

## The Effect of High Fidelity Simulation on Saudi Nursing Interns' Competency of Post-Operative Care At King Abdul-Aziz University Hospital (KAUH), Jeddah

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### Abstract:

**Background:** Researches related to the high fidelity simulation (HFS) and nursing skills competencies are scant. Most of the researchers are studied knowledge, confidence, and satisfaction. Therefore, need to build a strong evidence data base regarding the effect of HFS on technical and nontechnical skill competences in nursing education to arise a competent nurse. This study seeks to find out the effect of using HFS mannequin Sim-Man 3G on nursing intern's skills competency using postoperative scenario.

**Method:** A quasi-experimental, pre/post-test design used in this study with one group of (n = 32) nursing interns pass through three phases of simulation (briefing phase, actual practical phase and debriefing phase) with one scenario. Data collection period was between September 2014 to December 2014.

**Result:** There are significant statistical differences between pre and post test competency in all five domains (P=.000).

**Conclusion:** Using HFS improve students' performance in post-test competency, indicating the effect of HFS as a new innovative method to be use with hospital nursing orientation program to improve students' outcome and patient safety through practice in safe area before going to actual patient setting.

**Recommendation:** Increase awareness of nursing educators and administrators related to using HFS to be included in nursing curriculum at college. Activate using HFS mannequins in nursing education within hospital orientation programs to incorporate all three learning domains and not only concentrating in psychomotor skills.

**Keywords:** High fidelity simulation, nursing interns, competency, patient case scenario, Post-operative care.

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### I. Introduction

For a long time, higher education has used lectures as a keystone to educate nursing students clinical practice in the colleges then practice in a static labs using fragmented topics, after that apply the practical part directly in the hospitals on a real patient<sup>(1,2)</sup>. But, nowadays this old teaching method has changed due to challenges emerging in nursing education that divert lecture content to other innovative teaching method. Those challenges are fewer clinical sites, shortage of nurse educators<sup>(3,4,5)</sup>, presence of technology, patient safety, medical errors, need of evidence based practice, and presence of accreditation agencies to improve students and patients' outcome<sup>(6,7)</sup>. Regarding the presence of nursing shortage, a study done by<sup>(8)</sup> showed that " Saudis today still comprise only 29.1% of the total nursing workforce". Therefore, nursing departments in hospitals need to hire well prepared nursing graduates to work with patients independently instead of giving her a mentor with a long orientation period<sup>(1,9)</sup>.

The twenty-first century is the era of active learning in nursing education, concentrating on the student not the educator to enhance knowledge digestion and prepare them to be competent, able to engage in critical thinking, decision making, problems solving, communicate effectively, prioritize patient needs, manage time, and practice by allowing them to put hands-on in a safe area<sup>(10,11,12)</sup>. According to (Shinnick & Woo, 2013)<sup>(13)</sup> students learn better through experiential learning rather than sitting in a traditional lecture

National League for Nursing (NLN) has called for nursing education transformation from old, traditional, and past practices to keep pace with the new era that is full of new educational strategies which have an impact on clinical nursing practice<sup>(14)</sup>. Besides the NLN, different institutions and authors called for the transformation to decrease the gap between theory and practice by using different kinds of new teaching method. One of them is simulation, to enhance student understanding of procedures that exactly should be done in the hospital with a real patient by practicing before on a situation mimic the reality<sup>(9)</sup>.

Nursing orientation programs need to be modified so that they are involving students to become active participants instead of passive audience, using different educational strategies suitable to the learning needs and allow for the easy transfer of knowledge and skills that have been taught from short to long term memory that enable them memorize it in actual clinical settings. Nursing interns have "theoretical knowledge, but having difficult to transfer and correlate that knowledge into practice"<sup>(6)</sup> They should learn to prioritize patient needs from the most important to the least, because they straggles when facing real patient in clinical setting if they are not well prepared before <sup>(15)</sup>. Therefore, innovative educational method should be used during orientation program such as, simulation to practice clinical procedures and doing their competencies before going to actual setting to permit mistakes in a safe area without harm to a real patient, motivate critical thinking, and decrease the gap between theory and practice <sup>(16,17)</sup>.

Simulation is applicable to all health care providers used as continuing education for staff, as well as, clinical practice for the students. It is used in undergraduate programs for practicing basic clinical skills such as, taking history, physical examination and communication. For the staff development it is used for evaluating teamwork, clinical procedures, training for crisis management, and testing new clinical equipment <sup>(18)</sup>, also it can be used in rare procedures that would not happen all of the time or in critical situation such as trauma <sup>(7)</sup>. Simulation is the future educational method <sup>(19)</sup> to evaluate clinical competencies for all nursing students, interns, newly staff, or continuing education for registered nurses <sup>(6)</sup>.

Regardless of the benefits of using simulation as mentioned by great deal of research which clearly indicates that HFS contributes to nursing education <sup>(20)</sup> and makes students become competent in clinical practice, this new teaching method may not suit all nursing colleges due to the need of personal and financial resources <sup>(15)</sup>. Also some faculty members are fearful of using HFS as a teaching method due to the complexity and time required to learn it before using it with students <sup>(1)</sup>. The aim of this research study is to determine the effect of high fidelity simulation on Saudi nursing interns' competency in post-operative care.

## II. Methods

A quasi-experimental, pre-test/ post-test design was used with one group for this study. This study was conducted in the clinical skills center at King Abdulaziz University Hospital (KAUH), Jeddah. A nonprobability convenience sample of (n=32) female nursing interns was recruited by the Undergraduate training coordinator and agreed to participate in the study. This nonprobability sampling was used due to difficulty to obtain random sample. In the current study the inclusion criteria were female, Saudis, nursing interns in the hospital, bachelor degree and volunteer. Data collection was carried out in the period from September 2016 to December 2017. The data collection instrument has been chosen to be used in this study was postoperative skills competency checklist, it consisted of the following two parts:

**Part I:** Demographic Characteristics :Developed by the researcher which was includes age, marital status, GPA, Period of internship, place of graduation, clinical working area, previous experience in simulation training, and previous experience with postoperative car

**Part II:** Skill competency checklist. Checklist of assessments and interventions for post-operative care competency were used in this study that is developed by (Cambell & Daley 2008)<sup>(21)</sup>. Permission to use the checklist was obtained from the publisher Copyright Clearance Center (CCC) electronically. The original checklist composed of 31 statements rearranged to be in 5 subscales; communication, assessments, critical thinking, intervention, and patient education. This rearrangement done according to (Decker, Utterback, Thomas, Mitchell, & Sportsman, 2011)<sup>(22)</sup> definition that competency should incorporate knowledge, technical and non-technical skills, communication, critical thinking, attitude, and self-confidence<sup>(23)</sup>

**Part III: Case scenario** is also developed by (Cambell & Daley 2008) <sup>(21)</sup>. Changes was made in the original scenario to fit our culture which are the name of the patient from Mr. Joshua Rivera to Mr. Nasser, and the Doctor name from Dr. Lange's to Dr. Omar. Type of the IV solution were change from (D5NS) to (D5 0.45% NS) because patient were hypertensive. The patient in the original scenario was on clear liquid diet changed to NPO because patient is 12 hours post appendectomy The data collection journey was started by a series steps of filling applications to obtain written approval from the biomedical ethics research committee at KAU (Reference No. 1334-13). After that, arrangement done with undergraduate training coordinator to have a meeting with the interns to explain the study and signing consent for agreement enrollment in the study, at the same time arrangement was done with CSC for booking the simulation room, debriefing room, HFS SimMan3G, as well as the clinical technicians to work with them. After obtaining the participants agreement a paper containing a simulation schedule dates was rotated between the subjects to be in groups of minimum 4 and maximum 8 students and chose a date that is convenient with their clinical schedules. Contact numbers were

taken from the subjects to contact them at the date of the study. At the date of the study the subjects were welcomed to the CSC and a tag with numbers started from 1 to 34 were distributed between the subject each week for confidentiality instead of calling the subjects by name calling them by numbers and to facilitate collecting pre with post test for each subject. The study day start from 8:00 am until 2:00 pm Official approval was obtained from KAUH administrations to collect data. Application were sent to the nursing education office and then to the biomedical ethics research committee to obtain written approval. Ethical codes of conduct were strictly adhered to at all stages of the study. All data coded using serial number to remain strictly anonymous and confidential. A written consent obtained from all nursing interns was participated in the study and copy of the consent given to them for enrollment agreement. The data was coded, entered, verified and analyzed on a personal computer using the Statistical Package for Social Science (SPSS) version 21. Descriptive statistics, including measures of central tendency such as mean and measures of variability such as standard deviation were done in all measures. Demographic data were presented in form of frequencies and percentage. Inferential statistics used paired difference t-test to compare between two means in pre and post-test for the same group. Chi-square test was used to compare qualitative variables and Pearson's correlation coefficient (r) to compare continuous quantitative variables. Statistical significant deference was considered at P- value < 0.05.

### III. Results

Table (1) presents the socio-demographic characteristics of the participants, it showed that the majority of the participants were in the age between 23-25 years old, from King Abdelaziz University (KAU), and spent about 5-6 months of the internship duration (96.9%, 87.5% and 87.5%) respectively, while regarding the marital status data illustrated that more than two thirds of the participants were single. Meanwhile around two thirds of the participants had a past experience in both simulation labs and postoperative care (65.6% and 62.5% respectively).

Table (2) presented a comparison between the student's performance in post operative care pre and post competency test, it showed that student's performance get better proved by the average (or the mean) of the student's performance increased for the post test than the pre-test in all domains. Also, the standard deviation become smaller for the post test than the pre-test for all domains which mean that the data become more homogeneous than before.

From Table (3) of the Chi-Square tests of the pre-test, indicates that some p-values are less than 5% level of significant which means there is a significant relation between the communication performance and each of their marital status, place of studying, previous exposure to clinical sessions in simulation and previous experience with postoperative care. The results of Chi-Square tests of the post-test indicate that there is no significant relation between the communication skills and any demographic data. Also data presented in the table illustrate a significant relation between the assessments of the performance and both of their marital status and the previous exposure to clinical sessions in simulation. The results of the Chi-Square tests of the post-test indicate that there is a significant relation between the assessments and subjects previous exposure to clinical sessions in simulation and previous experience with postoperative care.

The results in Table (4) proof the significant relation between the critical thinking domain of the performance checklist and both of their marital status and the previous exposure to clinical sessions in simulation. In addition, the results of the Chi-Square tests of the post-test indicate that there are significant relations between the critical thinking domain of the performance checklist and place of studying not in King Abdul-Aziz University, their previous exposure to clinical sessions in simulation and previous experience with postoperative care. Regarding the intervention, Chi-Square tests of the pre-test, indicates that some p-values are less than 5% level of significant, which means there is a significant relation between the Intervention domain of performance checklist and each of the students studied at King Abdul-Aziz University, different universities and place of clinical area working. Similarly, there is a significant relation between the intervention domain of the performance checklist and their clinical working area.

Data presented in Table (5) showed the Chi-Square tests of the pre-test shows that some p-values are less than 5% level of significant which mean there is a significant relation between the patient education and each of place of studying and previous experience with postoperative care. Finally, there is a significant relation between the patient education and students graduated from King Abdul-Aziz University in post test. Table (6) showed that there were no relation in the five subscales according to age, overall GPA, and period of internship, however, there were highly significant relation between communication and age score in pre-test using Pearson's test (r) with p-value less than 0.05 level ( $r = -0.374$ ,  $p = 0.035$ ) with inverse relationship which means that when age increase communication become less.

### IV. Discussion

Researches regarding HFS and competency in nursing skills are scant<sup>(24)</sup>. Most of the researchers studied knowledge, confidence, satisfaction and safety<sup>(25)</sup>. Therefore, this study seeks to find out the effect of using HFS mannequin SimMan 3G on nursing interns' performance in both technical and nontechnical skills

competency using postoperative scenario before and immediately after simulation. Also many studies mentioned about the effectiveness of using HFS as a teaching method, then moved to use HFS as an evaluating method to evaluate student performance in skills competencies and critical thinking <sup>(24)</sup>.

In technology era nursing school are not only concentrating in psychomotor skills in their clinical labs but also looks for other learning domains that can put the students in real situation before going to actual patient care setting. The trend is to graduate a competent nurse able to give good quality care, avoid any harm to the patient and decrease burden on hospital staff who teach them again procedures regarding each ward. Using HFS in nursing collage and in hospital orientation program can bridge the gap between theory and practice by using all aspects of learning domains. However, this need further researches to evidence that this teaching method is helpful in nursing education.

Most of the study subjects who participate are students at KAU within twenties years old in their final internship year and two third of them are single, while half of the subjects gain GPA scores of very good. Majority of them spent from 5 to 6 months in internship program. Regarding to the experience of the study subjects more than two thirds has experience in both simulation lab and postoperative care.

The current research discussed the effect of using HFS on improving postoperative care competency among nursing interns and found that there is a significant statistical difference in pre and post test scores evidenced by increase in mean scores on post test competency interns' performance in all five domains. "Delivery of postoperative surgical care is a complex task" according to <sup>(26)</sup> therefore, non technical skills such as (communication and teamwork) are important as technical skills (performance). The study findings in communication domain are significant and consistent with (Paull et al., 2013)<sup>(26)</sup> study and (Lewis, Strachan, & Smith, 2012)<sup>(27)</sup> review, beside improving communication also improve students critical thinking and decision making. Also, this comes in line with (Frontiero & Glynn, 2012)<sup>(24)</sup> who said that simulation improve critical thinking and competencies. Therefore, using HFS can improve communication skills which lead to decrease risk for patient harm. This study revealed significant findings in both technical and nontechnical skills used during postoperative care as congruent with (Gordon & Buckley, 2009)<sup>(25)</sup> who report a high confidence in identify priorities and initiate intervention with acutely ill patients. Meanwhile, (Garbee et al., 2013)<sup>(28)</sup> illustrated that using HFS to assess teamwork competencies and communication using critical ill patient scenario in ICU had significant difference in mean scores and t-test which significantly increase from scenario one to two.

In contrast, Siassakos et al. (2010)<sup>(29)</sup> study contradicts with current study that result showed no relationship between team performance and three learning domains knowledge, skills, and attitude using obstetric scenario. Also (Maneval et al., 2012)<sup>(30)</sup> study showed that there is no significant difference between control group and HFS group within orientation in critical thinking and decision making but there is increase in mean scores in pre and post test for both. (Gordon et al., 2013)<sup>(25)</sup> study shows that there are no significant difference in independent t-test between control and intervention group in blood pressure accuracy, however the intervention group have significant in confidence and technical ability of measuring blood pressure. On the other hand (Shinnick & Woo, 2013)<sup>(13)</sup> showed in their study that there is a statistical significant in knowledge when using HFS but no statistical significant in critical thinking.

In current study there is a significant relation between age and using HFS not in all domain but only with communication domain in pre-test and assessment domain in post-test competency when using person correlation test which is inverse relationship when age increase communication and assessment decrease with the patient which supported by Mould et al. (2011) <sup>(5)</sup> said that according to many previous report's findings regarding age that younger students benefit more from HFS but in their study there were no difference in confidence and competence with age. This could be due to older age gain experience before doing simulation and communicate less than younger age that need to communicate and do assessment well to know patient problems this comes in line with (Mould et al., 2011)<sup>(5)</sup> who said that experience affect student competence and confidence therefore the more experience student the greater chance of improving competence and confidence. The results showed that there are significant correlations between communication domain and qualitative demographic data in pre test which are marital status, KAU students, previous experience with simulation and postoperative care while there are no significant correlation in post-test. This could be due to using same single scenario in the pre test so the subjects are expected what to ask the patient therefore no improvement in post test. In accordance to (Yaun et al 2014)<sup>(12)</sup> study that students with greater nursing experience have significant higher scores in both pre and post survey in communication and technical skills in determining a deteriorating patient. The result shows that there are significant correlations between assessment domain and qualitative demographic data in pre-test which are marital status and previous experience with simulation while there are significant in post-test in both previous experience with simulation and postoperative care. In congruent with (Radhakrishnan et al., 2007)<sup>(31)</sup> study shows an improvement of students' performance in assessing and monitoring vital signs. The students who have experience and familiar with simulation before perform well in assessing the patient in pre and post test. While in previous experience with postoperative care there are no significant in pre test, this could be due to that students came from different ward and some of the

students still do not handle surgical patient therefore they don't know how to assess surgical patient. After interactive session was done and students knows how to assess surgical patient there are significant in post test. In addition, there are significant correlation between critical thinking domain and qualitative demographic data which are marital status and previous experience with simulation in pre test while in post test there are significant in students from other universities and previous experience with both simulation and postoperative care. This comes in line with (Loke, Lee, Noor, & Loh, 2014) <sup>(31)</sup> who found a significant relation between decision making and previous experience with HFS and they argue that this significant could be due to receiving clinical simulation session while they are undergraduate students at nursing collage. In contrast (Maneval et al., 2012) <sup>(30)</sup> showed in their study that there is no significant relation with previous experience and critical thinking using simulation. The students from other universities show improve in critical thinking in post test which mean they benefit from using HFS. Based on the current study findings there are significant relation between marital status and communication, assessment, and critical thinking domains in pre test competency, but chi-square test don't reveal in which group the significant is either married or single. When searching the literature nothing was found related to the marital status. This could be related to the Saudi culture that encourages communication with each other.

Intervention domain shows that there are significant correlation with KAU students, students from other universities, in pre test. In contrast with (Aronson et al., 2012) <sup>(33)</sup> who shows that there are no significant relationship in their study between demographic data and the domains of patient safety, communication, assessment, intervention, and documentation. In pre test both students were significant in intervention this could be due to same skills to be done with the patient have been taught in any university such as giving pain killer to the patient and evaluate pain response. On the other hand there are no significant in post test this could be due to using same scenario so the students are expected what intervention will be done to the patient. Therefore, there should be more than one scenario in the study to let the student discover each time new problems and try to solve. Regarding the clinical area that interns come from there is significant only in intervention domain in both pre and post test, this could give us a light that student from all areas benefit from using HFS and improve in intervention domain and specifically those who finish their rotation in surgical ward due to large number of one-fourth of study sample.

The last domain is patient education shows that there are significant correlation with KAU students and previous experience with postoperative care while there is only significant with KAU students in post test competency. This could be due to familiarity to the place because CSC is same like any patient ward in KAUH. The scenario have been used are surgical scenario therefore the students that have previous experience with postoperative patient have significant in pre test with patient education domain, while there are no significant in post test this could be as mentioned before due to using same scenario and students expected what to instruct a patient undergone surgery.

In the light of this study's findings, it is concluded that using HFS with nursing interns at KAUH improved their performance in all five domains of postoperative care competency. Nursing interns shows enthusiastic when interacting with SimMan 3G due to high realistic situation. High fidelity simulation is a useful method to help students practice nursing care with common or rare scenarios in a safe area. So we recommended that Increase awareness of nursing educators and administrators related to using HFS to be included in nursing curriculum at college. Activate using HFS mannequins in nursing education within hospital orientation programs to incorporate all three learning domains and not only concentrating in psychomotor skills

#### **Limitations of the study :**

- 1- This research study included a convenience small sample size of 32 nursing interns with similar demographic characteristics, from a single school of nursing KAU in the western province of KSA and conducted in one hospital. Therefore, the results may not be generalized to other hospitals in the kingdom. The current research used a small sample size according to the design and therefore a pilot study could not be done.
- 2- The competency that have been used are dichotomous scale which restrict the researcher to that point while during simulation another care and intervention could have been addressed by the participants. Also, the tool was completed by the researcher and there was no self reporting tool used by the participants which may be considered for in future research
- 3- The current study has only a single scenario that affects some of the results in the post-test domains and gives the nursing intern's expectations about the same question to be asked about the patient during performing nursing assessment and intervention.

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**Table (1)** Socio-demographic characteristics of the students

Personal Characteristics	Frequency (n=32)	Percent %
Age: 23-25	31	96.9

26-28	1	3.1
<u>Marital status:</u>		
Single	22	68.8
Married	10	31.3
<u>University:</u>		
KAU (king Abd-Alaziz University)	28	87.5
Others	4	12.5
<u>Internship duration:</u>		
Less than 1 month	1	3.1
1-2 months	1	3.1
3-4 months	1	3.1
5-6 months	28	87.5
More than 6 months	1	3.1
<u>Previous experience :</u>		
<u>Simulation lab:</u>		
Yes	21	65.6
No	11	34.4
<u>Post –op care :</u>		
Yes	20	62.5
No	12	37.5

**Table (2)** Comparison between the student’s performance of the pre-test and post-test (mean & SD)

Domains	N	Pre-test		Post Test	
		Mean	Std. Deviation	Mean	Std. Deviation
Communication	32	0.6953	0.4709	0.9609	0.09223
Assessments	32	0.3633	0.0997	0.7236	0.1138
Critical thinking	32	0.4018	0.1471	0.5714	0.1740
Intervention	32	0.3080	0.1958	0.7500	0.2177
Patient education	32	0.0893	0.1346	0.3616	0.2295

**Table (3)** Relation between communication& assessment and demographic data in pre and post-test

Chi-Square Tests							
Domains	Demographic Data	Pre-test			Post-test		
		$\chi^2$ Value	Df	Sig.	$\chi^2$ Value	Df	Sig.
Communication	Marital status	7.356	3	0.046*	.211	1	0.323
	King Abdul-Aziz university students	0.544	3	0.048*	.305	1	0.495
	Students from other universities	9.973	12	.618	5.994	4	0.100
	Previous experience with simulation	7.685	3	0.027*	.543	1	0.231
	Previous experience with postoperative	0.152	3	0.028*	1.238	1	0.132
Assessments	Marital status	11.830	6	0.033*	6.400	9	0.699
	King Abdul-Aziz university students	7.238	6	0.299	6.029	9	0.01
	Students from other universities	14.238	24	0.47	26.00	36	0.890
	Previous experience with simulation	13.516	6	0.036*	18.332	9	0.015*
	Previous experience with postoperative	2.524	6	0.433	3.492	9	0.021*

\*Statistical significant at p< 0.05

**Table (4)** Relation between critical thinking & Intervention and demographic data in pre and post-test

Chi-Square Tests							
Domains	Demographic Data	Pre-test			Post-test		
		$\chi^2$ Value	Df	Sig.	$\chi^2$ Value	Df	Sig.
Critical	Marital status	6.622	5	0.008**	0.762	3	0.858
	King Abdul-Aziz university students	2.395	5	0.386	2.982	3	0.394
	Students from other universities	2.395	20	0.5	19.047	12	0.0435*

Thinking	Previous experience with simulation	7.550	5	0.041*	6.742	3	0.0405*
	Previous experience with postoperative	6.020	5	0.304	5.107	3	0.00**
Intervention	Marital status	2.078	5	0.419	6.012	5	0.153
	King Abdul-Aziz university students	6.602	5	0.026*	0.381 <sup>a</sup>	5	0.497
	Students from other universities	37.612	20	0.010*	13.381	20	0.43
	Previous experience with simulation	4.848	5	0.435	4.294	5	0.508
	Previous experience with postoperative	6.006	5	0.153	4.267	5	0.512

\*Statistical significant at  $p < 0.05$ \*\*Statistical significant at  $p < 0.01$

**Table (5)**Relation between patient education and demographic data in pre and post-test

Chi-Square Tests		Pre-test			Post-test		
Domains	Demographic Data	$\chi^2$	Df	Sig.	$\chi^2$	Df	Sig.
		Value			Value		
Patient Education	Marital status	1.405	3	0.352	3.559	6	0.736
	King Abdul-Aziz university students	11.683	3	.009**	6.411	6	0.05*
	Students from other universities	11.683	12	.472	26.519	24	0.327
	Previous experience with simulation	4.106	3	0.125	5.518	6	0.479
	Previous experience with postoperative	2.457	3	0.035*	5.444	6	0.488

\* Statistical significant at  $P < 0.05$ \*\* Statistical significant at  $P < 0.01$

**Table (6)**Relation between age, GPA & period of internship and the pre& post -test performance

Domains	Demographic Data pre-test					
	Age		Overall G.P.A.		Period of internship	
	Pearson Correlation	Sig.	Pearson Correlation	Sig.	Pearson Correlation	Sig.
Communication	-.374	.035*	.011	.953	.104	.570
Assessments	-.207	.255	.184	.312	.091	.619
Critical Thinking	.033	.857	-.006	.974	-.043	.814
Intervention	-.154	.400	-.313	.081	.097	.599
Patient Education	-.121	.509	.093	.613	.057	.757
Domains	Demographic Data post test					
	Age		Overall G.P.A.		Period of internship	
	Pearson Correlation	Sig.	Pearson Correlation	Sig.	Pearson Correlation	Sig.
Communication	.077	.674	.076	.678	-.230	.205
Assessments	-.406	.021*	-.062	.737	-.061	.738
Critical Thinking	-.150	.413	-.041	.823	.078	.671
Intervention	-.030	.871	.049	.789	.164	.370
Patient Education	-.060	.743	-.166	.365	.138	.451

\* Statistical significant at  $P < 0.05$

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