

Fostering Nursing Students' Academic Motivation and perceived learning in Psychiatric Nursing: The power of simulation based learning program

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Abstract

Background: Simulation is a good fit in a practice profession such as nursing. It provides virtual clinical experiences and environments rich in diversity and exposure, yet safe for experimentation and learning for mental health nursing students. **Aim of the study :** the aim of this study was to evaluate the effect of simulation on nursing Students' academic motivation and perceived learning in psychiatric nursing. **Setting:** The study was conducted at the Faculty of Nursing - Tanta University that is affiliated to the Ministry of Higher Education. **Subjects:** The study subjects were composed of all nursing students (250 students), enrolled in the psychiatric nursing course, during the first and second semester of the fourth academic year (2020-2021) at faculty of Nursing -Tanta University. The students were divided into two main groups; experimental group (150 students) and control group (100 students). **Design** a quasi-experimental design was utilized. **Tools: three tools were used;** perceived learning scale, a manual of academic motivation questionnaire, and simulation evaluation questionnaire. **Results:** there was a statistical significant improvement in the nursing student's academic motivation and perceived learning in the experimental group after simulation based learning program. **Conclusion:** clinical simulation has a salient effect on improving the students' academic motivation and perceived learning in psychiatric nursing. **Recommendation:** Variables such as students' online class interaction, their motivation to participate in the online class, course structure, and instructor facilitation and knowledge are important determinants of perceived student learning and motivation.

Key words: clinical simulation, perceived learning, academic motivation, psychiatric nursing, undergraduate nursing students

Introduction

Using of varied technology is currently more common in higher education. The mixed-reality experiences or simulations are seen as a way to provide learners with highly interactive, engaging, and multi-sensory learning experiences that support students through an experiential learning approach, besides providing an exciting and accessible form of learning environment can develop sense of confidence and motivation^(1, 2). However, due to the impact of COVID-19 pandemic, many of health educational institutions have moved the majority of their face-to-face classes to an online modality⁽³⁾. Consequently, examining ways in which online instruction can be used effectively has become a matter of significance for institutions who are interested in finding ways to enhance online learning through the use of varied forms of technology⁽⁴⁾.

Teaching psychiatric and mental health nursing content to undergraduate students can be challenging because of fear of patients, anxiety,

limited understanding of mental illness, and stigma related to mental illness⁽⁵⁻⁸⁾. Therefore, psychiatric nursing has a low profile among undergraduate nursing students and has been one of the least desirable career choices in the field^(9,10). This lack of interest in mental health nursing has been attributed to anxiety related to working with patients with mental illness and feeling insufficiently prepared to perform this type of clinical work^(11,12).

Simulation is a technique or device that attempts to create characteristics of the real-world situation⁽¹³⁾. Simulation-based education (SBE) refers to education programs and approaches allows the educator to control the learning environment through scheduling of practice, providing feedback, and minimizing or introducing environmental distractions^(14, 15).

It has been used by nursing education for many purposes, including decreasing medication errors⁽¹⁶⁾, building teamwork and communication skills among nurses staff⁽¹⁷⁾, overcoming education challenges and increasing

patient safety⁽¹⁸⁾, and helping students build collaboration⁽¹⁹⁾. Simulations additionally assist instructors in ensuring that students are prepared for similar situations in their careers^(20, 21).

Simulations for psychiatry and mental health learning offer an opportunity for students to practice their nursing skills in a controlled environment. Specifically, psychiatry and mental health simulations are shown to be viable and effective practical learning mechanisms to enhance therapeutic communication skills, critical thinking, self-confidence, and risk assessment. In terms of mental health simulation, the most important learning objectives are for students to identify clinical symptoms and learn how to manage problematic symptoms of mentally ill patients. These symptoms are mostly subtle and demand careful observation of patients' facial expressions, speech, and behavior⁽¹¹⁾.

Using simulation in learning of psychiatric nursing enhances student motivation to progress in learning process. Motivation plays an important role in student achievement⁽²²⁾. It is seen in the studies on motivation that it is one of the most important factors affecting learning^(23,24,25). It determines the initiation, direction, density, permanence and quality of behavior, especially goal-oriented behaviors⁽²⁶⁾. Academic motivation which especially represents individual motivation towards academic activities is closely related to the self-efficacy beliefs that students have about themselves⁽²⁷⁾, and a factor that affects student performance positively^(28,29) tried to define academic motivation by listing the important features of individuals with high academic motivation as being enthusiastic about learning, enjoying learning-related activities, and beliefs about school. On the other hand, academic motivation is also defined as the enthusiasm of a student about participating in classes and learning activities, and the extent of attention and effort the student puts into different engagements⁽³⁰⁾. Academic motivation plays an important role not only in the environments of face-to-face education but also online learning environments which center on the student.

Perceived learning is most utilized in education and distance education programs and it is a valid measure of the achievement of learning^(31- 34). **Stein and Wheaton (2002)** stated that perceived learning may be a better indicator of

achievement than course achievements or final grades⁽³⁵⁾. Perceived learning is the body beliefs and feelings related to current learning. Therefore it is a retrospective evaluation of the learning experience⁽³⁶⁾. Students in class discussions and other related processes as well as the learning have an impact on perceived learning. Therefore, perceived learning should be used in distance education instead of test scores or the general point of achievement. Active students in discussions, interacting with the instructor and an effective design in online learning environments affect perceived learning positively⁽³⁷⁾.

Perceived learning is strongly associated with academic motivation and otherwise the academic motivations of online learning students play a role in their perceived learning⁽³¹⁾. **In a study by Wu and Hiltz (2004), Woolfolk (2000)** stated that motivation impacts the information acquired during the learning process and motivation is impacted by the prior knowledge and readiness for learning as well as its conditions^(33,38). Therefore perception of learning and motivation toward learning are important determinants of academic achievement in educational process. Using simulation in educational practice offers alternatives tool for improving nurse student's perception toward their clinical experiences and increase their motivation to acquire new skills.

Aim of the study

The aim of this study was to evaluate the effect of simulation based learning program on nursing students' academic motivation and perceived learning in psychiatric nursing.

Research hypothesis

- Nursing students who learn through simulation based education program will expected to improve their academic motivation and their perceived learning psychiatric nursing.
- Study group who learn through simulation based education program expected to their academic motivation and perceived learning than control group who learn by traditional way.

Subjects and method

Design

A quasi experimental design was utilized in this study.

Setting

The study was conducted at the Faculty of Nursing-Tanta University that is affiliated to the Ministry of Higher Education.

Subjects

The study subjects were composed of all nursing students (250 students), enrolled in the psychiatric nursing course, during the first semester of the fourth academic year (2020-2021) at faculty of Nursing -Tanta University. The students were divided by using sampling random design into two main groups; experimental group (150 students) and control group (100 students).

Tools

Three tools were used to collect data of the present study.

Tool one: structure questionnaire for cognitive, affective, and psychomotor perception of learning: this tool was divided into two parts.

Part (1): socio-demographic data and past experiences of used new technology

It was developed by researchers to elicit information about sex, age, address, prior experiences about using of computer or smartphone. It was consisted of five items.

Part (2): cognitive, affective, and psychomotor (CAP) perceived learning scale

This scale was developed by **Rovai AP et al (2009)⁽³⁹⁾** to measure learning in the cognitive, affective, and psychomotor domains. This scale was used in the present study to measure students' learning perception before and after simulation based educational program. CAP scale consisted of nine (9) items divided on three subscales" cognitive (items1, 2, &5), affect (items 4, 6, &9), and psychomotor (items 3, 7, & 8). CAP scale has seven likert scale from zero (not at all) to 6 (very much) except items (2& 7) are reversed score. The total score was ranged from zero to 54, and score of each subscale was ranges from zero to 21. The higher score means higher perception of learning.

The level of learning perception was determined by the following scoring system:

<50% from total score means poor perception, 50- 75% refer to fair level of perception,>75 % good perception.

Tool two: A manual for the use of the motivational strategies for learning questionnaire (MSLQ) : this tool developed by **Pintrich PR et al (1991)⁽⁴⁰⁾**, it is self- report questionnaire, was designed to measure academic motivation of university students, MSLQ was divided into two parts : motivations and learning strategies questionnaires. The present study used only the first part "motivational questionnaire, this part was consisted of 31 items on six subscales to measure six domains of motivations:

- 1- Intrinsic goal orientation (items; 1,16,22, 24)
- 2- Extrinsic goal orientation (items 7,11,13,30)
- 3- Task value (items 4, 10 ,17, 23, 26, 27)
- 4- Control of learning beliefs (items 2,9, 18, 25)
- 5- Self -efficacy for learning and performance (items 5, 6, 12, 20, 20, 21, 29, 31)
- 6- Test anxiety (items 3, 8, 14, 19, 28)

The items of MSLQ was rating on a seven point likert scale from (1) not at all true to(7) very true for me . The total score ranged from 31 to 217, the higher score of all items of MSLQ or eachsubscales means higher motivation of learning. The levels of learning motivation was determined by the following: <50% of total score means lower level of motivation, 50 % to 75% referred to moderate level of motivation,>75 % from total score donated to higher level of motivation.

Tool (3): Evaluation of simulation- based learning program (SBLP) questionnaire: It was developed by researchers and guided by the **Kidd. LI (2012)⁽⁴¹⁾**. This questionnaire was designed to evaluate the **SBLP** after implementation thoroughly study group. It consists of two parts:

Part one: educational effectiveness

This part involves items related the effectiveness of learning by applying **SBLP**. It consists of 11 items rating on six likert scale ranging from 1(not at all effective) to 6 (very effective), for example " To what extent, this program helping you for understanding psychiatric symptoms" . The total score ranged from 11 to 66. The higher score indicates effective education.

Part two: difficulties in technology

This part was used for assessing student's perceiving for degree of difficulties that experienced during application of **SBLP**, such as create a username and password, save the interaction, Log in and out of simulation session, download and uploading the videos or homework.....etc. The questionnaire was consisted 11 items rating on four likert scale ranging from 1 indicating no difficulties to 4 denoting very difficulties. The total score ranged from 11 to 44, the higher sore indicates very difficulties that faced by nursing students.

The scoring systems was determined by the following:

Obtained <50% from total score mean lower level, 50 % to 75% referred to moderate level, >75 % from total score donated to higher level.

Method

Administrative design

An official permission was obtained, to conduct the study, from head of department of Psychiatric Mental Health Nursing, and the Dean of Faculty of Nursing Tanta University after clarifying the purpose of the study.

Ethical consideration

- The study protocol approved by ethical committee in the Faculty of Nursing, Tanta University
- Informed consent was obtained from the participants after explanation of the purpose of the study.
- The participants was reassured about the confidentiality and the privacy of their obtained information.
- Respecting the right of the participants to withdraw at any time during the data collection period.

- Study subjects were informed that their evaluation of their academic clinical course was not affected by their participation in the present study.

The content of **The SBLP** was available for all students in of the fourth academic year (2020-2021) after final the data collection, and ending the present study. This was done for giving all students equal opportunities for benefits from those materials, and have the equal chances for improve learning achievement.

Preparation of tools

The study tools were translated into Arabic language, and the socio-demographic data sheet and tool three was developed by researchers. The tools were tested for internal validity by a jury composed of five experts in psychiatric nursing field.

Tools of the study were tested for reliability by testing them on 10% of total numbers of nurses and Re-testing them by us Cronbach's alpha test (0.785, 0.64 and 0.881 respectively).

Pilot study: It was carried out on 20 students, they were selected randomly from list of students name who were enrolled in first academic year in the previously mentioned setting, the pilot study was done to ascertain clarity and applicability of the study tool one, and to identify obstacles that were faced during actual data collection. Accordingly, it was found that few words were difficult and confused, these words were modified. Following the pilot study, the tools were revised, reconstructed, and ready for use in the actual study.

The study tools were created on online questionnaire by using Google form, and accesses at

https://docs.google.com/forms/d/1Bxi46Dod5ZoK_CArveZSGiJTY_rojXY2-De_WyUf0cs/prefill

Actual Study

Initially, all participants (study and control group) sent an email link online questionnaire to complete the study tools before implemented the program, and the data was statically analyzed before applied the simulation program.

I-Designing and development phase

The design phase involve planning and structure of the simulation program, choosing the contents based on reviewing of related literature, results from the study tools before the simulation program and the past routinely questionnaire that applied yearly by faculty of nursing to measure students' evaluation about psychiatric nursing course, the researchers selected the common topics that carried false beliefs and misconceptions such as schizophrenia, ECT , seclusion and restrain of psychiatric patients, psychotropic drugs and most common disorder among youth people such as eating disorders, anxiety disorders.

The SBLP was designed according to Bloom's taxonomy, that following the cognitive, affective and psychomotor domains. The cognitive domain is related to knowledge, comprehension, application, analysis and evaluation of knowledge; the affective domain relates to feelings and attitude, concerning how students receive, respond, value a fact or phenomenon; and the psychomotor domain refers to capabilities and specific physical abilities, as well as the transformation of theory into practice using mechanisms of perception, response, and performance. Based on these three main domains, the learning objectives, method of teaching, learning activities that used by lectures and students were determined.

The researchers reviewed many of scientific videos that accessible on internet, through program named by Plotagon story downloaded from Google store. They selected some of them and made modification and redesigned through changing the hero voices and translated English language to Arabic, some scenes were cut and other were shortened, and paste some scenes together, and focused on the scenes that show psychiatric symptoms, additionally making some changes in heros' faces in the story, those modification were applied by using modern smartphone version , furthermore the researchers prepared interesting narrative story for telling before presentation scenes about psychiatric illness.

The maximum duration of each videos' scene was fifteen min except video restated to schizophrenia disorder the researcher guided by film of beautiful mind, and summarized 30 min.

Implementation phase

I-The SBLP for study group

Initially, all participants (study and control group) sent an email link online questionnaire to complete the study tools before implemented the program.

The SBL Pwas applied by using Microsoft office team program,it involved six sessions, two session per week, the duration of each session was one and half hours. The study group was divided into six small subgroups (25 students for each), each subgroup attended as the same time on line classrooms. The volunteers' clinical instructors and lectures were participated in the simulation sessions under supervising and guiding by the researchers. The schedule of learning sessions was short introduction about learning topic, followed by presentation video in form of separated scenes, between scenes, the discussion was simulated by open questions, the students stormed their brain for answering, the reaction and interaction between the lectures and students occurred for reaching to the best answer.

Before each session the students were asked for prepared the followed learning topic by reviewing of literature and prepared short Power Point for presentation, the duties were divided on the students, whereby three or four students were responsible about topic that planned on SBLP. those students given ten minutes for presentation their work, and the audience students encouraged for asked questions for clarification, those was applied before applied implemented designed videos in the planned schedule.

The program involved method of teaching such as: group discussion, brain storming, critical thinking, work group, self- learning, solving problems.

Learning Session of the SBLP was explained in the table (1)

Table (1): the sessions of simulated based educational program

Number of session	Topic	Videos	Learning objectives "cognitive, affect, and behavior domains
First	Introduction about simulation based education program	-----	<ol style="list-style-type: none"> 1- State the purpose of the program. 2- Recognize main leaning topics, number of sessions, and duration of each session. 3-Perform written consent for participation in the program.
second	Schizophrenia	Film of beautiful mind	<ol style="list-style-type: none"> 1- Recognized subtypes of Schizophrenia 2- Differentiate between different types of delusions & hallucination. 3- Discuss the important of trust relationship with psychiatric patients 4- Perform clinical assessment for patient with schizophrenia 5- Determine accurate nursing diagnosis. 6- Perform appropriate nursing intervention
Third	Anxiety disorders , & obsessive compulsive disorders	Four videos about specific phobia , social phobia, panic disorders, and obsessive compulsive disorders	<ol style="list-style-type: none"> 1-Identify the main differential criteria between most types of anxiety disorders. 2- Describe sings & symptoms of anxiety disorders. 3- Demonstrate assessment of patient having OCD.
fourth	Eating disorders	Two videos about bulimia nervosa and Anorexia nervosa	<ol style="list-style-type: none"> 1- - Define anorexia nervosa & bulimia nervosa. 2- Recognize signs & symptoms of anorexia nervosa and bulimia. 3- Demonstrate how to assess patients with eating disorders. 4- Explain treatment modalities to eating disorders. 5- Determine main nursing diagnosis 6- Apply appropriate interventions for patient with eating disorders
Fifth	ECT Electro-convulsive therapy & seclusion and restrain	Two videos about old and recent vision about ECT and videos about seclusion and restrain	<ol style="list-style-type: none"> 1- Recognize the right concept about ECT. 2- Describe how to care of a patient with fits. 3- Demonstrate nursing care for patient undergoing ECT (Before, during, after ECT).
Sixth	Psychotropic medication	four videos about antipsychotic drugs, anti- anxiety drugs , ant convulsive drugs, anti- depressive drugs	<ol style="list-style-type: none"> 1- Revise types of psychotropic drugs. 2- Recall description of the mechanism of action of all of psychotropic drugs. 3- Differentiate between signs & symptoms of extrapyramidal side effects. 4- Demonstrate how to give health education to patients and family about medication compliance

I-The traditional methods of teaching for control group

The control group has traditional method of teaching, where the researchers gave the same content in sex sessions, one hour for each, the researchers explained the same topics to all group in the class room (no=100 nurse students), and using PowerPoint for presentation. The researchers encourage discussion after explanation sub items of each learning topic, and clarified any confusion or misunderstanding.

III- Evaluation phase

At the end of the program the Study tools were sent through Google forms for both study and control groups on the students' Microsoft team official account.

Statistical analysis

The collected data was organized, tabulated, coded and statistically analyzed using the mean, standard deviation standard error, unpaired student t-test, the linear correlation coefficient, Analysis of variance [ANOVA] tests Paired t-test and chi-square by SPSS V19 (Statistical Package for Social Studies) created by IBM, Illinois, Chicago, USA. The level of significance was adopted at $p < 0.05$.

Results

Table (1) shows the distribution of the studied subjects regarding their socio-demographic data. No statistically significant difference was found in relation to all socio-demographic data. The absence of any statistically significant difference between the studied groups can reflect that both groups were almost matched.

Figure (1) presents the comparison between the control and experimental group regarding their perceived learning before and after simulation based learning program. Before the simulation based learning program there is no statistical significant difference between the experimental and control group ($\chi^2 = 0.004$ $P = 0.998$). After the simulation based learning program the percentage of the studied students in the experimental group who had weak perceived learning dropped to 54.67% comparing to 45.33% in the control group. Likewise 13.33% had high level of perceived learning compared to only 4.67% in the control group with statistically significant

difference between them ($\chi^2 = 68.008$ $P = 0.001$).

Figure (2) presents the comparison between the control and experimental group regarding their academic motivation before and after simulation based learning program. Before the simulation based learning program there is no statistical significant difference between the experimental and control group ($\chi^2 = 0.768$ $P = 0.529$). After the simulation based learning program the percentage of the studied students in the experimental group who had weak level of academic motivation dropped to 20% comparing to 29.33% in the control group. Likewise 46.67% had high level of academic motivation compared to only 13.33% in the control group with statistically significant difference between them ($\chi^2 = 27.391$ $P = 0.001$).

Table (2) represents the mean score of academic motivation dimensions between experimental and control groups before and after the simulation based learning program. There is no statistically significant difference between control and experimental group regarding all academic motivation subscales and total mean score before the simulation based learning program. While after, it can be noticed that there is a statistically significant improvement in the experimental group regarding total academic motivation mean score and all subscales namely; Extrinsic goal orientation, Task value, Control of learning, Self- efficacy, Test anxiety **except** the dimension of intrinsic good of orientation ($p = 0.294$).

Table (3) illustrates the mean score of perceived learning subscales between experimental and control group before and after the simulation based learning program. There is no statistically significant difference between control and experimental groups regarding all perceived learning subscales and total mean score before the simulation based learning program. While after, it can be noticed that there is a statistically significant improvement in the experimental group regarding total perceived learning mean score and all subscales namely; cognitive learning, affective

learning and psychomotor learning ($p = 0.001$ for all)

Table (4) shows the total mean score of the student's perceived self-learning in the experimental and control group before and after the simulation based learning program. It can be noticed that the mean score of perceived learning in the experimental group increased from 15.740 ± 2.470 pre intervention to 38.407 ± 3.118 post intervention with a statistically significant difference ($p = 0.001$). For the control group there is a slightly statistically significant difference pre and post intervention (15.970 ± 2.067 and 18.080 ± 2.394 respectively) $p = 0.0418$

Table (5) shows the Total mean score of the student's academic motivation in the experimental and control group before and after the simulation based learning program. It can be noticed that the mean score of academic motivation in the experimental group increased from 147.053 ± 33.983 pre intervention to 174.947 ± 28.492 post intervention with a statistically significant difference ($p = 0.001$). For the control group there is no statistically significant difference pre and post intervention (147.830 ± 39.266 and 141.960 ± 38.269 respectively) $p = 0.302$

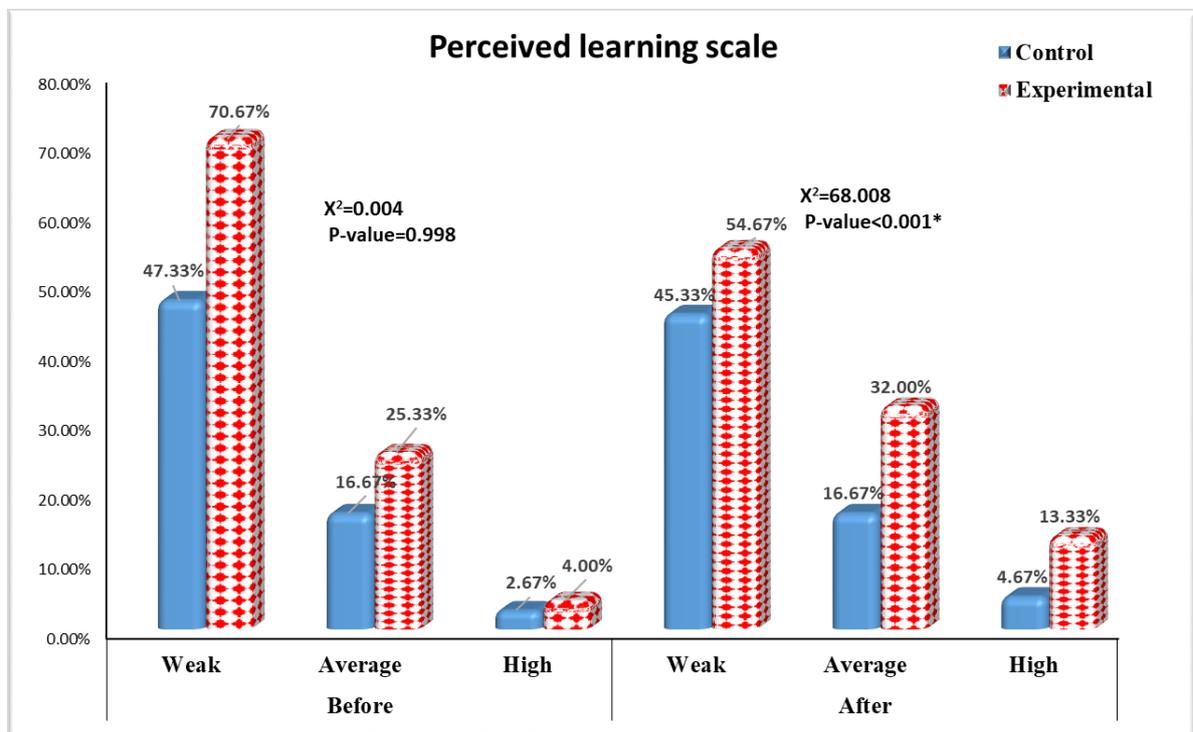
Figure (3) illustrates the student's evaluation of simulation in experimental group after the

simulation based learning program. Regarding the student's perception about the effectiveness of education with simulation it was noticed that half of the students (50%) reported that the simulation is effective in education and 36.67% reported it is highly effective and only (13.33%) reported it is weak. There is a statistical significant difference in the students responses ($\chi^2 = 31.00$ $p < 0.001$). As regards the student's perception about the difficulties in using technology in simulation education it can be observed that more than half of the students (52.67%) reported there are no difficulties in using technology in simulation education while (26.67%) reported high difficulties and only (20.67%) reported average difficulties. There is a statistical significant difference in the students responses ($\chi^2 = 26.040$ $p < 0.001$).

Table (6) illustrates the correlation between perceived learning and academic motivation in the experimental group after the simulation based learning program. There is a statistical significant correlation between academic motivation and all perceived learning subscales and total. It means improved motivation leads to improvement in cognitive, affective, psychomotor and total perceived learning ($p = 0.001$).

Table (1) Distribution of the studied subjects in relation to their socio-demographic characteristics

Demographic and clinical characteristics	Groups		Chi-square	
	Control (100)	Experimental (150)	X ²	P-value
	%	%		
Age				
19-22	56.00	61.3	0.705	0.401
23-25	44.00	38.7		
Sex				
Female	62.00	56.7	0.708	0.389
Male	38.00	43.3		
Residence				
Urban	48.00	56.67	1.479	0.224
Rural	52.00	43.33		
Prior computer simulation experience:				
Yes	38.00	43.30	0.502	0.478
No	62.00	56.70		
What computer did you use to access simulation in this course?				
Home computer	75.00	76.67	0.023	0.879
Sipper	25.00	23.33		

**Figure (1) comparison between the control and experimental group regarding their perceived learning before and after simulation based learning program.**

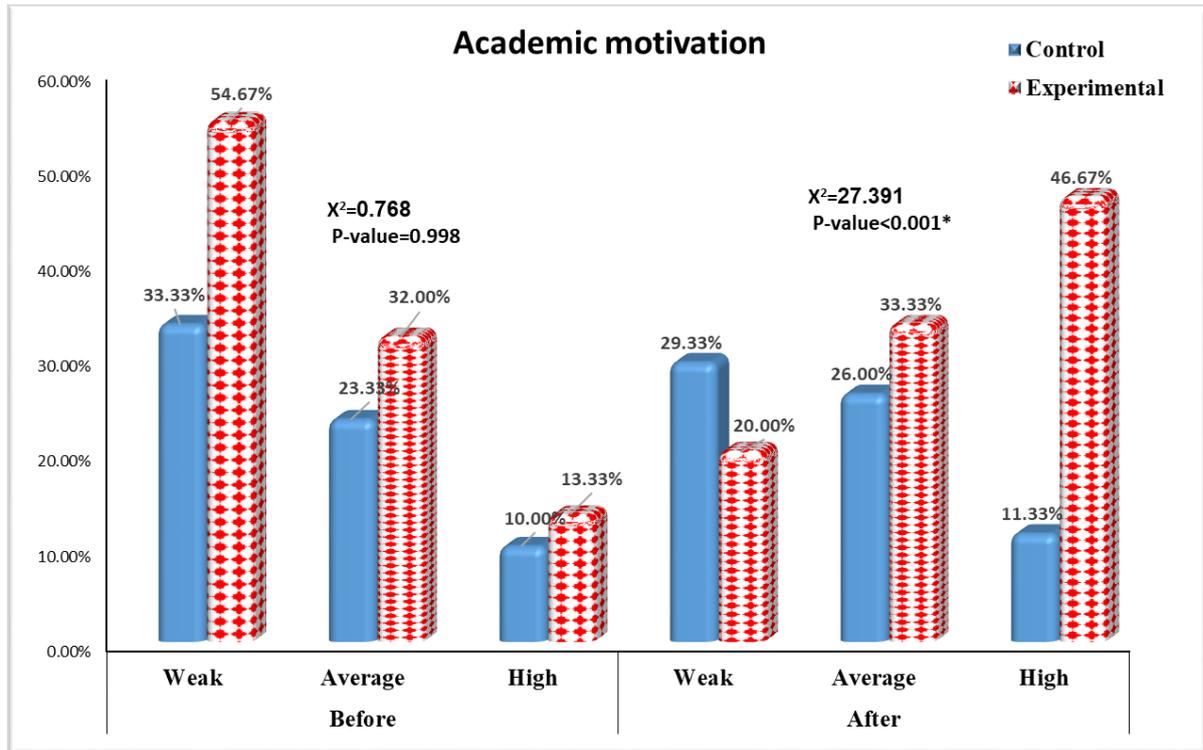


Figure (2) comparison between the control and experimental group regarding their academic motivation before and after simulation based learning program

Table (2): Mean scores' differences of academic motivation dimensions between experimental and control groups before and after the simulation based learning program

Academic motivation Scale	Before			After		
	Control	Experimental	t- test P value	Control	Experimental	t- test P value
	Mean score +SD	Mean score +SD		Mean score +SD	Mean score +SD	
I-subscale						
Intrinsic good of orientation	19.060 ±7.166	20.920±4.244	0.975 0.330	20.920 ±4.244	21.480 ±4.043	-1.052 0.294
Extrinsic goal orientation	21.470 ±6.702	21.253 ±6.670	0.251 0.802	29.240 ±10.401	23.093 ±3.924	-4.187 0.000*
Task value	30.240±10.384	31.227 ±8.592	-0.818 0.414	29.240±10.401	35.087±5.112	-5.902 0.000*
Control of learning	19.060 ±5.486	18.893 ±5.412	0.237 0.813	18.360 ±5.530	22.253±3.285	-6.976 0.000*
Self-efficacy	37.660±11.505	37.013 ±9.827	0.476 0.635	35.720 ±11.046	44.640±9.837	-6.684 0.000*
Test anxiety	20.340 ±6.631	20.487 ±5.996	-0.182 0.856	20.620 ±5.619	28.773 ±4.591	-12.565 0.000*
II-Total	147.830±39.266	147.053±33.983	0.166 0.868	141.960±38.269	174.947±28.492	7.803<0.001*

Table (3): Mean score of perceived learning subscales between experimental and control group before and after the simulation based learning program

Perceived learning scale	Before			After		
	Control	Experimental	t- test P value	Control	Experimental	t- test P value
	Mean score +SD	Mean score +SD		Mean score +SD	Mean score +SD	
Cognitive learning	5.860+1.271	6.660 +1.315	-1.775 0.115	6.500+1.322	7.800 +1.248	-7.880 <0.001*
Affective learning	5.050+0.783	6.107 +1.199	-1.972 0.092	6.030+1.159	7.940+1.238	-12.256 <0.001*
Psychomotor learning	5.060+1.127	6.000 +1.405	-1.597 0.248	6.150+1.250	7.667+1.379	-8.839 <0.001*
Total perceived learning	15.970±2.394	15.740±.470	X ² =1.905 P=0.0597	18.080±2.394	38.407±3.118	X ² =60.664 P=<0.001*

Table (4) Total mean score of the student's perceived self-learning in the experimental and control groups before and after the simulation based learning program

Perceived self-learning		Control group	Experimental group
Before	Range	12 - 21	10 - 23
	Mean ± SD	15.970 ± 2.067	15.740 ± 2.470
After	Range	11 - 23	24 - 42
	Mean ± SD	18.080 ± 2.394	38.407 ± 3.118
Difference	Mean ± SD	-0.110 ± 3.038	19.667 ± 4.015
Percent of change		0.689	144.007
Paired T-test	T	-0.362	-59.999
	P-value	0.0418*	<0.001*

Table (5) Total means score of the student's academic motivation in the experimental and control group before and after the simulation based learning program

Academic motivation		Control group	Experimental group
Before	Range	61 - 211	61 - 211
	Mean±SD	147.830 ± 39.266	147.053 ± 33.983
After	Range	61 - 194	91 - 217
	Mean±SD	141.960 ± 38.269	174.947 ± 28.492
Difference	Mean±SD	5.870 ± 56.523	27.893 ± 41.643
Percent of change		-3.971	18.968
Paired T-test	T	1.039	-8.204
	P-value	0.302	<0.001*

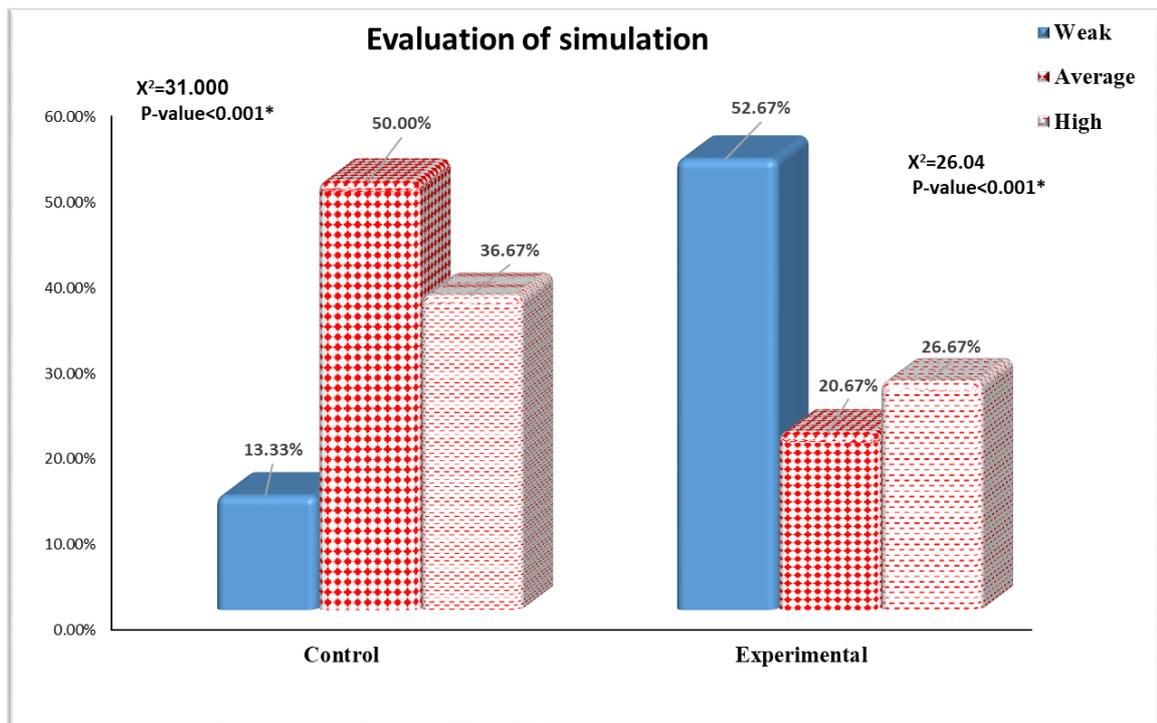


Figure (3) the student's evaluation of simulation in experimental group after the simulation based learning program

Table (6) correlation between perceived learning and academic motivation in the experimental group after the simulation based learning program

Perceived learning scale	Academic motivation	
	R	P value
Cognitive learning	0.842	<0.001*
Affective learning	0.738	<0.001*
Psychomotor learning	0.772	<0.001*
Tot al perceived learning	0.763	<0.001*

Discussion

The use of simulation in mental health education specifically has revealed overall promising findings. In health care education, Simulation refers to activities that mimic the reality of a clinical environment and that are designed for use in demonstrating procedures and promoting decision making and critical thinking.^(42, 43). Nursing students often express uncertainty about clinical placement in a mental health care setting. Simulation may provide an opportunity for students to explore clinical situations in mental health nursing before their clinical placement, thereby increasing the students' perceived learning and motivation in mental health nursing is mandatory.

Results of the present study showed that there was a statistical significant improvement in the student's perceived learning in the experimental group after clinical simulation. This may be attributed to several explanations; **firstly** the nursing students engaged positively in the sessions because the educational environment offer a diversity of learning opportunities that foster their engagement and learning. Supporting this explanation a study by **Reinke (2019)** concluded that students' perceptions of the classroom environment have been shown to influence their learning behaviors and the learning outcomes⁽⁴⁴⁾. Similarly, **Konold et al (2018); Hudson and Carrasco (2015)** reported that school climate that sustain key features of creativity, collaboration, active learning, and integrative thinking are associated with higher student learning outcomes^(45,46).

Secondly, during the simulation videos, students are forced to confront specific problems that they must overcome during session. Students accordingly have to develop deep learning rather than just surface learning^(47, 48). Surface-learning students who just memorize information have difficulty solving the hard problems of the game; it is necessary to analyze information by "linking it to already known concepts and principles, and leads to long-term retention of concepts (i.e. longer memory) so that they can be used for problem-solving in unfamiliar contexts"⁽⁴⁸⁾. Simulation-based learning can be an effective learning environment for increasing students' levels of deep learning, by critical thinking, problem-solving, decision-making, knowledge transfer and meta-analytic skills^(49, 50, 51).

Thirdly; clinical simulations may prepare undergraduate nursing students for the clinical

realities of mental health nursing by reducing levels of anxiety and fear consequently, their confidence and understanding of mental health nursing are boosted. **Finally**; the videos about the psychiatric disorders that created by the researcher with the program of Plotagon story provided students with an overview of the clinical context and challenges of daily life on a psychiatric ward. The nursing students in this study stated that these videos helped them to make the mental health clinical more clear and predictable and give them insight into the professional work that nurses do, thereby providing a good idea of what is expected when dealing with psychiatric patients. This also may reinforce their belief in themselves regarding their capability to meet the demands of the mental health clinical. All of these can contribute to enhance their perceived learning of mental health nursing.

These assumptions are supported by recent research which suggested that simulations may enhance student learning by increasing satisfaction and confidence^(52, 53, 54). Additionally **Verkuyl et al (2017)** conducted a study on Canadian nursing students' experiences of using virtual gaming simulation to perform mental health and interpersonal violence assessments⁽⁵⁵⁾. Students reported that virtual gaming simulation allowed them to learn and apply new knowledge while practicing assessment skills in a safe and realistic environment. Moreover, recent reviews of simulations with as preparation for mental health clinical placements have indicated that simulations may contribute to reducing anxiety levels, reducing/eliminating assumptions, thus increasing students' levels of self-confidence, self-awareness, and understanding of mental health nursing^(5, 56). Furthermore, **Kunst et al., (2017)** concluding that students who participated in simulations in mental health nursing experienced significantly increased confidence, knowledge, and ability in mental health care⁽⁵⁷⁾.

There was also a statistical significant improvement in psychomotor, affective and cognitive learning subscales in the experimental group after the clinical simulation. Again, simulation entails the creation of a situation in the classroom that enables the participant to act naturally, therefore replicating an environment as close to the practice setting as possible in order to facilitate skills development. The students highlighted that the simulated experience provided both a safe and realistic environment in

which to learn. They had the freedom to manage situations independently, to not worry about making mistakes and to receive constructive feedback from lecturer immediately and correct them is conceptions. **Stroup (2014)** concluded that simulation is “effective in pointing out deficits in learning and facilitating the transfer of theoretical knowledge to clinical settings⁽⁵⁸⁾. Furthermore, simulation can also aid in the development of metacognition, support self-regulation, and promote self-efficacy for students when delivered in a student-centered framework. Metacognition enables understanding, analysis, and regulation of one's cognition when engaged in learning. In the same direction several studies have shown that simulation supports psychomotor skill development and knowledge acquisition in nursing students^(59,60,61). An increasing body of evidence justifies replacing clinical experience with simulation due to its effectiveness in developing clinical competency in students.

According to the current study results, there was a statistical significant improvement in the student's academic motivation in the experimental group after clinical simulation. Simulations are seen as a way to provide learners with highly interactive, engaging, and multi-sensory learning experiences that motivate the students. Literature shows that simulation training is a source of motivation on three crucial and closely linked points. Firstly, simulation training promotes learners' self-confidence, **Codeço et al. (2020)**, found that simulation may reinforce the mastery of technical gestures and competences, and hence increase students' self-confidence. Secondly, simulation training promotes the feeling of competence⁽⁶²⁾. **Kukko et al. (2020)** indicated that through simulation training, students become aware of their strengths and weaknesses, which increases their sense of competence⁽⁶³⁾. After having experienced simulation training, students feel better trained⁽⁶²⁾. Thirdly, simulation training may promote the sense of autonomy. Learners placed in the position of decision-makers increase their feeling of autonomy⁽⁶⁴⁾ and have a more active and more motivating learning experience. The theory of self-efficacy explains the linkage between the feelings of self-confidence, competence, and autonomy. Self-confidence increases the feeling of competence: the more self-confident learners are, the more they feel competent. A competent player sees it as legitimate to play a role in

decision-making. Self-confidence thus promotes autonomy. In that sense, the interaction between the feelings of self-confidence, competence and autonomy is per se a source of motivation.

Consistent with this finding a study conducted by **Laroudie (2021)** concluded that Simulation training assigns the students an active role which is intended to strengthen their motivation⁽⁶⁵⁾. Additionally, **Burguillo, (2010)** found that simulation enhance student motivation, including competence, interest or curiosity, and efforts⁽⁶⁶⁾. Moreover, **Vos Meijden Denessen (2011)** found that the students who learned in the simulation-based learning environment demonstrated statistically significantly higher levels of intrinsic motivation than those who learned in a traditional school environment⁽⁴⁸⁾.

There is also a statistical significant correlation between academic motivation and perceived learning. Motivation, as the name suggests, is what ‘moves’ us. It is the reason to do anything at all. Learning is self-initiated, but it must be aided by motives so that the learner will persist in the learning activity. A definite motive is valuable in all subjects, as motives make for readiness. The greater the readiness, the greater will be the attention given to the subjects on hand and the sooner will the desired result be achieved. Motivation of learning activities helps the students to concentrate on what he is doing, and thereby to gain satisfaction. Continuous motivation is needed to help learners concentrate on the lessons to be learned. In the same line, a study conducted by **Bolliger, Supanakorn, and Boggs (2010)** stated that motivation is an important factor to keep students satisfied in an online classroom setup⁽⁶⁶⁾. Besides, students with high motivation will be more successful in the online learning environment than students with low motivation^(67, 68, 69).

Regarding the student's perception about the effectiveness of education with simulation it was noticed that more than half of the students reported that the simulation is effective in education. similarly a study by **Kidd and colleagues (2012a)** in the United States measured the effectiveness of virtual simulation with 126 nursing students stated that students perceived virtual simulation to be a moderately effective tool for undergraduate mental health education⁽⁴¹⁾.

Conclusion

The data obtained from current study confirmed that clinical simulation has a salient effect on improving the students' academic motivation and perceived learning in psychiatric nursing and those improved their education and prepared for qualified psychiatric nurses.

Recommendation

Based on the findings of the present study the following recommendation was suggested:

- 1- Educational staff should interested with students' perception and motivation toward learning especially in field of psychiatric nursing education
- 2- Studies should be directed toward used simulation by new technology in psychiatric education such as artificial intelligence and virtual reality.
- 3- self- learning and motivation in learning methods are important requirement for improved students' psychiatric nursing practices.

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