

Effect of Emergency Obstetric Protocol on the Performance of Interns Nursing Students

Ezz, I., Shadia, H., Sabah, M., Eman, M⁴.

¹M.SC. Nursing, ^{2,3,4}Prof. of Maternity & Neonatal Nursing, Faculty of Nursing, Ain Shams University

Abstract

Background: obstetric emergencies are life threatening medical condition that occurs during pregnancy, labor, or in the postpartum period. Moreover, internship offer carefully planned, monitored work experience which allow the opportunity to apply knowledge and skills in a professional setting. **Aim:** to evaluate the effect of emergency obstetric protocol on the performance of intern nursing students. **Subjects and Methods:** a quasi experimental design was utilized. **Sample:** a convenient sample, all female intern nursing students (100) in the technical institute of nursing, faculty of nursing Ain- Shams University in the academic year (2019/2020) and Purposive sample, 59 conscious women with obstetric emergencies who agreed to participate in the study and with non co- morbid condition. **Setting:** The study was conducted in technical institute of nursing faculty of nursing and in emergency unit, intensive care unit and labor unit of maternity hospital Ain- Shams University. **Tools:** **Tool 1** self- administered structured questionnaire sheet, **Tool 2** observational checklist **Tool 3** maternal satisfaction questionnaire sheet. **Results:** showed statistically significant improvements in intern nurses' knowledge and practical skills related to emergency obstetric care immediately post protocol intervention and in follow up phase and increase women satisfaction level toward care provided by intern nurse, **study confirmed** statistically significant positive correlation between intern nurse's knowledge and practice related to emergency obstetric care post intervention and statistically significant positive correlation between intern nurse's knowledge, practice and women satisfaction post protocol intervention. **Conclusion:** Implementing emergency obstetric protocol had a positive effect on the performance of intern nursing students. **Recommendations:** Dissemination of emergency obstetric protocol for all intern nursing students in technical nursing institutions this will be effective in improving their performance.

Key words: Emergency Obstetric Protocol, Performance, Interns Nursing Students.

Introduction

Obstetric emergencies are life threatening medical condition that occurs during pregnancy, labor, or the postpartum period. Every day around the world, approximately 830 women die from preventable causes related to pregnancy and childbirth (WHO, 2015).

Additionally, there are a variety of obstetric emergencies that can threaten the well-being of both mother and child as, ectopic or tubal pregnancy, abruptio placenta, placenta previa, sever preeclampsia & eclampsia or pregnancy induced hypertension, premature rupture of membranes, amniotic fluid embolism, inversion or rupture of uterus, placenta accreta, prolapsed umbilical cord, shoulder dystocia, postpartum hemorrhage, obstetric shock and postpartum infection (WHO, 2015).

Meanwhile, reducing maternal mortality is a major public health concern and arrived at the top of the health and development agendas and also one of

Millennium Development Goals (MDG). So, multiple strategies are required to reduce the maternal mortality, one of these strategies is to make emergency obstetric care acceptable, accessible, and available to women and their families (Abdelhakm and Said, 2017).

Also, creating protocols regarding obstetric emergencies is very important to provide the highest quality less cost efficient nursing care and increase satisfaction of clients. Moreover, nurse interns should be highly knowledgeable and well-trained caregivers for the overall safety and wellbeing of women. Building knowledge and practical skills are considered as a powerful tool for performance improvement and to maintain the efficiency of any health care organization (Otolorin et al., 2018).

Meanwhile, the mission of nursing education is to produce qualified nurses with the requisite knowledge, attitudes and skills. Moreover, internships offer carefully planned, monitored work

experience which allow students the opportunity to apply their knowledge and skills in a professional setting.

Significance of the study:

Every day around the world, approximately 830 women die from preventable causes related to pregnancy and childbirth. More addition, almost all maternal deaths (99%) occur in developing countries. The maternal mortality ratio in developing countries in 2015 is 239 per 100 000 live births versus 12 per 100 000 live births in developed countries. In Egypt the maternal mortality ratio was 33 deaths/100,000 live births, per year (WHO, 2015). In (2017), the flow rate of cases in emergency care unit El Demardash maternity is 14000 cases per year.

In order to assist interns nursing students to be competent in delivering emergency obstetric care for high risk women, developing nursing management protocol for common emergencies obstetric cases will be applied for intern nurse students to update and upgrade their knowledge, skills and to be reference guide whenever needed. Also, acquire the values, attitudes, increases confidence in knowledge, improves clinical skills, decision making, clinical judgment and critical thinking (Abdelhakm and Said, 2017).

Intern nursing students play very important role in the future for nursing profession and their training regarding this important issue will improve their skills and their profession as they considered the foundations for nurses in the future who will have a direct responsibility for caring of women with emergency obstetric problems and help for prevention and control of any obstetrics complications, this would have impact on decrease maternal mortality and improve women health. Finally a high quality performance of nurse would save much of the direct and indirect costs of patient care.

Aim of the study:

To evaluate the effect of emergency obstetric protocol on the performance of intern nursing students.

Research hypothesis:

Implementing of emergency obstetric protocol will enhance the performance of interns nursing students and increase patient satisfaction

level regarding nursing care provided by the interns nursing students.

Subject and methods:

Research design:

A quasi- experimental design was utilized to conduct this study. Quasi-experimental design is an empirical interventional study used to estimate the causal impact of an intervention on target population without random assignment. Quasi-experimental design aims to establish a cause-and-effect relationship between an independent and dependent variable (Crossman and Ashley, 2020).

Setting:

The study was conducted in study teaching rooms, classes and in lab of the technical institute of nursing, faculty of nursing Ain- Shams University and in emergency unit, intensive care unit and labor unit of maternity hospital Ain-Shams University

Subject:

Type of sample and size:

1- Convenient sample was obtained. All female intern nursing students (100) in the technical institute of nursing, faculty of nursing Ain- Shams University in the academic year (2019/2020). Convenience sample is a non-probability sample in which the researcher uses the subjects that are nearest and available to participate in the research study (Crossman and Ashley, 2020).

2- Purposive sample also was obtained. (59) Conscious women with obstetric emergencies condition who agreed to participate in the study, with stable condition and with non co- morbid condition after received care in emergency unit, intensive care unit and labor unit of maternity hospital Ain- Shams University.

Tools of data collection:

Tool 1: Self- administered structured questionnaire sheet: which included two parts, the researcher developed questionnaire sheet after reviewing the current related literature (Lynna and Joan, 2013), (Pagana & Pagana, 2018).

Part 1: General characteristics of the study sample included the questions from (Q1 to Q5). **Part 2:** assessed intern nursing students' knowledge

regarding obstetric emergencies, included questions from (Q6 to Q20) complete questions.

Scoring system: Complete correct answer scored as (3), Incomplete correct answer scored as (2), Incorrect answer or did not know scored as (1). Total answer was **satisfactory** if total score was $\geq 60\%$. Total answer was **unsatisfactory** if score was $< 60\%$.

Tool 2: Observational checklist; It was developed by researcher for evaluating nursing care regarding common obstetric emergencies. It modified from **(Royal College of Obstetricians and Gynecologists guidelines, 2016) and (Ibrahim, 2017)**. It consisted of nursing procedures and techniques for clinical practice.

Scoring system: The total practice was scored as $\geq 60\%$ was considered **competent practice** while total practice scored as $< 60\%$ was considered **incompetent practice**. Each item in the checklist was scored as

Complete correct practice scored as (3)
Incomplete correct practice scored as (2)
Incorrect practice or note done scored as (1)

Tool 3: Maternal satisfaction questionnaire sheet; interviewing patient's satisfaction questionnaire was modified by researcher after reviewing related literature from **(Nahed et al., 2013), (Diab, 2015) and (Mohey, 2016)**. It was used to measure the women's satisfaction level regarding emergency obstetric care provided by intern nurses students.

❖ Scoring system:

Each item in the checklist was scored on a four points Likert Rating Scale as: Strongly agree scored as (4), Agree scored as (3), Disagree scored as (2), strongly disagree scored (1). The total score of satisfaction was $\geq 60\%$ was considered **satisfied** while total satisfaction scored as $< 60\%$ was considered **dissatisfied**.

Supportive educational material for emergency obstetric care, it contains knowledge and practical skills related to common obstetric emergencies care. The content of the emergency obstetric protocol was designed by researcher.

Tool validity and reliability:

The tools were developed & tested through a pilot study and three jury expertise specialized professors in maternity nursing for clarity, relevance,

comprehensiveness, understanding and applicability. Reliability of the tool was tested statistically. Reliability of all questions and high value of Alpha cronbach (0.823) and also there was validity of an instrument by comparing its scores with another criterion known already to be a measure of the same skill.

Operational design:

The operational design was conducted through 4 phases included the preparatory, implemented, evaluation phase and dissemination phase:

Preparatory Phase:

Review of the past and current local and international available related literature on the various aspects of the obstetric emergencies. This review helped the researcher to be acquainted with magnitude and incidence of the problem and with the process of the tools designed, and then tools were developed

Pilot study:

A pilot study was carried out on 10% of sample size to evaluate the efficiency, validity, reliability, clarity and applicability of the tools. Intern nurses included in pilot study not excluded from the total sample as no modification of study tools were done.

Field work:

It was included the implementation of the study through incorporated the following phases as following:

- 1) Assessment phase
- 2) Implementation phase
- 3) Evaluation phase

1-Assessment phase:

The researcher attended to the technical institute of nursing faculty of nursing Ain- Shams University five days/week from 9 am to 1 pm in for two weeks (for knowledge and practical session). Firstly the researcher introduced herself to all female interns nursing student and explain the aim of the study, the sample was taken according to the list of names. Then questionnaire sheet was distributed (pre-intervention), self administered questionnaire sheet completed approximately in 30 minutes. The second step was the assessment of interns nursing students' practical skills related to emergency obstetric care by

using the observational checklist in lab using dolls and role play.

2-Implementation phase:

- Obstetric emergency protocol for caring of emergencies obstetric cases and supportive material were developed then implemented based on pre assessment.

- Four sessions for theory for all study samples, the duration of each session (60-90) minutes in study classes of technical institute of nursing.

- Different methods of teaching strategies used such as lecture, group discussion, using data show "power point presentation", figures, instructional media included, handout prepared by the researcher and distributed to all students in the first day of the program.

- Sessions for practical part was (4) sessions for each group, interns students was divided into 4 groups in each group about 25 students in each session and the content implemented for each group separately.

- The practical part was in lab of technical institute of nursing faculty of nursing Ain- Shams University, dolls and data show presentation, vides, role play, figures, to facilitate the learning and application, beside discussion, demonstration and re-demonstration for clinical procedures, The duration of each practical session was three hour, sometimes more than three hours including periods of discussion and re-demonstration according to their achievement, progress and feedback.

- The researchers went to the emergency, labor and ICU units in maternity hospital two days per week from 9.00 A.M to 1.00 P.M, the researcher stay beside the intern nurse while providing the protocol of care to women to be sure that she was conducted at perfectly.

- The time for follow up was extended for six months starting from the beginning of October 2019 till end of March 2020 (time of internship period for the sample).

Additionally, role play approach to train intern nurse on utilization of supportive material and emergency obstetric protocol in lab especially in cases of low flow rate as shoulder dystocia and cord prolapsed and if there was a mistake in skills the researcher re-demonstrated the protocol of obstetric

emergency care again to be sure that intern nurse understood the application of the protocol.

3-Evaluation phase:

In this phase the researcher had evaluated the intern nurse student; evaluation for interns nurses' knowledge and practice were done two times, immediately post protocol implementation and after one month (during distribution, training in internship period in emergency unit, maternity intensive care unit & labor unit at Maternity Hospital, Ain Shams University. In addition, the level of women satisfaction related to emergency obstetric care provided by intern students was evaluated once (after protocol implementation in follow up phase after one month).

Statistical Design:

The appropriate statistical methods and tests were used. Data were analyzed using Statistical Program for Social Science (SPSS) version 21.0. The following tests were done: Chi-square (X²) test, Pearson Correlation (R) and Alpha cronbach reliability analysis of used tool. **Probability:** P<0.05 significant differences< 0.01highly significant differences.

Results:

Table (1): shows that the age of intern nurse ranged from 20 to 21 years with mean of (20.3years). It also shows that (94%) of them were single. In addition (18.0 %) of studied intern nurses had work experience. Moreover (23%) of them were attended training course.

Table (2): This table shows statistically significant difference between pre, post immediately and follows up related to intern nurse's knowledge about emergency obstetric care except definition of obstetric emergencies was not significant.

Table (3): This table shows statistically significant between pre& immediately post, and post one month of intervention related to intern nurse's knowledge about obstetric emergencies except nursing management of shoulder dystocia was not significant.

Figure (1): Illustrates that (73%) of studied intern nurses have unsatisfactory knowledge pre intervention. While, immediately post and follow up of protocol satisfactory knowledge reached to

(93%, 87) respectively.

Table (4): This table shows there was statistically significant difference between pre, immediately post and post one month of intervention related to intern nurse's practice about obstetrical emergencies, except care of toxemia with fits was not significant difference.

Figure (2): demonstrates that (74%) of studied intern nurses have incompetent practice regarding obstetric emergencies pre implementation of the protocol. However, (92%) had competent practice immediately post and follow up implementation of the protocol.

Table (5): This table shows women's satisfaction with nursing care provided by intern nurses after implementation of emergency obstetric protocol as strongly disagree, disagree were (11.57% & 20.95%) respectively while agree, strongly agree were (33.62% & 33.41) respectively.

Figure (3): demonstrates that 71.1% of women with obstetric emergencies were satisfied with care provided by intern nurses students after implementation of emergency obstetric protocol while 28.9 % of women with obstetric emergencies were dissatisfied.

Table (6): This table shows that there was no statistically significant correlation between total knowledge and total practice pre protocol. On the other hand, there was positive statistically significant correlation between total knowledge and total practice post protocol implementation as intern nurse's knowledge increases, intern nurse's practice increase.

Table (7): This table clarifies that there was statistically significant positive correlation between total intern nurses' knowledge and women's satisfaction post intervention of protocol as intern nurse's knowledge increases, women's satisfaction increases.

Table (8): This table clarifies that there was statistically significant positive correlation between total intern nurses' practice and women's satisfaction post intervention

Table (1): Distribution of studied intern nurses according to their general characteristic study sample (N=100).

Items	No.	%
Age:		
Mean±SD		20.3±.48
Range		20-21years
Residence :		
• Urban.	50	50.0
• Rural.	50	50.0
Marital status :		
• Single.	94	94.0
• Married.	6	6.0
Training programs about emergency obstetric care:		
• Yes.	23	23.0
• No.	77	77.0
Previous experience about emergency obstetric care:		
• Yes.	18	18.0
• No.	82	82.0

Table (2): Distribution of studied intern nurses according to their knowledge about emergency obstetric care pre and post protocol intervention (N=100).

Items	Intern nurses' knowledge									x ²	p-value
	Pre			Immediately post			Follow-up after one month				
	Correct %	Incomplete correct %	Incorrect %	Correct %	Incomplete correct %	Incorrect %	Correct %	Incomplete correct %	Incorrect %		
1. Definition of obstetric emergencies.	67.0	7.0	26.0	83.0	17.0	0.0	59.0	41.0	0.0	2.704	> 0.05
2. Causes of common maternal/fetal obstetric emergencies.	54.0	8.0	38.0	89.0	11.0	0.0	89.0	11.0	0.0	4.037	<0.05*
3. Principles of obstetric emergencies care.	28.0	35.0	37.0	99.0	0.0	1.0	80.0	10.0	10.0	4.597	< 0.05*
4. Priorities of nursing care for toxemia with fits.	15.0	23.0	62.0	89.0	11.0	0.0	70.0	23.0	7.0	4.431	< 0.05*
5. Priorities of nursing care for maternal distress.	5.0	24.0	71.0	56.0	34.0	10.0	87.0	17.0	5.0	5.646	< 0.05*
6. Priorities of nursing care for fetal distress.	0.0	20.0	80.0	52.0	48.0	0.0	40.0	44.0	16.0	5.491	< 0.05*
7. Priorities of nursing care for obstetric shock.	7.0	17.0	76.0	41.0	47.0	12.0	28.0	56.0	16	3.430	< 0.05*
8. Priorities of nursing care for obstetric bleeding.	14.0	9.0	77.0	51.0	37.0	12.0	28.0	63.0	9.0	4.618	< 0.05*

Table (3): Distribution of studied intern nurses' knowledge about emergency obstetric care pre and post protocol intervention (N=100). (Continue).

Items	Intern nurses' knowledge									x ²	p-value
	Pre			Immediately post			Follow-up after one month				
	Correct %	Incomplete correct %	Incorrect %	Correct %	Incomplete correct %	Incorrect %	Correct %	Incomplete correct %	Incorrect %		
9. Priorities of nursing management of PRM.	5.0	17.0	78.0	54.0	29.0	2.0	55.0	26.0	19.0	5.01	< 0.05*
10. Priorities of nursing management of shoulder dystocia.	4.0	6.0	90.0	40.0	50.0	10.0	46.0	33.0	21.0	1.30	> 0.05*
11. Priorities of nursing management of cord prolapsed.	4.0	4.0	92.0	70.0	14.0	16.0	52.0	19.0	29.0	4.11	< 0.05*
12. Concept of triage.	0.0	17.0	83.0	73.0	18.0	9.0	51.0	26.0	23.0	4.268	< 0.05*
13. Level of triage.	4.0	3.0	93.0	66.0	23.0	11.0	60.0	29.0	11.0	5.595	< 0.05*
14. Qualifications and skills of triage nurse.	0.0	5.0	95.0	66.0	22.0	12.0	55.0	32.0	13.0	5.81	< 0.05*
15. Role of triage nurse.	0.0	5.0	95.0	73.0	26.0	1.0	56.0	37.0	7.0	4.251	< 0.05*

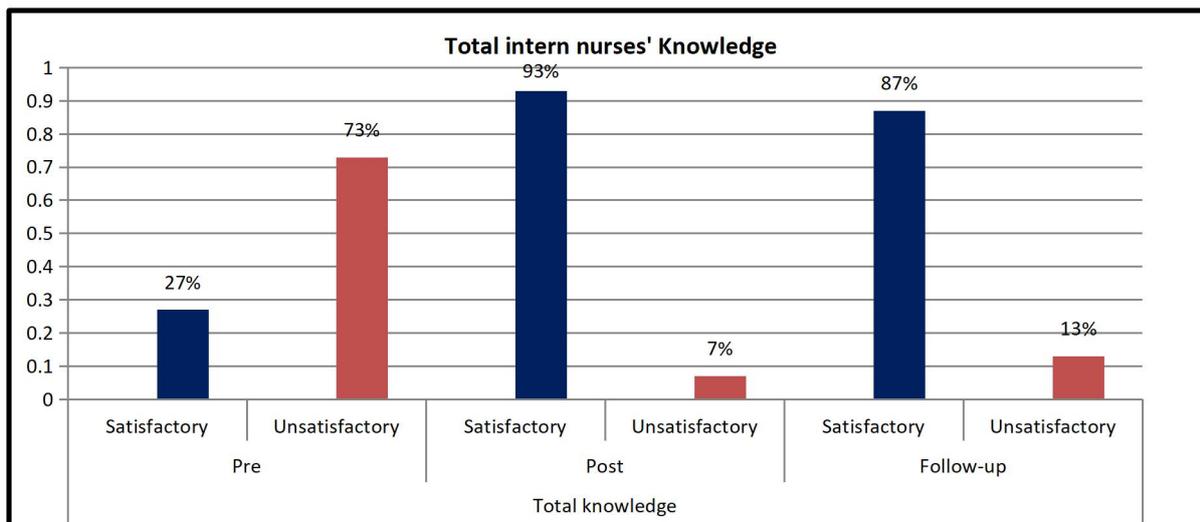


Figure (1): percentage distribution of the studied sample according to their total knowledge scores related to emergency obstetric care pre and post protocol.

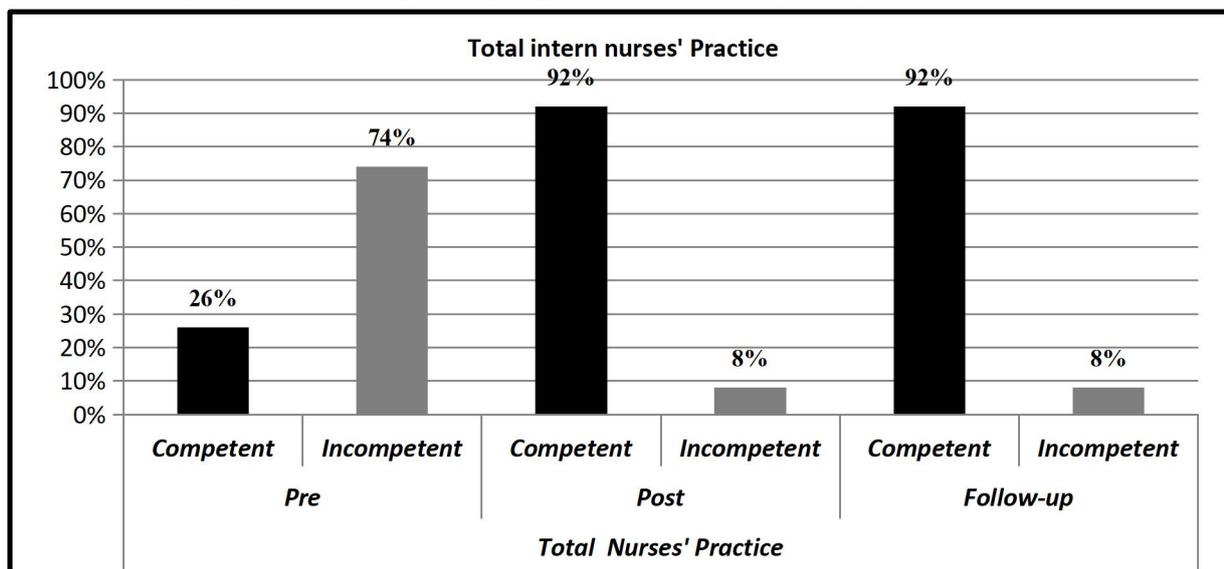
Table (4): Distribution of the studied sample according to their practice pre and post emergency obstetric care protocol intervention (n=100).

Items	Intern nurses' practice									x2	P-value
	Pre			Immediately post			Follow-up after one month				
	Done Correct	Done Incomplete correct	Done Incorrect	Done Correct	Done Incomplete correct	Done Incorrect	Done Correct	Done Incomplete correct	Done Incorrect		
%	%	%	%	%	%	%	%	%			
1. Nursing management of maternal hemorrhage.	8.5	32.8	58.6	74.3	21.3	4.4	50.0	43.1	6.9	4.023	<0.05 *
2. Nursing management of toxemia with fits.	2.9	31.0	66.1	44.4	50.5	5.1	69.4	25.0	5.6	1.10	>0.05
3. Nursing management of PRM.	3.6	21.8	74.6	48.6	42.4	9.0	72.7	17.2	10.1	4.49	<0.05 *
4. Nursing management of obstetric shock.	16.1	6.6	77.3	76.6	18.4	5.0	74.5	19.5	6.0	4.19	<0.05 *
5. Nursing management of shoulder dystocia.	0.3	26.2	73.5	69.2	12.4	18.4	68.0	23.0	9.0	4.10	<0.05 *
6. Nursing management Cord prolapsed.	0.0	0.0	100.0	55.6	34.3	10.1	67.5	23.5	9.0	5.58	<0.05 *
7. Nursing management of fetal distress.	25.3	24.5	50.2	69.9	23.0	7.1	68.0	23.0	9.0	5.90	<0.05 *
8. Nursing management of maternal distress.	0.5	4.0	95.5	71.0	22.0	7.0	67.5	21.2	11.2	4.22	<0.05 *

Table (5): Women's satisfaction post emergency obstetric care protocol implementation (in follow up phase) (n=59).

Items	Strongly disagree		Disagree		Agree		Strongly agree	
	N	%	N	%	N	%	N	%
1. Intern nurses smile whenever they approach you.	8	13.5	4	6.7	33	55.9	14	23.7
2. Intern nurses are caring.	6	10.1	4	6.7	33	55.9	16	27.1
3. Intern nurses treat you with respect.	8	13.5	8	13.5	29	49.1	14	23.7
4. Intern nurses use physical touch in supporting you.	3	5.0	9	15.2	4	6.7	43	72.8
5. Receiving empathetic support.	7	11.8	5	8.4	33	55.9	14	23.7
6. Intern nurses give encouragement to you.	7	11.8	34	57.6	4	6.7	14	23.7
7. You receive useful information about your condition from intern nurses and can answer your questions correctly.	6	10.1	35	59.3	4	6.7	14	23.7
8. You have been given privacy from intern nurses.	10	16.9	28	47.4	7	11.8	14	23.7
9. Intern nurses explain nursing procedure clearly before performing it.	3	5.0	7	11.8	35	59.3	14	23.7
10. Intern nurses are professional and skilful in performing nursing procedures and deliver care competently.	7	11.8	4	6.7	34	57.6	14	23.7
11. Intern nurses render nursing services without delay.	7	11.8	5	8.4	31	52.5	14	23.7
12. You feel safe when receiving nursing care from intern nurses.	7	11.8	4	6.7	6	10.1	42	71.2
13. You receive useful information during discharge planning from intern nurses.	7	11.8	5	8.4	7	11.8	40	67.7
14. Overall, the nursing care you received met your Expectations.	8	13.5	5	8.4	32	54.2	14	23.7
15. Overall, you are satisfied with the nursing care services you received by intern nurses.	9	15.2	29	49.1	6	10.1	15	25.4
Total score %	11.57%		20.95%		33.62%		33.41%	

Figure (2): Percentage distribution of the studied intern nurses according to their total practices scores related to emergency obstetric care pre and post protocol intervention (n= 100).



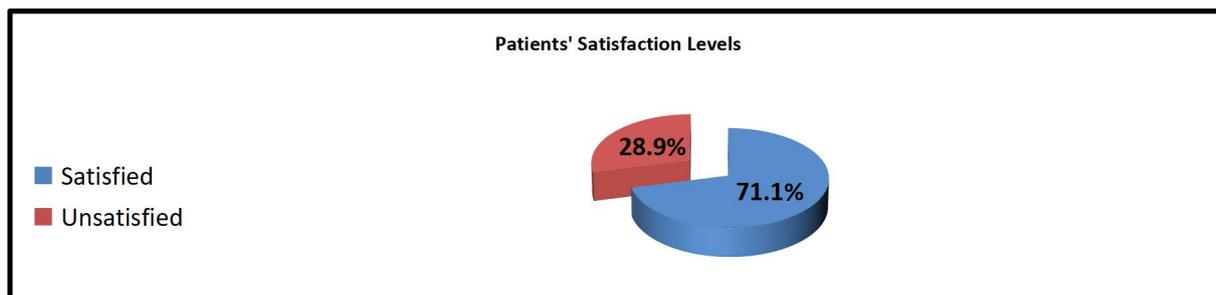


Figure (3): Distribution of total women's satisfaction levels post protocol intervention (n=59).

Table (6): Correlation between studied intern nurses' total knowledge and total practices related to emergency obstetric care pre/post protocol intervention.

Variable	Total knowledge score			
	Immediately post		Post protocol	
	R	P value	R	P Value
Total practice score	0.02	0.18	0.020	0.03*

Table (7): Correlation between studied intern nurses' knowledge related to emergency obstetric care and women's satisfaction post protocol intervention.

Patients' satisfaction	Nurses' Knowledge		
	N	%	
	93	93	
	R	0.630	
	P	<0.05	

Table (8): Correlation between studied intern nurses' practices related emergency obstetric care and women's satisfaction post protocol intervention.

Patients' satisfaction	Nurses' Practice		
	N	%	
	92	92	
	R	0.630	
	p	<0.05	

Discussion:

Focusing on the findings of the present study indicated that slightly less than three-quarters of the studied interns nurse had unsatisfactory level of knowledge regarding emergency obstetric care before implementation of the protocol. Meanwhile, the majority of interns nurse had satisfactory level of knowledge immediately post that slightly decline in follow up phase after implementation of the protocol.

The above mentioned finding was supported by *Abdelhakm and Said, 2017* who evaluate the effect of nursing management protocol on maternity

nurses regarding obstetric emergencies which conducted in Banha University, who found that about three-quarters of the studied nurses had poor knowledge before intervention. However, the highest percentage of them had good knowledge after intervention regarding emergency obstetric care.

Additionally, these findings are also consistent with *Talaat et al., 2019* who found that slightly more than half of intern nurses had poor knowledge related to obstetric and gynecological skills before the implementation of the program, but the highest percentages of them had good levels of knowledge after program.

In the researcher point of view, this similarity may be due to the general characteristics and work circumferences of both studies are nearly the same.

Also, the present study revealed that there was statistically significant difference in relation between intern nurses' knowledge scores regarding obstetric emergencies before, immediately post and at follow up phase of protocol implementation. This significant improvement means that the intervention of protocol had a positive impact on intern nurses' knowledge about emergency obstetric care.

The present study findings agreed with *Heikham and Raddi, 2015* who study the effectiveness of planned teaching program on knowledge regarding management of selected obstetric emergencies among the final year students of selected school of nursing in Belgaum, Karnataka. Who found that an improvement in students' knowledge scores and there was significant difference relation, as the majority of the subject had poor knowledge pre test while post test the most of students had good knowledge.

On the same line of this study finding a study done by *Emam and Saber, 2018* who studied effect of nursing program on improving nurses' knowledge and skills regarding care of eclamptic women and found that there was statistically significant difference between pre, post intervention related to nurses' knowledge regarding care of eclamptic women.

Furthermore, on investigating practical skills of intern nurses during caring of obstetrics emergencies cases, results of the present study revealed that slightly less than three quarters of the studied intern nurses had incompetent practice regarding management of obstetric emergencies before protocol implementation. Meanwhile, after implementation of the protocol the most of them had competent practice related to obstetrical emergencies.

It's important to mention that the level of practices of interns nursing students improved more in the follow up phase. In the researcher point of view, intern nurse demonstrates and applies nursing care for women with obstetric emergency more correct in the hospital as "a real situation" and intern nurse may be ken more on women and fetal health.

These above findings are consistent with *Abdelhakm and Said, 2017* who illustrated that slightly more than three quarter of nurses had unsatisfactory practices toward emergency

obstetrics care before intervention of the nursing management protocol related to EMOC. Meanwhile, after intervention the most of them had satisfactory practices regarding obstetric emergencies.

The current study findings were also in accordance with (*Traore et al., 2014*) who mentioned that there was a relation between the availability of guidelines for the management of obstetric emergencies and the higher competency among primary healthcare workers in Mali.

Furthermore, this result is supported by *Islam et al., 2015* who indicated that regular training of nursing personnel will improve and enhance quality of health care, who made mixed-method study in fourteen Bangladesh government healthcare facilities.

Additionally, this result agrees with *El-Bahy et al., 2016* who studied the effect of educational program for nurses about pregnancy induced hypertension on their knowledge and practice in Port Said hospitals, who founded that the majority of nurses before training had incorrect practice regarding EMOC and improved post training.

Also, the present study finding showed that there was significant improvement in practice related to EMOC post intervention compared to pre-intervention. The finding of the current study was in agreement with *Mahmoud and Omar, 2018* who studied the effect of maternity nursing logbook on internship students' skills at woman's health hospital, Assiut Governorate and stated that there was significant difference between pre and post training related the total score of internship nursing student's practical skills.

Additionally, this result was consistent with *Abdelhakm and Said, 2017* who found that there was significant improvement of nurses' practice after protocols application compared to before it.

According to the current study findings, significantly greater than two-thirds of women with obstetric emergencies were satisfied with care provided by studied sample, while greater than one quarter of women were dissatisfied with care rendered by studied sample.

The present finding was congruent with *Wondim, 2015* who made assessment of patient satisfaction on nursing care provided by nursing student in black lion specialized hospital, ethiopia, addisababa University, who found that more than half of studied sample were satisfied with the

overall nursing care provided and less than half were dissatisfied with care provided by nursing students.

In line with the foregoing study *Tang et al., 2016* who studied patient satisfaction with nursing care: a descriptive study using interaction model of client health behavior. Who stated that the patients rated their satisfaction of nursing care as the majority of the patients were highly satisfied with the care provided by nurses meanwhile, the minority were dissatisfied.

This was similar with the findings of *Fatthy and Ahmed, 2017* who reported that slightly more than three quarter of women were satisfied with care rendered by maternity nursing students in delivery department in maternity hospital Ain Sham University and less than one quarter of women were dissatisfied with care provided. In the researcher point of view, this similarity may be due to the same field work and corresponding with general characteristic in term of the age and qualification among the study groups of both studies.

Contrary to the present study *Naghizadeh et al., 2014* who reported that the majority of maternal satisfaction about prenatal and postnatal cares in vaginal and cesarean section delivery at teaching and non- teaching hospitals of Tabriz/ Iran was dissatisfied.

Several reasons for this result can be suggested such as the teaching hospital service was provided by the students without the senior supervisor and the service was provided for the purpose of learning but in the present study the researcher observed that the clinical instructors and supervisors from study setting were contact with their intern students in clinical area and gives them continuous supervision.

Concerning relation between total knowledge and total practice of intern nurses related emergency obstetric care post implementation of emergency obstetric care protocol. The current study finding indicated that there was statistically significant difference between knowledge of intern nurses and their practice after protocol implementation as intern nurse's knowledge increases, intern nurse's practice improved. This result may be due to that the good level of knowledge has positive effect on the level of practice.

This result was supported by *Abdelhakm and Said, 2017* who found that there was a highly statistically significant correlation between total

scores of nurses' knowledge and practice after the application of nursing management protocol

Also, results of the present study revealed that, there was significant positive correlation between total intern nurses' practice related emergency obstetric care and women's satisfaction post intervention of protocol.

On the same line of this study finding a study done by *Fatthy and Ahmed, 2017* who stated that there were statistically significant positive correlation between total level of quality of care rendered by maternity nursing students and total women's satisfaction regarding this care during labor.

This was congruent with *Wondim, 2015* who found that there was statistically significant differences between nursing student total performance score and total mother's satisfaction during labor and postpartum care.

This was incongruent with *Minamisava, et al., 2014* who studied level of practice and satisfaction of patients attended at a teaching hospital in Portuguese, who stated that despite the quality deficit, the patients' satisfaction level with the nursing care received was high.

In the researcher point of view, these results indicate that this institution needs to center its objectives on a continuing evaluation system of the quality of care, aiming to attend to the patients' expectations.

Conclusion:

Implementing emergency obstetric protocol had a positive effect on the performance of interns nursing students. Moreover, there was a positive statistically significant correlation between total knowledge and total practice scores post protocol implementation and increased women satisfaction level regarding nursing care provided by interns nursing students. These improvements reflect that a supportive educational material for emergency obstetric care was very effective; hypothesis and aim of the study were supported.

Recommendations:

- Dissemination of emergency obstetric protocol for all internship nursing students in nursing institutions this will be effective in improving their knowledge and practical skills about obstetric emergencies.

- Teaching institutions as technical institute of nursing should work in collaboration with hospital for facilitating students' learning, achieving educational goals to improve quality of care and increase patients' satisfaction.

Further Researches:

- Replication of the study on large sample size and in other different institutions for generalizing the findings.
- Further research is recommended to investigate the barriers that affect performance of intern nurse during internship period in obstetric and gynecological departments.

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