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RESEARCH ARTICLE

Effectiveness of Simulation training on clinical Nursing Education and competence : Randomized Controlled Trial

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Abstract

Background . Simulation has been identified as an integrative strategy to bridge theory to practice and has been identified as a need in educating nurses in the future. There is no evidence in the nursing literature supporting the transfer of psychomotor skills learned through simulation to actual patient care**.** Errors in patient care are not permitted during practical hospital so Simulation-based education was emerging as alternative solutions to address this problem**.** The OSCE is a valid method for assessing students' competence under a variety of simulated conditions. It is essential to evaluate critically how effective is the use of simulation in undergraduate nursing education. This research study will hopefully provide an unbiased answer to the latter issue**. Aim.** The aim of the present study is to evaluate the effect of low-fidelity simulation training with role play scenarios on nursing students clinical skills and ' competence**. Methods.** A pretest/post-test randomized controlled design was employed with volunteer undergraduate students (n=260) from first year nursing students Faculty of Nursing Mansoura University students were assessed using a 10-station Objective Structured Clinical Examination(OSCE). Students were randomly allocated to either a control or an study group. The study group, as well as following their normal curriculum, were exposed to low fidelity simulation training. Subsequently, all students were re-tested after four months using an (OSCE). and completed a questionnaire. The data were collected between 2012and 2013. **Results**. There were a statistically significant increase in 2nd OSCE score in a study group than those in control group. On average a mean score (17.33 ± 1.72) & (14.27 ± 3.47) respectively. where p value < (0.001)* . As well there were a statistically significant improvement in performance between the two OSCEs for two groups. whereas the differences in improvement between the two groups were (4.84 ± 1.92) 95% CI for mean (4.51- 5.18) for the study group . And (0.70 ± 1.67) 95% CI for mean(0.41-0.98) for the control group. The differences in improvement between the two groups were highly statistically significant p <0.001*.However, students' perceptions of stress and confidence, measured on a 5-point Likert scale, was very similar between two groups. With no significant difference were detected between two groups (p= 0.742). **Conclusions**. The current results support the use of simulation in undergraduate nursing education. It is, however, important to recognize that it can only be beneficial to students if it is used appropriately and in a way that improves the quality of teaching and

learning. Low -fidelity simulation with role play scenario is a useful training technique that improve student clinical skills and competency in a study group. It enables small groups of students to practise in a safe and controlled environment.

Introduction

One solution to the challenges of incorporating innovative and interactive teaching strategies is the use of simulation. Use of simulation has been identified as an integrative strategy to bridge theory to practice and has been identified as a need in educating nurses in the future. Traditionally, Simulation is a teaching method that closely replicates reality by integrating all three learning domains: cognitive, affective, and psychomotor. Despite the widespread use of simulation in nursing education today, there is a dearth of empirical evidence supporting the use of simulation to teach psychomotor skills. Furthermore, there is no evidence in the nursing literature supporting the transfer of psychomotor skills learned through simulation to actual patient care.**(** Jennifer Gunberg Ross,2012). Simulation in medical and nursing education has been an effective tool in promoting knowledge and skills in a safe learning environment. Risks to patients due to student inexperience are avoided (Tschannen,etal.2012**).** As well as**,** Simulation can help students develop the ability to apply previously learned knowledge in novel situations (knowledge transfer) when compared to other forms of education and provides opportunities for students and nurses to engage in deliberate practice using evidence-based guidelines. In addition, simulation has shown to improve student's level of confidence. (Morgan,2002, Owen etal.,2006 , , Scherer etal.,2007& Aebersold etal.,2010).

Piscotty, Grobbel, and Tzeng (2011) stated that there are several reasons simulation has expanded in to clinical education: lack of available clinical sites, time, and faculty constraints have promoted the development of effective simulation methods. The opportunity for students to deliver care in a safe manner in today's high-risk, complex health care environment is limited. Situations involving high-risk patients are not ideal for student learning experiences (Piscotty et al., 2011).

In order to respond effectively and actively to rapidly changing public health environments, the nurses should be trained in the latest advances in simulation and must possess excellent skills. However, errors in patient care are not permitted during practical hospital so nursing students tend to lose motivation and confidence if they cannot demonstrate adequate nursing performance activity with patients and are refused access to patients because of their poor skills. Simulation-based education was emerging as alternative solutions to address this problem (Jee Hee Kim and Hee Jeong Kim2013).Interestingly, Use of simulation provides an opportunity for nursing students to deliberately practice skills needed to be an expert nurse (Tschannen et al 2012). Internationally, Simulation is defined as a technique used to "replace or amplify real experiences with guided experiences that evoke or replace substantial aspects of the real world in a fully interactive manner" (Gaba, 2007, p.126).

Limited research in the medical literature has demonstrated that the integration of role-playing or patient care scenarios in psychomotor skill training. Increases the realism of the experience by allowing students to practice communicating with patients while practicing a technical skill. Students respond positively to the ability to integrate interpersonal skills with psychomotor skill practice, though no change in skill performance has been noted with role-play practice (Nikendei et al., 2005; Nikendei et al., 2007). Role play**,** A teaching technique where students act out situations in front of observers using information provided in a patient care scenario. Each student takes on a different role in the scenario, acting as if they were actually that person (Lane et al., 2001; Nikendei et al., 2005). Although the use of role play and patient care scenarios is viewed positively by nursing students (Mayne et al., 2004), no studies exploring the efficacy of role-play integration on skill performance are available in the nursing literature.

In addition to learning, assessment of clinical competence is an essential component of nursing education, as clinical competence is the foundation of their professional practice (Mitchell etal,2009 & Jones etal.,2010). One way to assess clinical competence of nursing students is the objective structured clinical examination (OSCE) (Watson etal.2002). It is defined as a method of assessment of clinical competence in which the components of competence are evaluated in a well-planned and structured way, with attention focused on the objective (Harden,1988). Additionally, Jee Hee Kim and Hee Jeong Kim (2013) stated The Objective Structured Clinical Examination (OSCE) method is an effective tool for evaluating the clinical nursing skills of nursing students. The lack of a clear definition of the concept of competency is one of the reasons that complicate an objective assessment of clinical competence in nursing (Watson etal.,2002). Interestingly, Competency defined as The ability to meet standards of

practice and appropriately apply relevant knowledge and skills in either simulated or actual patient care situations (Decker et al., 2008; Roberts, While, & Fitzpatrick, 1992).In relation to a framework for development of clinical competence described by Miller who outlines four levels: knows, knows how, shows how and does, implementation of the OSCE may conform to the achievement of the third level of competence. This means that it is focused on assessment of performance of specific skills in a controlled setting(Miller et al., 2007).

The Objective Structured Clinical Examination (OSCE) is an assessment technique in, which the student demonstrates their competence under a variety of simulated conditions (Fidment, 2012, Naumann and Moore 2013). The OSCE is becoming more prevalent within healthcare education programme, because it is regarded as a useful method for assessing, skills, and underpinning knowledge required for practice (Merriman and Westcott, 2010). Traditionally, OSCE ,This type of assessment is composed of several short exercises, or stations, through which students rotate individually for a given time. An OSCE is usually composed of 10–20 stations that last between 3 and 10 minutes. Each station focuses on a particular clinical aspect, either in a practical way and invigilated by an examiner or in a theoretical way, in the form of a pen and paper exercise. (Monaghan et al., 2000). At the ring of a bell, each student enters the station and performs the predefined timed task. By the end of the OSCE, all students have passed through all the stations and been marked according to a precise set of criteria. Well-designed marking sheets and appropriate briefing and preparation of examiners ensure that the overall examination is based on objective judgments. Designing effective OSCE stations is not easy. It is also particularly useful for enabling students to evaluate themselves and determine their own weaknesses (Bramble 1994, Sloan et al. 1995).

Methodology

Methods :

Aim:

The aim of the present study is to evaluate the effect of low-fidelity simulation training with role play scenarios on nursing students clinical skills and ' competence .

The hypothesis:

The hypothesis being tested was that The students who exposed to low-fidelity simulation training with role play scenarios (the study group) would perform better in the OSCE test than the control group who exposed only to traditional learning laboratory.

Research Questions :

1. what is the results for the first OSCE for students receiving traditional laboratory instruction(control) and students participating in a simulation experience (study)?
2. What is the results of second OSCE for students receiving traditional laboratory instruction(control) and students participating in a simulation experience (study)?
3. Is there a difference in overall improvement in performance in OSCEs between students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?
4. Is there a difference in students' confidence between students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?
5. Is there a difference in perception of stress in OSCES between students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?

Design:

Randomized controlled, pretest/post-test experiment was designed to enable comparison between a control and an study group. Randomized pre-test/ post-test studies allow the researcher to make cause and effect inferences (Lammers et al 2008.) The data were collected between 2012 and 2013. Allocation of students to the groups was performed randomly after an initial assessment session, which was an Objective Structured Clinical Examination (OSCE). Control and study group students were re-assessed after 4-months to enable comparison between the two groups and to determine whether or not the simulation experience had had an effect on their level of competence in clinical performance and confidence.

Participants:

Students in the first year, Medical Surgical Nursing Department Faculty of Nursing Mansoura University n=360 Students are being assessed and reassessed after four months using an Objective Structured Clinical Examination (OSCE). Students are randomly divided into a control and study group for the period intervening between the two examinations. The study group is exposed to low-fidelity simulation training with role play scenarios while the other students control group, follow traditional learning laboratory. Comparison is made between the OSCE results of the two groups of students.

Data collection

The study is composed of several phases through which first year nursing students are involved .The students who are involved in the study are separated into a control and study group. The different sessions organized are: a "First OSCE session", the "Simulation session", and the "Second OSCE session". In the first instance, only students from the study group attend the simulation sessions.

First OSCE session:

All students are initially tested using an Objective Structured Clinical Examination (OSCE) . An OSCE composed of 10 stations has been specifically designed for the study. This first OSCE is used to determine the initial skills level of the students. The OSCE stations address a range of clinical and psychomotor skills and a few cognitive skills. Each station is 5 minutes in duration and is followed by a one-minute gap to allow students to rotate to the next station. This short break also allows time for the assessors to finish the marking and rearrange the station for the following student. At the start of the session, students are reminded of the aim of the session and given instructions on how it is run. It is important to note that none of the students has had prior experience of an OSCE session. Examiners have been instructed not to help or give any feedback to the students concerning the different stations at this stage of the study. For the purpose of this study, competency was operationalized using performance Checklist for all clinical skills used in the study.

Simulation session

only. After the initial OSCE, students participating in the study are randomly split into two groups. Half of them are allocated to the control group whereas the other students are allocated to the study group. For the purposes of this study, simulation encompassed the use of task-trainers, static mannequins, role playing, and patient care scenarios. All students are equally involved in the initial part of the session. Aspects of teamwork, communication and simulation training are presented and discussed with the students. They are then introduced and exposed to role play scenario before the simulation begins. They are asked to observe the chest rising, feel for the pulse, listen to its chest with a stethoscope and communicate with the instructor ,. This will greatly affect their experience of participating in the scenarios and influence their behavior. The whole learning exercise could be jeopardized if students were not adequately briefed and prepared for the simulation.

Students who were observing the scenarios are invited to participate in the debriefing by sharing their views on aspects such as communication, situation awareness, teamwork, decision making, and clinical skills. This immediate feedback given during the debriefing of the students is an important aspect of the simulation session as it is meant to help them reflect positively about their experience. Since no harm is incurred to a real patient, errors can be allowed to progress so that students can learn from their mistakes without concern of liability or guilt (Ziv et al. 2000). The debriefing can then be used to help students understand their wrongdoing and the most appropriate course of action they should have adopted. It is therefore extremely important that the simulation is followed by debriefing and reflection so that students can learn from the experience (Thiagarajan 1998). Attending simulation sessions maximizes the students' exposure to the simulated environment. They benefit from observing their peers and taking notes, and by taking part in the debriefing of several scenarios. It is important to note that these sessions are not specifically designed to prepare the students for the second OSCE, but simply provide them with additional clinical experience in a safe and controlled environment. Students might need to use equipment that they encounter during the OSCE, however explanations of how to operate the equipment are not provided.

Confidence questionnaire

At the start of the second OSCE session, students are asked to fill in a questionnaire about their level of confidence and stress in OSCE exam ,This questionnaire, alongside the OSCE results, will be particularly useful in analyzing and explaining their performance or any major differences between the two study groups.

Second OSCE session

The two OSCE sessions are identical in content and are run as a summative assessment in order to collect the data required for comparison between the two groups. A study by Niehaus et al. (1996) showed that OSCE stations could be effectively repeated after four months without affecting the results. However, one difference between the first and second OSCE has been incorporated. During the second OSCE, students are given immediate feedback on their performance at each practical station, and this was named "Mixed Mode" OSCE. This process seemed very popular amongst students and teaching staff involved (Alinier 2003). By comparing the results obtained for the first OSCE with those of the second OSCE it is possible to determine whether or not students from the study group have improved their clinical skills and competence to a greater extent than those from the control group.

Validity and reliability

OSCEs are recognized as a highly reliable and valid assessment method ((Fidment, 2012)). In our study, very detailed attention was paid to the design of the OSCE instructions and to the marking and answer sheets. Checklists were used to make sure that assessment was objective. A panel of educators was involved in the validation of the 10 stations for content and accuracy. The design and content of the marking sheets was such that even someone with a very little knowledge of the skill being tested could reliably mark the performance of students. All OSCE assessors were trained to examine particular stations and remained allocated to that station as much as possible.

Ethical considerations

Approval was granted for this study by the Faculty of nursing ethical committee .All students were informed of the purpose, requirements, duration, and anticipated benefits of the study, They were also informed that they could withdraw from the study at any time without giving any justification. Students who had been allocated to the control group were invited to attend the simulation training sessions after attending their second OSCE session so that they were not disadvantaged. Students were informed that they would be awarded a certificate of Attendance to add to their achievement portfolio when completing the study.

Results

Data analysis was performed using SPSS version 11.0. Experimental and control group OSCE performances and questionnaire results were investigated. Statistical significance of the difference in OSCE results was evaluated using t-tests. A Mann-Whitney U test was used to analyses the difference between students' perceptions of stress and confidence. The results presented are based on student's number who accept to be engaged in the study was 260 from total 360.

Table (1): Student Demographics

Student Characteristic	Study (n = 129)	Control (n = 131)	Total (n = 260)	P value
Number of students (n)	129 (49.6%)	131 (50.4%)	260 (100%)	
Age **17-22y** **23-28y**	130 (99.2%) 1 (0.8%)	129 (100%) 0 (0%)	259 (99.6%) 1 (0.4%)	0.320
Sex **Male** **Female**	54 (41.2%) 77 (58.8%)	67 (51.9%) 62 (48.1%)	121 (46.5%) 139 (53.5%)	0.083
Candidates with Previous experience in Nursing **Yes** **No**	37 (28.7%) 92 (71.3%)	19 (14.5%) 112 (85.5%)	56 (21.5%) 204 (78.5%)	0.005*

The table (1) shows the socio – demographic characteristics of the study and control groups. As regards the candidate's age, age of the study group ranged from 17 to 28 years, and the majority of the study sample ranged from 17 to 22 years (99.6%). No statistical significant differences were detected between two groups (P= 0.320).Females were more prevalent in the study group (58.8%), and male were more prevalent in the control group (51.9%), with no statistical significant differences between the two groups (P= 0.083).Regarding Candidates with Previous experience in Nursing, It was noticed that, 71.3% of the study group and 85.5% of the control group reported no previous experience in Nursing, with statistical significant differences between two groups (P= 0.005*).

Table (2): Results of two Objective Structured Clinical Examinations (OSCEs)

	Study (n = 129)	**Control (n = 131)**	**t**	**P value**
OSCE 1st (mean ± SD) Range: Minimum Maximum	12.49 ± 2.37 5.8 16.2	13.57 ± 3.60 1.4 19.6	2.875	0.004*
OSCE 2nd (mean ± SD) Range **:** Minimum Maximum	17.33 ± 1.72 9.7 – 20	14.27 ± 3.47 2.5 – 19.6	9.048	<0.001*
1st OSCE versus 2nd OSCE				
t	28.618	4.755		
P value	<0.001*	<0.001*		

Table (2) Shows the results of two Objective Structured Clinical Examinations (OSCEs) of the study and control group. The table clarifies that, there were a statistically significant increase in first OSCE score in control group than those in study group where the average mean score were (12.49 ± 2.37) & (13.57 ± 3.60) respectively. where p value = (0.004).* With Regarding the results of the second OSCE, the table indicate that, there were a statistically significant increase in a study group score in 2nd OSCE than those in control group. On average a mean score (17.33 ± 1.72) & (14.27 ± 3.47) respectively. where p value < (0.001)* In addition, there were a statistically significant difference were detected between two groups in 1st OSCE versus 2nd OSCE where p<(0.001)*.

Table (3): Improvement in performance of students' nurse

%Improvement (OSCE 2nd – OSCE 1st)	**Study (n = 129)**	**Control (n = 131)**	**t**	**P value**
Mean ± SD Range: Minimum Maximum 95% confidence interval for mean (CI) Lower bound Upper bound	4.84 ± 1.92 0.7 – 9.80 4.51 5.18	0.70 ± 1.67 - 3.4 9.0 0.41 0.98	18.547	<0.001*

Table (3): Improvement in performance of students' nurse , It is clear evidence that **:**The main results were the differences in performance between the two OSCEs for the two groups, where there were a statistically significant improvement in performance between the two OSCEs for two groups. whereas the differences in improvement between the two groups were (4.84 ± 1.92) 95% CI for mean (4.51- 5.18) for the study group . And

(0.70 ± 1.67) 95% CI for mean(0.41- 0.98) for the control group. The differences in improvement between the two groups were highly statistically significant p <0.001*

Table (4): Students' perceptions of stress in OSCE 1st and OSCE 2nd

perceptions of stress	Study (n = 129)	Control (n = 131)	Total (n = 260)	X^2	P value
OSCE 1st					
Very stressed	83 (64.3%)	83 (63.4%)	166 (63.8%)		
Moderate stress	35 (27.1%)	34 (26%)	69 (26.5%)		
Mild stresses	6 (4.7%)	10 (7.6%)	16 (6.2%)	1.110	0.775
No stress	5 (3.9%)	4 (3.1%)	9 (3.5%)		
OSCE 2nd					
Very stressed	16 (12.4%)	33 (25.2%)	49 (18.8%)		
Moderate stress	61 (47.3%)	51 (38.9%)	112 (43.1%)	8.488	0.037*
Mild stress	40 (31%)	31 (23.7%)	71 (27.3%)		
No stress	12 (9.3%)	16 (12.2%)	28 (10.8%)		
1st OSCE versus 2nd OSCE					
Z	7.958	7.809			
P value	<0.001*	<0.001*			

Wilcoxon Signed Ranks (Z test): comparing first OSCE and second OSCE in each group.

Table (4): show the Students' perceptions of stress in OSCE 1st and OSCE 2nd of the study and control group. The table reveals that , the majority of students perception is very stressed in the first OSCE for study and control group (64.3%) & (63.4%) respectively. There is no significant difference were detected between two groups in 1st OSCE where p value = (0.775).Regarding Students' perceptions of stress in 2nd OSCE . the majority of students perception is moderate stressed in the second OSCE for study and control group (47.3%) & (38.9%) respectively. There is a significant difference were detected between two groups in second OSCE where p value = (0.037*). In addition, there were statistical significant differences were detected between each groups in first OSCE and second OSCE (p<0.001*).

Table (5): Student confidence in their ability to undertake OSCE

Student confidence	Study (n = 129)	Control (n = 131)	Total (n = 260)	X^2	P value
Very confident	16 (12.4%)	15 (11.5%)	31 (11.9%)		
usually confident	80 (62%)	75 (57.3%)	155 (59.6%)		
sometimes confident	26 (20.2%)	34 (26%)	60 (23.1%)		
Rarely confident	7 (5.4%)	7 (5.3%)	14 (5.4%)	1.245	0.742
not confident at all	0 (0%)	0 (0%)	0 (0%)		

Table (5): show the Student confidence in their ability to undertake OSCE of the study and control group. The table clarifies that, the majority of the students in study and control group is usually confident in performing OSCE (62%) & (57.3%) respectively. With no significant difference were detected between two groups (p= 0.742).

Table (6): Student's bothering due to OSCE evaluation .

Student's perception of bothering	Study (n = 129)	Control (n = 131)	Total (n = 260)	X^2	P value
No bothering at all	58 (45%)	54 (41.2%)	112 (43.1%)		
Rarely	33 (25.6%)	29 (22.1%)	62 (23.8%)		
Sometimes	34 (26.4%)	46 (35.1%)	80 (30.8%)		
Almost	3 (2.3%)	1 (0.8%)	4 (1.5%)	3.186	0.527
Very bothering	1 (0.8%)	1 (0.8%)	2 (0.8%)		

Table (6): Student's perception of bothering due to OSCE of the study and control group . The table clarifies that, the majority of the students perception in study and control group have no bothering at all (45%) & (41.2%) respectively. With no significant difference were detected between two groups (p= 0.527).

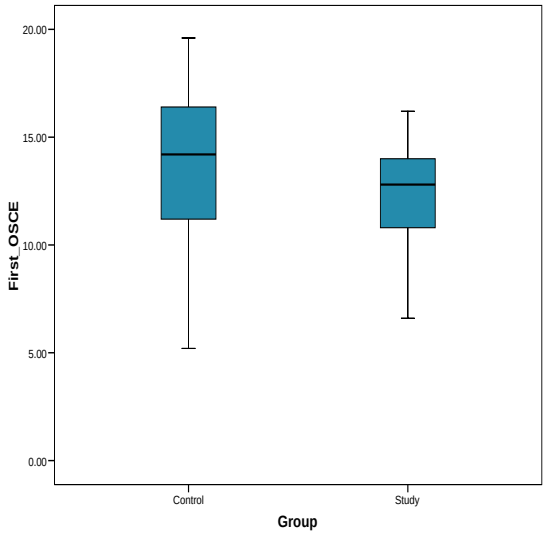

Figure (1) Students' results for the first Objective Structured Clinical Examination (OSCE).

It is clear from this figure that :There is a slight increase in 1st OSCE score in control group than those in a study group where p value = (0.004).*

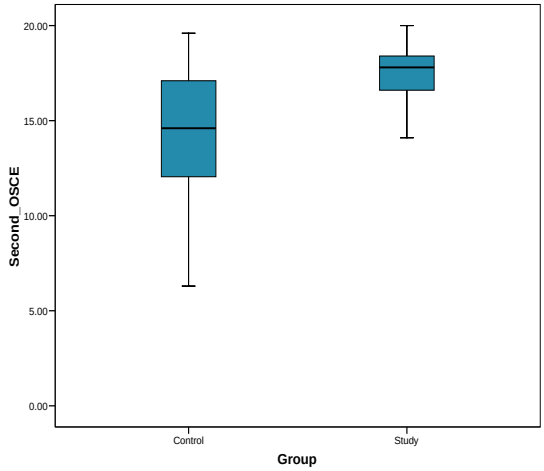

Figure (2) Students' results for the second Objective Structured Clinical Examination (OSCE).

It is obvious from this figure that: students in a study group generally obtained higher marks than those in the control group where <0.001*

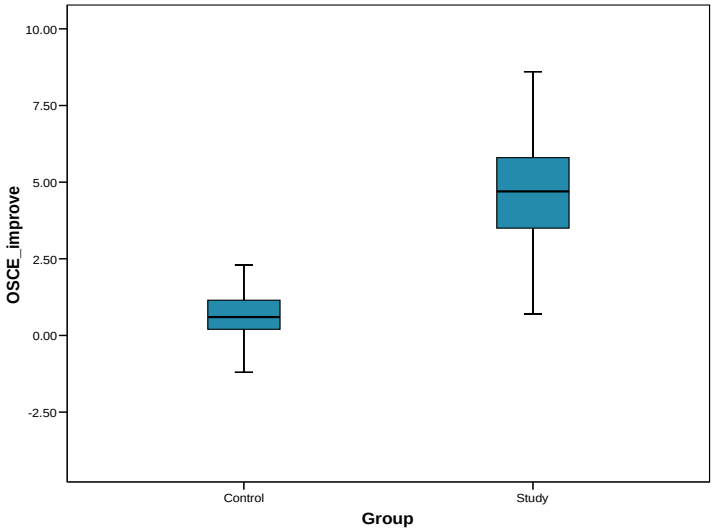

Figure (3) Students' overall improvement in Objective Structured Clinical Examination performance .

The figure reveals that: There was a significant improvement in performance between the two OSCEs for two groups(OSCE2-OSCE 1) p <0.001*

Discussion

Evaluation of simulated experience occurs by using The Objective Structured Clinical Examination (OSCE) .The OSCEs were a very important component of this study and special attention had to be paid to their design and content.

The aim of this study was to evaluate the effect of low-fidelity simulation training with role play scenarios on nursing students clinical skills and ' competence by comparing the performance in a practical examination OSCE of two groups of students. One group (study) was exposed to low fidelity simulation training, and role play scenarios and one (Control group) was not. The hypothesis being tested was that the study group would perform better in the OSCE test than the control group. The simulation investigated in this study allows for the acquisition of technical and non-technical skills that students will hopefully be able to transfer to their future clinical environment. It is essential to evaluate critically how effective is the use of simulation in undergraduate nursing education. This study will hopefully provide an unbiased answer to the latter issue..

Research Question(1)

1. what is the results of the first OSCE for students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?

The findings of the present study, shows that, the two groups obtained similar scores for the first OSCE (fig.1). This could be explained as, the students from both groups had a similar level of competence at the start of study. This results is congruent with a study done by Alinier, Hunt and Gordon(2006).Which is the first study uses OSCE to quantitively determine the value of simulation in nursing education whose stated that ,experimental and control group obtained a very similar score in the first OSCE.

Research Question(2)

2. What is the results of second OSCE for students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?

The current study revealed that, students in study group generally obtained higher scores than those in control group with mean score (17.33 ± 1.72) & (14.27 ± 3.47) respectively **p <0.001***. This support the conclusion that ,simulation training has enabled students from the experimental group to improve their skills and knowledge to a greater extent than those from control group . To some extent the same findings can be drawn from a study carried out by Alinier ,Hunt, Gordon, and Harwood (2006)whose asserted that, there is a clear evidence that most experimental group students were scoring higher in second OSCE than the control group students.

Research Question(3)

3. Is there a difference in overall improvement in performance in OSCEs between students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?

The most notable findings of this study are marked improvement in performance between two OSCEs for experimental and control group where the difference in improvement was 4.84 ± 1.92, 95% confidence interval for mean (CI) 4.51 - 5.18 in the study group and 0.70 ± 1.67 95% confidence interval for mean (CI) 0.41 - 0.98 in the control group **p<0.001*** this mean that the differences in improvement between two groups is highly significant. This suggesting a positive effect of simulation on clinical performance and the opportunity to extend this approach in nursing education and integrates simulation training to nursing curriculum .

These findings come in accordance with a study done by Garrett, Macphe and Jackson(2010) whose empathized that participants in simulated training attain psychomotor skills faster & demonstrate a higher level of performance than participants in traditional clinical training . similarly, sportman et al.,(2011)concluded that simulated experience positively influences student outcomes. Interestingly schlaret and Pollock (2010) provided evidence that simulation effective in learning knowledge and skills in fundamental nursing than traditional learning methods.

In conclusion,in the present study we use OSCE as higly reliable & valid assessment method for assessing practical skills of nursing student trained under simulated experience and student who trained under traditional nursing course . the study revealed improvement in student performance and competence in simulated learning experience than those in traditional learning course alone this findings confirm the hypothesis posed to the present study which implies students whose exposed to simulation training (experimental group) would perform better in the OSCE test than the student who exposed only to traditional nursing course (control group).

These findings are in agreement with those of piscotty et al (2011) showed that traditional teaching methods provided a content in learning,wherase simulation may provide the context of lrearning ,combining traditional learning with simulation can be more powerful than if used separately. The findings consistent with Grady et al (2008) who indicated that simulation improve learning.

4. Research Question(4)

4. Is there a difference in students' confidence between students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?

Current study ,showed that there was no clear evidence that improvement in clinical competence lead to improved confidence of student. There is no difference in level of confidence between two groups of students (experimental & control). The reason may be due to limited period of exposure to simulation training.

Graham and Scollon(2002) study are approximately in accordance with the present study ,concluded that improvemed in training of advanced life support skills did not lead to improvement in students' confidence . similarly, Alfes(2011) Similarly, results of the British Heart Foundation (BHF) project confidence questionnaire distributed to both groups of students immediately before the second OSCE session are very similar and do not enable us to determine whether or not the use of simulation leads to a higher level of confidence .

Some studies controversy and conflicts with these results where Alfes(2011)found that the students exposed to the simulated experience were significantly more self confident than students who participated in the more traditional approach .in the same line ,Garrett, Macphee and Jackson(2010)indicated that all students more confident following simulated experience .furthermore , Feingold et al (2004) found that ,as a result of simulation half of students reported an increase in their confidence and clinical competence .

Research Question(5)

5. Is there a difference in perception of stress in OSCES between students receiving traditional laboratory instruction(control) and students participating in a simulation experience (experimental)?

A significant finding of this study was that, the majority of students express feelings of very stress in the first OSCE for study and control group (64.3%) & (63.4%) respectively. There is no significant difference were detected between two groups in first OSCE where p value = (0.775).

These findings are congruent with the published literature concerning stress in students caused by an impending OSCE. All the participants interviewed spoke of feelings of stress experienced either before and/or during the OSCE (Susan Fidment,2012). Brand and Schoonheim-Klein (2009) reported that dental students ranked an OSCE as significantly more stressful than a written assignment. Similarly, in a study by Byrne and Smyth (2007), pre-registration nursing students felt so stressed that it had a negative impact on their performance in an OSCE assessment.

Additionally, Current study revealed that there was a statistically significant decrease in stress score in the second OSCE than stress in the first OSCE between each groups (p=0.001*). Wilcoxon Signed Ranks (Z test): comparing first OSCE and second OSCE in each group.

Controversy ,Alinier,et al.,(2006)suggested that simulation training did not have effect on student perception of stress.

Conclusion

The current results support the use of simulation in undergraduate nursing education. It is, however, important to recognize that it can only be beneficial to students if it is used appropriately and in a way that improves the quality of teaching and learning. Low -fidelity simulation with role play scenario is a useful training technique. It enables small groups of students to practise in a safe and controlled environment. Low fidelity simulation training allows students to learn from mistakes and act on their own judgment. Both, the practice of basic skills and the experience of scenario-based training are forms of practice, and it is recognized that 'practice makes perfect'. Furthermore, students should regularly receive feedback to make sure that they take away from the experience what was expected. This is one of the reasons why providing feedback to students is so important and is often highly valued by them. It is expected that the results of this study will help and support other health institutions, Hopefully it will also influence the design of future nursing curricula inside and outside the University to incorporate such teaching tools and training methods as well as assessment methods (OSCE).

Conflict of interest

The authors declare that they have no conflict of interests.

Financial competing Interest

No funding sources were provided

What is already known about this topic

• Simulation technology is increasingly popular for training of healthcare professionals across all disciplines as it is recognized as being a safe training method.

• There is a lack of good evidence of the effectiveness of simulation training, especially in nursing education.

What this paper adds

• low -fidelity simulation training is beneficial for training undergraduate nursing students.

• There was no correlation between nursing students' confidence and their level of performance whether they received simulation training or not.
• Students who report a lack of confidence also admit being stressed when exposed to OSCE exame.

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Study Design Diagram