) = between pre and post study group * A statistical significant difference $P \leq 0.05$

T. test (2) = between pre and post control group ** A highly statistical significant difference $P \leq 0.001$

Table (3): Frequency and percentage distribution of the students' tutees group according to their preference of the peer learning strategy (n=62).

Statements	Agree		Somewhat		Disagree	
	No	%	No	%	No	%
Teaching and Learning						
Problem-solving ability improved from peer teaching more than from instructor teaching	24	38.7	27	43.6	11	17.7
Learned more from peers than the instructor	51	82.3	10	16.1	1	1.6
Anxiety decreased when performed the nursing skill in the presence of the peer than the instructor	55	88.7	7	11.3	0	0
Teaching is an important role for nurses	61	98.4	1	1.61	0	0
Assessment and Feedback						
Feedback from peer was from a student's viewpoint, more honest, reliable, helpful than from the instructor	55	88.7	7	11.3	0	0.0
Peer was more supportive during performing the nursing skill than the instructor	49	79	4	6.5	9	14.5
Skills Development						
Clinical skills taught by peer increased the interaction and collaboration with other students more than being taught by the instructor	55	88.7	7	11.3	0	0
Clinical skills taught by peer increased sense of responsibility more than being taught by instructor	55	88.7	7	11.3	0	0
Self-confidence & ability to perform independently increased because of being taught by peer, more than by the instructor	54	87.1	8	12.9	0	0
Engagement						
Communicate more freely with peer than with the instructor	39	62.9	15	24.2	8	12.9
Feel freer to approach peer for help than the instructor	61	98.4	1	1.6	0	0

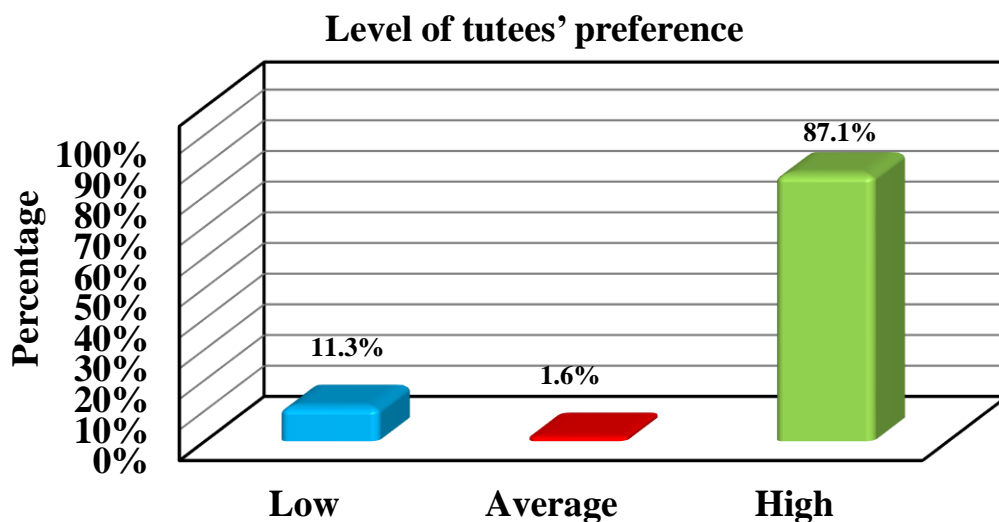


Figure (2): Percentage Distribution of the students' tutees' (n= 62) Total Score preference of the Peer Learning Strategy.

Table (6): Frequency Distribution of the Students' Tutors' According to their Experience Regarding the Peer Learning Strategy (n=6).

Statements	Agree		Somewhat		Disagree	
	No	%	No	%	No	%
Academic Performance & Learning						
Teaching other colleagues was comfortable	6	100	0	0	0	0
Initial apprehensive about the peer teaching requirement in the clinical session	1	16.7	4	66.7	1	16.7
Peer learning experience was personally rewarding	6	100	0	0	0	0
Self-Confidence & Fulfillment						
confident teaching a clinical skill after this experience	6	100	0	0	0	0
Assessing the other students' skills is uncomfortable	6	100	0	0	0	0
understand the principles underpinning teaching and learning	1	16.7	4	66.7	1	16.7
reflection on own previous learning	6	100	0	0	0	0
There should be more opportunities or peer teaching in the curriculum	6	100	0	0	0	0
Professional & Social Skills						
The peer teaching experience was time and effort well spent	6	100	0	0	0	0
Development of abilities for teaching basic clinical skills	6	100	0	0	0	0
Learning with the other colleagues was enjoyable experience	6	100	0	0	0	0
Nurses have a professional responsibility to teach students and their peers	6	100	0	0	0	0
This experience will help with the graduate nurse role	6	100	0	0	0	0
Teaching is an important role for nurses	6	100	0	0	0	0

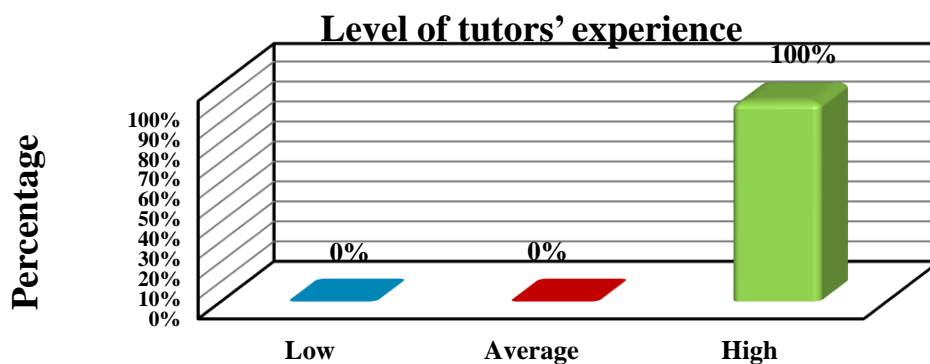


Figure (3) Percentage distribution total score level of students' tutors' experience regarding the peer learning strategy (n= 6).

Table (5) Correlation between studied tutees' total scores of knowledge and practice levels regarding cardiopulmonary resuscitation and their preference of the peer learning strategy.

Total Scores	Study (Tutees) (n=62)	
	Preference of Peer Learning Total Score	
	r	P
Knowledge		
Post	0.379*	0.002*
Practices		
Post	0.336*	0.008*

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

Discussion:

Peer learning is presently one of the most broadly adopted teaching strategies for providing education for young generation because it is much effective to improve self-esteem, competence, and anxiety reduction in learning. It allows students to actively engage in the courses and develop a variety of skills through the contact with their colleagues who are almost at the same age and educational level (Shaaban & Mohamed, 2020).

Therefore, this study aimed to evaluate the peer learning experience among the undergraduate nursing students through; Design a peer learning strategy for nursing students, Implement the peer learning strategy for nursing students.

Regarding the frequency distribution of the socio-demographic characteristics of the studied students the current study reveals that regarding to the study group; more than two thirds of the students' tutees were aged from seventeen to less than or equal to eighteen years, all of them were females, most of them were singles and more than two thirds of them lived at the rural area. More than two thirds of the students' tutors were aged from seventeen to less than or equal to eighteen years, all of them were females and singles and majority of them lived at the rural area. Concerning the control group, nearly half of them aged from seventeen to less than or equal to eighteen years old, all of them were females, majority of them were singles, more than two thirds of them lived in the rural area and all of the study and control groups did not attend any previous clinical peer learning sessions.

This may be because females are more interested in nursing education than males according to the region culture and all of study participants were at first year nursing student therefore, all of them are in the same age group.

This result is on the same line with **Choi et al. (2015)**, who studied "Peer-assisted learning to train high-school students to perform basic life-support", and revealed that all participants were females and were in the same age group. But this was in contrast with **Abouzied et al. (2021)**, they reported that the age of the studied students' ranged from eighteen to twenty two years and the majority of them were males. It can be reflected to the

different admission age between the nursing institute and college.

As regard to the comparison between the studied students according to their previous semester academic achievement; the current study shows that more than half of the students' tutees, half of tutors group and approximately half of the control group had excellent grades. This may be explained by high students' abilities and intelligence in memorizing and recalling different information. Also it can be because the nursing schools require high grades as a prerequisite for registration. The findings of this study are consistent with **Liu and Chen (2020)** research, which investigated the impact of peer learning on learning performance, motivation, and attitude. They found that the study group's final previous exam scores were significantly higher, providing additional support for the current study's results.

Regarding the comparison between studied students' (students' tutees and controls) total knowledge and practice scores regarding CPR at pre and post peer learning strategy implementation, the present study shows a highly statistically significant improvement between the pre and post peer learning implementation phases at the students' tutees and control group's total knowledge and practices mean scores regarding CPR. This attributed to the direct influencing of the students' knowledge on their practice of CPR. The substantial progress observed in both groups indicates that peer learning strategy can be a valuable and impactful method for enhancing CPR knowledge and practices among the studied students, further supporting its potential as a beneficial educational strategy in the context of nursing clinical training which support the current research hypotheses.

Concerning the students' tutees' preference of the peer learning strategy the current study illustrates that regarding "teaching and learning" aspects; the majority of them agreed on "Anxiety decreased when performed the nursing skill in the presence of the peer than the instructor". This could be explained by the fact that in comparison of learning directly from professionals, tutors can create a more laid-back, supportive environment during the peer learning strategy.

Also, working with their peers, tutors can learn empathy to provide anxiety free environment. They attempt to modify their teaching strategies in accordance with the challenges and learning shortages that their peer tutees might encounter in order to foster a productive learning environment. Moreover, dealing with peers can establish a type of psychological security and a feeling of comfort that can be conducive to reducing anxiety levels, resulting in a favorable learning atmosphere.

Moreover, the majority of the students' tutees agreed that "Teaching is an important role for the nurses." This perspective can be attributed to their recognition of the significance of peer-to-peer knowledge and skill-sharing, as well as their understanding of the importance of mentorship and lifelong learning in the nursing profession. This can reflect educational and professional growth through the peer learning experience.

According to **"assessment and feedback"** aspects the majority of the students' tutees agreed that "feedback from peers was from a student's viewpoint, more honest, reliable, and helpful than from the instructor" and "peer was more supportive during the nursing skill than the instructor". The cause behind the observed agreement can be the perception that peers can better understand the current challenges during their learning journey, which makes their feedback more practical and relevant. Additionally, peers may have similar levels of knowledge and skills, making peer tutors' feedback useful for addressing common misconceptions and errors. This familiarity and connection among peers may result in more honest and constructive feedback, leading to its perceived usefulness.

Furthermore, regarding **"skills development"** aspect the majority of agreed on "Clinical skills taught by peer increased the interaction and collaboration with other students more than being taught by the instructor", "Clinical skills taught by peers increased sense of responsibility more than being taught by instructors", and "Self-confidence and ability to perform independently increased because of being taught by peers more than by the instructors". This may be because the tutors were competent enough to help their tutees to

develop and improve their skills through the peer-learning strategy, as well as their self-confidence with the course material with less stress as they were at the same age and with the same background so students' tutees were not shy to make mistakes in front of their peers.

Furthermore, concerning the **"engagement"** aspect a significant majority of students' tutees agreed that they "Feel freer to approach peers for help than the instructors". This perception can be attributed to the belief that peers are often perceived as less judgmental compared to instructors. The comfort of seeking assistance or communicating with peers arises from a shared understanding and empathy, which may not always be as pronounced in the instructor-student dynamic. This result is compatible with **Binkhorst et al. (2020)**, they concluded that near-peer-trained medical students develop a higher level of pediatric basic life support-related self-efficacy after training implementation than expert-trained students.

According to the total preference score level of the students' tutees' regarding peer learning strategy, the present study reveals that the majority of them had high level of preference regarding the peer learning strategy. The reason why tutees preferred to learn from their peers can be due that tutors had comparable experiences, backgrounds, or facing similar difficulties. Peers can identify with each other's learning process, encouraging trust and mutual assistance. As a result, this trust and relatability can establish an optimistic learning milieu that allows tutees to communicate their ideas, inquire about concepts, and participate in discussions with more confidence.

This result is in congruent with **Ningrum (2018)**, they studied "Students' perception of peer tutor roles in the small group discussion" and revealed that the majority of peer tutees agreed that peer tutor performed well in their tutoring roles. Moreover, this result agreed with **Akbar et al. (2022)**, they concluded that the tutees enjoyed the peer-assisted learning experience and recognized its importance for their academic and professional development.

It is also on the same line with **Kalid et al. (2018)** who proved that pairing junior and senior undergraduate students enhances

psychological support and helps in improving professional and personal development in both groups. Peer tutors have been shown to create an atmosphere that allows learners to exchange ideas in a stress free manner. On the other hand this result is in contrast with **Muamaroh, (2022)** who reported that the students were dissatisfied and distrust with their peers' feedback, and also felt not confident with their own work. Also, disagreed with **Carey, (2018)** who reported less positive experiences that could occur in shape of competition between students and fear from not learning properly. Some students have also reported feelings of insecurity when working with a peers.

As regard to the students' tutors' experience regarding peer learning strategy the present study indicates that according to **"Academic Performance & Learning"** aspect; all of the students' tutors agreed that "peer learning experience was personally rewarding" and "teaching other colleagues was comfortable". This can be because teaching others requires tutors to have a thorough understanding of the topic, support to their tutees, reinforce concepts and improves long-term retention. When students actively engage in the peer learning process, they gain a sense of ownership and responsibility for their own learning. This active involvement fosters a more rewarding and fulfilling learning experience. Peer learning creates a supportive environment where students are more likely to receive constructive feedback rather than criticism. This nurturing atmosphere encourages students to feel at ease while teaching and learning from each other.

Also, tutors can learn from their tutees during the process as the tutees may bring different perspectives, experiences, or questions that challenge the tutors' own understanding. This collaborative learning environment benefits both the tutors and the tutees as well, fostering a mutual exchange of knowledge and skills. Peer learning strategy can be self-rewarding for some students and stressful for others.

While more than two thirds of them were somewhat reported "Initial apprehensive about the peer teaching requirement in the clinical session". Students may be apprehensive initially because they have little or no prior experience

in teaching their peers particularly a lifesaving procedure (CPR) in the clinical setting. The idea of taking on a teaching role without formal training may be daunting. There may be a fear of being judged by their peers during the teaching process, as students may worry about not being as knowledgeable or skilled as the instructors. Shifting from being a passive learner to an active tutor requires an adjustment in mindset. Some students may feel uncomfortable with these changes and the added responsibility it brings.

On the other hand regarding **"Self-Confidence & Fulfillment"** aspect; all of the students' tutors agreed on "confident teaching a clinical skill after this experience", "assessing the other students' skill is comfortable", "reflection on own previous learning" and "there should be more opportunities for peer teaching in the curriculum". By sharing knowledge and skills with others, tutors can gain a sense of mastery. Adding to that, when students take on the roles as tutors and successfully teach their peers, they build self-confidence in their own understanding of the subject matter. This enhanced confidence contributes to their sense of comfort in teaching others, positively motivate them and impact their own performance.

Regarding **"Professional & Social Skills"** aspect; all of them agreed on "peer teaching experience was time and effort well spent", "development of abilities for teaching basic clinical skills", "learning with the other colleagues was enjoyable experience", "nurses have a professional responsibility to teach students and their peers", "this experience will help with the graduate nurse role" and "teaching is an important role for nurses". This may be due to that peer learning can create a non-stressful environment that help the tutors to achieve their basic learning goals, developed leadership skills, improved communication skills, and gain confidence which increased tutors self-satisfaction also and help them to positively reflect on their previous learning. They learn to convey information simply and clearly, use appropriate language, and adapt their teaching style to the needs of their tutees. By effectively communicating and explaining CPR techniques, tutors help their tutees grasp

the concepts more easily on the same ground of age and educational level.

This result was supported by **Shaaban and Mohamed, (2020)**, they studied “Effect of Peer Teaching on Nursing Students Performance of Clinical Training in Hemodialysis Unit”, and revealed that the students in the peer learning group reported that the method facilitated their learning and they wished if the peer teaching method regularly used to teach the entire curriculum content. Also this result was compatible with **Wareing et al. (2018)**, they studied “Coaching and Peer-Assisted Learning -The mental health nursing student experience”, and reported that there were many educational chances for students who accepted and tolerated the learning from their colleagues and could allow a wide range of opportunities for learning nurses.

According to the “total score level of the students’ tutors’ experience regarding peer learning strategy”, the current study shows that all of the students’ tutors had high positive experience regarding peer learning strategy. This may be due to low stress level, relaxed environment for students and feeling of peaceful and mindful environment due to strong and confidential relationship between colleagues and wide range of simple learning styles that students prefer in learning clinical practices.

This result agreed with **Shaaban and Mohamed (2020)**, they revealed that the peer learning method described by the students as an effective and essential section of education and helped them to understand the clinical procedures and more effective than traditional learning methods. Moreover, this result was in the same line with **Cheung and Wong (2016)**, they illustrated that students responded positively to the use of peer teaching and were satisfied with this interactive teaching and learning method. Also this result is supported by **Liu and Chen (2020)**, they revealed that peer learning is the most helpful feature in enhancing students' overall learning.

This result is in the same line with **Zhang (2023)**, who revealed that peer-tutors had positive opinions about peer teaching and feel that they benefit, both professionally and personally, with improved communication, presentation skills, teamwork, and knowledge

and these positive perceptions are shared among students who teach clinical skills such as ECG interpretation. Also, this result is supported by **Khaw and Raw, (2016)**, they studied “The outcomes and acceptability of near-peer teaching among medical students in clinical skills”, and displayed that the studied tutors perceived the peer teaching of the clinical skills to be acceptable and beneficial with particular implications for medical education.

Concerning the relation between the students’ tutees and control groups’ socio demographic characteristics and their total knowledge score regarding CPR, the current study displays a significant relation between the control group and their residence, while there was no significant relation between the students’ tutees and the control group knowledge and their marital status and age. This may be related to that students in rural areas may attain high knowledge scores because they tend to exhibit a strong dedication to studying, influenced by a cultural inclination towards valuing education.

This result is in contrast with those **Elewa and Saad (2018)**, they studied “Effect of child to child approach educational method on knowledge and practices of selected first aid measures among primary school children”, and reported that there was significant relation between first aid knowledge among students in primary schools and their age. Also, this result disagreed with **Sabeghi et al. (2021)**, they showed that the level of students’ knowledge changed significantly over time and was different based on gender, marital status, and educational level.

This result is disagreed with **Elewa and Saad (2018)**, they reported that there was significant association between knowledge about first aid among students in the primary schools and their grades level. This result agreed with **Aljawfi et al. (2022)**, they studied “Knowledge and Practices of Engineering Students about First Aid at Assiut University”, and reported that there were no statistically significant differences between socio-demographic data and mean practices score among students except regarding sex variable there was statistically significant difference found. Also this result agreed with these outcomes supported by **Al-Johani et al. (2018)**,

they found that there were no statistically significant differences between participants' socio-demographic characteristics and first-aid practice level.

Regarding the relation between the studied students' previous semester academic achievement and their total knowledge and practice scores regarding CPR the present study displays that there was no significant relation between the students' tutees' and control group total knowledge and practice scores of CPR and their previous semester academic achievement. This may be because teaching students with the peer learning method produces similar results to traditional approaches, which are comparable to those achieved with professional teachers at the previous semester reflecting the effectiveness of PL strategy at the knowledge and practice level.

This result was supported by **Sabeghi et al. (2021)**, who revealed that there was no correlation between students' total GPA and mean scores of CPR learning, retention and practice satisfaction. While, this result is disagreed with those **Elewa and Saad (2018)**, they reported that there was significant relation between first aid practice among students in the primary schools and their grades level.

The present study shows that there is a positive statistically significant correlation between the students' tutees' total knowledge and practice scores regarding CPR and their preference of peer learning strategy. This may be due to peer learning technique fosters understanding, a supportive environment, motivation and active engagement, resulting in improved learning outcomes.

This result is in the same line with **Santomauro et al. (2018)**, they showed that the high school students who were trained by peer-instructors showed comparable skills in adult CPR to those who were trained by professional instructors. Also this result was compatible with **Binkhorst et al. (2020)**, they reported that students trained by near-peers scored significantly higher response on self-efficacy regarding all aspects of pediatric basic life support.

Conclusion:

The results of this study concluded that:

Peer learning is a significantly effective teaching strategy compared with the traditional method in improving nursing students' clinical

performance. The study advised implementing the peer learning technique as a formal method in the clinical settings to improve students' knowledge and practice.

Recommendations:

Based on the current study findings, the following recommendations are suggested:

➤ Education:

- Develop structured written formal peer learning strategy guidelines with outlined desired outcomes and annual assessment.
- Assign one or more senior individuals across the nursing institution to act as a facilitator to inform the junior students about the advantages of peer learning and assist/ train them in groups.
- Organize peer learning workshops which include senior, junior students and teachers where students and teachers can exchange the rules through informal ways as a preparation phase for the actual application of the strategy.

➤ Research: Future research aimed to

- Apply studies on large number of senior and junior students from various nursing educational institutions over a longer period of time.
- Investigate or link the effectiveness of the peer learning application on the students' overall academic and clinical achievement not only one course.
- Assess the clinical instructors' and clinical staff feedback about the application of the peer learning strategy in the clinical environment.
- Study the acquisition and mastery of the clinical skills, self-reflection, critical thinking, and interprofessional team work of the students who were thought by peer learning strategy in the clinical work after graduation comparing with those who thought by traditional methods.
- Search the factors influencing the successful peer learning in nursing education.
- Conduct qualitative research to explore nursing students' perception toward peer learning.

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