

# Effectiveness of Educational Program on Nurse's Knowledge and Practices Regarding Management of Pregnancy with Danger Signs

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## ABSTRACT

**Background:** Proper knowledge about danger signs, emergency measures to be taken, and a well-equipped obstetrics unit can reduce maternal mortality. As the nurses being the primary health care providers, their preparedness for obstetrics emergencies attains paramount importance.

**Objective:** the study aimed to determine impact of educational program on nurses' knowledge and practice about management of pregnancy with danger signs and to find out relationship between educational program efficacy and these nurses' specific demographic characteristics

**Methodology:** To identify the effectiveness of the educational program on nurses' knowledge and practice, a quasi-experimental study design was used. A non-probability (purposive sample) consist of (50) nurses who used the words "emergency," "labor room," and "maternal wards." The questionnaire is consist of three main parts: demographic information about the nurses, as well as knowledge and practice in managing danger signs in pregnant women.

**Results:** The study shows that the overall assessment of nurses' knowledge about management of pregnancy with danger signs; the findings reveal that nurses are showing fair level of knowledge during the pre-test time (36.56±2.771) among 84%, their level of knowledge is increased to good level during the post-test 1 (90%) and post-test 2 (82%) evidenced by mean scores and standard deviation (post 1= 45.98±2.470, post 2= 45.20±3.188) and the overall assessment of nurses' practices about management of pregnancy with danger signs; the findings reveal that nurses are showing fair level of practices during the pre-test time (78.14±5.047) among 96%, and they show improvement in their practices' level as show good during the post-test 1 (78%) and post-test 2 (76%) evidenced by mean scores and standard deviation (post 1= 104.86± 10.791, post 2= 104.10 ± 10.873)

**Conclusions:** the educational program about management of pregnancy with danger signs was highly effective on nurses' knowledge and practice. So, the study recommends the need to prepare and present continuous educational programs to improve the knowledge and practices of nurses and midwives.

**Keywords:** Educational Program, Nurses' Knowledge and Practices, Pregnancy with Danger Signs

## INTRODUCTION

Undoubtedly, one of the most important factors contributing to maternal and neonatal mortality is the poor quality of care offered to mothers and newborns, which is most likely the result of a lack of skills among health-care workers, particularly in the case of obstetric crises.(1)

Obstetrical emergencies are pregnancy-related conditions that, if not treated promptly, can put the mother's and the unborn child's life in jeopardy. Obstetrical emergencies can occur during pregnancy, childbirth, or the postpartum period and are notoriously unexpected, stressful, and fraught with ethical quandaries because two lives are at stake in these situations (2).

During pregnancy, obstetrical emergencies are health problems that occurred at different times during pregnancy and affected women's health, fetuses, or both. The most common causes of maternal mortality during pregnancy are maternal hemorrhage, severe preeclampsia, eclampsia, and premature rupture of membranes (PROM) (3).

In general, complications during pregnancy and the possibility of risk during childbirth can be detected early through an assessment of risk factors or danger signals. That is, if the mother understands the danger signs during her pregnancy period, then deterioration can be avoided. But unfortunately, there are still many mothers who are less aware of the danger signs of pregnancy. The lack of understanding of pregnancy danger signs was primarily due to negligence. More than half of the prenatal mothers did not recognize pregnancy danger signs (4).

Obstetric care seeking behaviors are delayed due to lack of awareness of warning signs, which leads to the high maternal death and morbidity rates around the globe. Birth preparedness is a strategy for promoting timely access to maternal care, particularly during labor. Planning for childbirth is based on the belief that this care is less likely to be delayed when it is available. It has been discovered that the proportion of women who are prepared for childbirth and the challenges that accompany it is low in low-resource environments (5).

## METHODOLOGY

An quasi-expremental study design was carried to assess nurses' knowledge about danger signs during pregnancy. A non-probability (purposive sample) consist of (50) nurses who used the words "emergency," "labor room," and "maternal wards" in emergency situations. Researchers created a questionnaire after conducting a literature study.

**The questionnaire consists of three main parts includes the following:**

**Part I:** consists of the nurses' demographic characteristics (Age, Residence, educational level for nurse, and years of experience)

**Part II:** concerning nurses' knowledge about managing danger signs in pregnant women (vaginal bleeding and its types, high blood pressure, severe headaches and blurred vision, severe abdominal pain, rapid or difficult breathing, urgency, pain or a burning feeling when urinating, and unusual or more than usual vaginal secretions).

**Part III:** checklist concerning nurses' practices about managing danger signs in pregnant women (vaginal bleeding and its type's high blood pressure, severe headaches and blurred vision, severe abdominal pain, rapid or difficult breathing, urgency, pain or a burning feeling when urinating, unusual or more than usual vaginal secretions).

The data was collected after getting the official approval from hospital, the researchers collects the information from statistic units at targeted about all nurse are working in emergency words, labor room and maternal words. After collecting the information, the researchers selects the subjects that meet inclusion criteria. The data were collected after getting permission from the subjects. Through the period from 1<sup>st</sup> august 2021 to January 4<sup>th</sup> 2022.

The three Likert scale was used for the purpose of items' rating for the three domains follows: (1) for never, (2) for sometimes, and (3) for always.

SPSS (Statistical Package for Social Sciences) version 20.0 and excel were used to analyze the data in this study in a descriptive manner by identifying changes and calculating

percentages, frequencies, standard deviations, and the mean score. It also refers to deciding on a result. Also Inferential Statistical Tests (Pearson Correlation Coefficient and Repeated Measure ANOVA).

**RESULTS**

This table shows that that nurses are young adult with age 27.62±4 years in which the highest percentage associated with age group 26-30 year (38%) followed by age group 20 – 25 year (36). Regarding residency variable, most of nurses show they are resident in urban as seen with 92% of them. The nursing qualification indicates that the highest percentages refer to “nursing secondary school” as seen among 40% and “technical medical institute” as seen among 20%. Related to years of experience, the average refers to 6.58±4.257 year in which 46% of nurses reporting they have 1-5 year of experience. Regarding participation in training courses about management of pregnancy with danger signs, more than half of them are not participated and only 38% are engaged in training courses.

Table 1: Demographic Characteristics of the Study Samples

List	Variables	f	%	
1	Age (M±SD=27.62±4)	20 – 25 year	18	36
		26 – 30 year	19	38
		31 – 35 year	11	22
		36 – 40	2	4
		Total	50	100
2	Residency	Rural	4	8
		Urban	46	92
		Total	50	100
3	Nursing qualification	Secondary school	20	40
		Midwifery secondary	9	18
		Institute \ midwifery	3	6
		Technical medical institute	10	20
		College +	8	16
		Total	50	100
4	Years of experience (M±SD=6.58±4.257)	1 – 5 years	23	46
		6 – 10 years	17	34
		11 – 15 year	9	18
		16 ≤ year	1	2
		Total	50	100

\*f: Frequency, %: Percentage, M: Mean, SD: Standard deviation"

Table 2: The effectiveness of an Education Program on Nurses' Practices in Managing Pregnancies with Danger Signs was Tested using a Repeated Measure Analysis of Variance (RM-ANOVA) (N=50)

Descriptive		Within-Subjects Effect									
Practices	Mean (S.D)	Source	Type III Sum of Squares	df	Mean Square	F	P-value	Sig.	Partial Eta Squared		
Pre-test Post-test I Post-test II	78.14 (5.047) 104 (10.791) 104 (10.837)	Time	Sphericity Assumed	23140.960	2	11570.480	282.979	.000	H.S	.852	
			Greenhouse-Geisser	23140.960	1.048	22076.758	282.979	.000	H.S	.852	
			Huynh-Feldt	23140.960	1.051	22012.408	282.979	.000	H.S	.852	
			Lower-bound	23140.960	1.000	23140.960	282.979	.000	H.S	.852	
		Error (Time)	Sphericity Assumed	4007.040	98	40.888					
			Greenhouse-Geisser	4007.040	51.362	78.016					
			Huynh-Feldt	4007.040	51.512	77.788					
			Lower-bound	4007.040	49.000	81.776					

"S.D: Standard Deviation, df: Degree of Freedom, f: F-statistics, P-value: probability value, Sig: Significance, H.S: High Significant"

The educational program regarding managing pregnancy with risk danger was extremely successful on nurses' practices, as evidenced by significant significance related with "Greenhouse-Geisser" correction at p-value=0.000, according to the results of the RM-ANOVA test. The considerable increase in mean score of nurses' practices throughout pre-test time through post-test 1 and post-test 2 is evident from the descriptive, indicating the effectiveness of the education program.

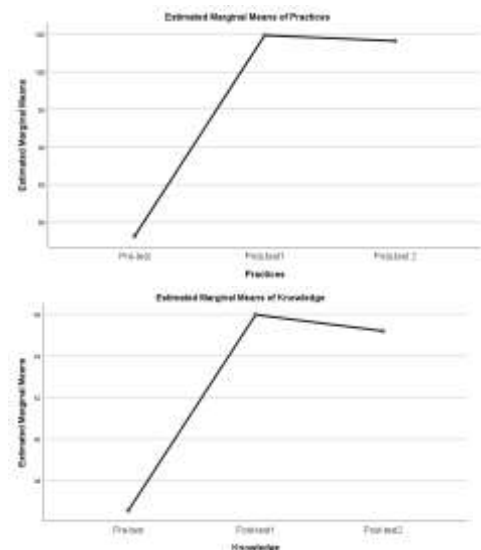


Figure 1, 2: Estimated Marginal Mean for Nurses' Knowledge and Practices about Management of Pregnancy with Danger Signs (N=50)

Table 3: Correlation between the Knowledge and Practices of Nurses and their Nursing Qualification

Variables	Knowledge			Practices		
	N	Mean	SD	N	Mean	SD
Nursing secondary school	20	1.85	.366	20	1.95	.224
Midwifery school	9	1.67	.500	9	2.00	.000
Institute/midwifery	3	2.00	.000	3	2.00	.000
Technical medical institute	10	1.80	.422	10	1.90	.316
College +	8	2.00	.000	8	2.00	.000
Total	50	1.84	.370	50	1.96	.198
Correlation	r = 0.258	p-value = 0.071	Sig. = N.S	r = 0.206	p-value = 0.152	Sig. = N.S

"N: Number, SD: Standard deviation, r: Pearson correlation, p-value: Probability value, Sig: Significant, N.S: Not significant, S: Significant, H.S: High significant"

Table 4: Nurses' Knowledge and Practices in Relation to their Years of Experience

Variables	Knowledge			Practices		
	N	Mean	SD	N	Mean	SD
1 – 5 year	23	1.74	.449	23	2.00	.000
6 – 10 year	17	1.94	.243	17	1.88	.332
11 – 15 year	9	2.00	.000	9	2.00	.000
16 ≤ year	1	1.00	0	1	2.00	.
Total	50	1.84	.370	50	1.96	.198
Correlation	r = 0.056	p-value = 0.700	Sig. = N.S	r = 0.198	p-value = 0.167	Sig. = N.S

"N: Number, SD: Standard deviation, r: Pearson correlation, p-value: Probability value, Sig: Significant, N.S: Not significant, S: Significant, H.S: High significant"

A p-value of 0.05 indicates that there is no association between a nurse's knowledge and practice and their level of qualification, as shown in this table.

Insignificant correlation at a p-value of 0.05 indicates that there is no association between nurses' knowledge and practices, as seen in this table.

Table 5: Nurses' Knowledge and Practices in Connection to their Participation in Training Courses have a Correlation.

Variables Participation	Knowledge			Practices		
	N	Mean	SD	N	Mean	SD
Yes	19	1.84	.375	19	1.89	.315
No	31	1.84	.374	31	2.00	.000
Total	50	1.84	.370	50	1.96	.198
Correlation	r = 0.08 1	p-value = 0.578	Sig.= N.S	r = 0.162	p-value = 0.261	Sig.= N.S

"N: Number, SD: Standard deviation, r: Pearson correlation, p-value: Probability value, Sig: Significant, N.S: Not significant, S: Significant, H.S: High significant"

A p-value of 0.05 indicates that there is no significant link between nurses' knowledge and practices and participation in training courses, as shown in this table results.

## DISCUSSION

Pregnancy danger signs management education was extremely beneficial on nurses' knowledge, as proven by a strong significance connected with "Greenhouse-Geisser" correction at p-value=0.000 (table 2). Pre-test through post-test 1 and post-test 2 results show a significant improvement in the mean score of nurses' knowledge, indicating the effectiveness of an education program. Another study by researchers lead by Sangal et al found that the difference between the pre- and post-education scores on understanding of obstetric risk signs was statistically significant (7). This conclusion is in line with Sangal's findings.

The simulation-based educational program, according to El Sharkawy et al. (8), increased the performance of maternity nurses in obstetrical emergencies during pregnancy. The correlation between total knowledge and total practice scores was also favorable and highly statistically significant, both before and after the intervention. Furthermore, there was a positive, statistically significant correlation between total practice and overall attitude assessments at both pre- and post-intervention levels. Our current investigation's findings are corroborated by these new ones.

After analyzing the data, Gobran et al (9) found that the educational program had a considerable impact on women's awareness and practice of danger signs for pregnant women, with highly statistically significant changes in all the items measured before and after the program's implementation. Current research demonstrated that an educational program on the management of high-risk pregnancies was exceptionally beneficial on nurses' practices, as evidenced by the "Greenhouse-Geisser" correction at a p-value of 0.000. These findings complement the current study's conclusions. An improvement in mean scores for nurses' practices from pre-test to post-test 1 and 2 is clearly seen in the descriptive data, demonstrating that this educational program was successful.

An education program has been found to be useful in boosting nurses' knowledge and practice, as has been demonstrated by Moqbel et al (10) in their own study. Furthermore, a study conducted in Iraq found that an educational program had a p-value of 0.001 showing statistical significance, which is consistent with these findings. Post-test I and II results show a significant rise in the mean score on nurses' knowledge, suggesting the educational program's effectiveness (11).

Overall knowledge of pre-eclamptic woman care was low among nurses (30.0 percent) according to Emam and Saber (12) yet nurses had a high understanding of the topic (75.0 %) completing the program. Before and after the training (p=0.05), there was a statistically significant change (in total knowledge of pregnant women) in each group. Less than a quarter of pre-program nurses (23.3 %) were found to have poor eclampsia treatment practices, compared to 83.3% of post-program nurses.

Findings from a new survey demonstrate that nurses' awareness and practice of danger warnings is not correlated with their demographic features, as previously thought. When it comes to age groups or degrees of nursing experience, Huang et al. (13), found no statistically significant differences. They also observed no significant variations in marital status, working unit, or prior training. Overall, all nurses reported that the training program had a positive influence on them. All categories of hospital staff had a positive impact on knowledge, attitudes, and practices when compared to Jissir and Hassan (14), who found that education had a positive effect on these factors, and that years spent working in the hospital were significantly linked to higher levels of knowledge, attitudes, and practices in each category of hospital staff.

## CONCLUSION

The educational program about management of pregnancy with danger signs was highly effective on nurses' knowledge and practice.

**Recommendations:** The study recommends the need to prepare and present continuous educational programs to improve the knowledge and practices of nurses and midwives.

**Ethical considerations:** The College of Nursing / University of Baghdad's research ethics committee gave its approval for this study to proceed. The hospital's management gave written approval for the procedure. In addition, all participants supplied written informed consent that was signed by them.

**Acknowledgements:** This study's authors want to thank all the nurses who participated in it and say how grateful they are for their assistance.

**Financial support and sponsorship:** The researchers bear all the costs of the study and there is no support from a specific party.

**Conflicting Interests:** No conflicts of interference are rest declared by the authors.

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