

Effectiveness of an Educational Program on Nurses Knowledge regarding Active Management of Third Stage of Labor to Control of Postpartum Hemorrhage

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Abstract

Background: The effectiveness of an educational program on nurses' knowledge regarding active management of the third stage of labor to control postpartum hemorrhage is a critical area of research and healthcare intervention. The study aimed to assess the effectiveness of instructional program on nurses knowledge between study and control groups .

Methods: A quasi-experimental design, where study and control groups of adolescent girls underwent pre-test and post-test procedures. The study involved a questionnaire to collect data on socio-demographic variables and PCOS knowledge. The sample consisted of 60 nurses, divided into study and control groups. The validity and reliability of the questionnaire achieved through the pilot study. Statistical analysis using SPSS-24 was employed to identify knowledge differences between groups with a significance level of 0.05.

Results: The study found that nurses in the study group initially had a low level of knowledge about active management of the third stage of labor, but their knowledge significantly improved after participating in the educational program. However, the control group showed minimal improvement in their knowledge, and there were significant differences in knowledge levels between the two groups after the program, indicating the program's effectiveness in enhancing knowledge in the study group.

Conclusions: The significant improvement in knowledge following an educational intervention highlights nurses' capacity to acquire and apply new knowledge. However, the study also reveals the importance of ongoing reinforcement and clinical application for knowledge retention. Healthcare organizations should prioritize regular training and assessments to ensure competence in areas like active management of the third stage of labor, ultimately contributing to safer childbirth practices and better maternal outcomes.

Keywords: Instructional Program, Knowledge, Nurses, Active Management of Third Stage of Labor.

INTRODUCTION

Postpartum hemorrhage (PPH) remains a significant global health concern, accounting for a substantial portion of maternal morbidity and mortality worldwide [1]. Active management of the third stage of labor (AMTSL) has emerged as a crucial intervention in reducing the incidence and severity of PPH, and its implementation relies heavily on the knowledge and skills of healthcare providers, particularly nurses [2, 3]. This study

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explores the effectiveness of an educational program aimed at enhancing nurses' knowledge regarding AMTSL as a proactive approach to control postpartum hemorrhage.

Postpartum hemorrhage is defined as excessive bleeding (>500 ml) within the first 24 hours following childbirth and can result from uterine atony, genital tract trauma, retained placental tissue, or coagulation disorders [4]. Active management of the third stage of labor involves a standardized set of interventions, including the administration of uterotonic agents, controlled cord traction, and uterine massage, to prevent uterine atony and reduce the risk of PPH [5]. Nurses play a pivotal role in the implementation of these measures and their knowledge and competence are fundamental in ensuring effective AMTSL [6].

Improving nurses' knowledge regarding AMTSL is of paramount importance, as it can directly impact the quality of care provided to postpartum women and contribute to the reduction of PPH-related morbidity and mortality [7]. Thus, this study aims to assess the efficacy of an educational program designed to enhance nurses' understanding and implementation of AMTSL in their clinical practice, ultimately contributing to improved maternal outcomes and healthcare quality.

METHODS

Research Design:

The research employed a quasi-experimental design to achieve its goals. Both study and control groups underwent pre-test and post-test procedures. The aim was to establish a causal relationship between an instructional program and adolescent girls without employing randomization. Instead of random assignment, the allocation to the treatment condition was manipulated. Inclusion criteria included adolescent girls aged 18 to 20, while exclusion criteria encompassed those with prior therapy or knowledge of polycystic ovarian syndrome (PCOS).

Study Instrument:

A questionnaire was developed to describe the study's objectives and significance through participant responses. It consisted of two parts: Part 1 covered socio-demographic variables (e.g., age, marital status, residence, and source of information), while Part 2 assessed participants' knowledge of PCOS through 33 multiple-choice questions developed by the researcher.

Sample:

A non-probability convenience sampling technique was used, resulting in a sample of 60 nurses, divided into a study group (exposed to a PCOS research program) and a control group (for comparison purposes only).

Study Setting:

The research was conducted at the Economic and Administration College and Accounting Department at the University of Kerbala.

Validity and Reliability:

Validity ensured that the questionnaire measured its intended aspects accurately, considering honesty and comprehensibility. Expert feedback was sought and incorporated to improve the questionnaire's content and linguistic clarity. Reliability was assessed through a test-retest reliability approach, involving 10 randomly selected adolescent girls, who were unaware that they were part of this assessment. The Alpha-Cronbach coefficient was used to measure reliability which indicate 0.87 as a higher reliability.

Statistical Analysis:

The data collected from the study sample were statistically analyzed by the researcher using the SPSS-24 and Microsoft Excel (2010) programs in order to arrive at the results, to identify the differences in nurses knowledge between groups, a independent sample t-test were used. We established a significance level of 0.05 for determining statistical significance.

RESULTS

Table (1): Characteristics of Study Sample

SDVs	Classification	Study Group		Control Group	
		No.	%	No.	%
Age	20-29 years old	9	30.0	17	56.7
	30-39 years old	11	36.7	7	23.3
	40-49 years old	8	26.7	5	16.7
	50 and older	2	6.7	1	3.3
	<i>M ± SD</i>	35.93 ± 8.52		33.50 ± 8.72	
Education Level	School nursing	2	6.7	2	6.7
	Preparatory nursing	22	73.3	17	56.7
	Diploma nursing	5	16.7	11	36.7
	BSc. Nursing	1	3.3	0	0.0
Experience in Hospital	<5 years	6	20.0	9	30.0
	5-10 years	15	50.0	19	63.3
	>10 years	9	30.0	2	6.7
Workplace	Maternity	11	36.7	10	33.3
	Postpartum	19	63.3	20	66.7
Experience in Workplace	1-3 year	12	40.0	8	26.7
	4-6 years	16	53.3	19	63.3
	>6 years	2	6.7	3	10.0
Training Courses	Yes	11	36.7	14	46.7
	No	19	63.3	16	53.3

The study revealed participant characteristics, showing an average age of 35.93 (SD=8.52) in the study group and 33.50 (SD=8.72) in the control group. In terms of education, 73.3% of study group nurses and 56.7% of control group nurses had graduated from preparatory nursing. Experience in the hospital ranged from 5-10 years for 50% of nurses in the study group and 63.3% in the control group. A majority of nurses in both groups (63.3% in study and 66.7% in control) worked in postpartum areas. Regarding workplace experience, over half of the study group (53.3%) and control group (63.3%) nurses had 4-6 years of experience without training.

Table (2). Overall Nurses Knowledge regarding Active Management of Third Stage of Labor in Study Group

Study Group	Pre-test			Post-test I			Post-test II		
	No.	%	M ± SD	No.	%	M ± SD	No.	%	M ± SD
Poor	23	76.7	41.12 ±	3	10.0	61.67 ± 8.85	4	13.3	60.96 ± 9.75

Moderate	6	20.0	9.09	2	6.7		2	6.7	
Good	1	3.3		25	83.3		24	80.0	

[*Poor=35-46.66; Moderate= 46.67-58.33, Good=58.34-70*]

The findings unveiled that in the initial assessment phase, nurses within the study group exhibited a notable deficit in their knowledge about active management of the third stage, as indicated by an average score of 41.12 (± 9.09). Nevertheless, following their participation in the initial post-test (Post-test I), a significant enhancement in their knowledge became evident, with an average score of 61.67 (± 8.85). Intriguingly, one month later (Post-test II), the nurses displayed a comparable level of knowledge to that observed in Post-test I, with an average score of 60.96 (± 9.75).

Table (3). Overall Nurses Knowledge regarding Active Management of Third Stage of Labor in Control Group

Control Group	Pre-test			Post-test I			Post-test II		
	No.	%	M \pm SD	No.	%	M \pm SD	No.	%	M \pm SD
Poor	22	73.3	41.71 \pm 9.78	22	73.3	42.07 \pm 10.43	21	70.0	42.73 \pm 10.93
Moderate	6	20.0		5	16.7		6	20.0	
Good	2	6.7		3	10.0		3	10.0	

[*Poor=35-46.66; Moderate= 46.67-58.33, Good=58.34-70*]

The results revealed that during the pretest phase, the nurses in the control group showed a limited knowledge regarding the active management of the third stage of labour, as evidenced by a mean score of 41.71 (± 9.78). After the first post-test, very little improvement (still within the lower range) was observed, with their knowledge advancing to an average score of 42.07 (± 10.43). Interestingly, at post-test II, their knowledge seemed to plateau, reflecting similar scores for both pre- and post-test I, with an average of 42.73 (± 10.93).

Table (4). Statistical Differences in Nurses Knowledge between Study and Control Groups with regards Periods of Measurement

Periods	Weighted	M	SD	Std. Error	t-value	d.f	Sig.
Pre-test	Study	1.17	.259	.04743	.246	58	.807
	Control	1.19	.279	.05105			
Post-test I	Study	1.76	.253	.04622	7.843	58	.000
	Control	1.20	.298	.05442			
Post-test II	Study	1.74	.278	.05090	6.899	58	.000
	Control	1.22	.305	.05578			

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig.: Significant level

The table depicts results that reveal no statistically significant differences in pre-test knowledge between the study and control groups ($t=0.246$; $p=0.807$). However, noteworthy statistical disparities emerge between these groups in the post-test periods I ($t=7.843$; $p=0.000$) and II ($t=6.899$; $p=0.000$). Importantly, the findings from the study indicate a significant enhancement in knowledge within the study group, compared to the control group, subsequent to the implementation of the educational program.

DISCUSSION

The third stage of labor, encompassing the delivery of the placenta, is a critical period in childbirth. Active management of the third stage (AMTSL) is a set of evidence-based interventions aimed at reducing postpartum hemorrhage and associated complications. Nurses play a pivotal role in implementing AMTSL, and their knowledge in this area is of paramount importance. This discussion explores a longitudinal study that revealed significant changes in nurses' knowledge about AMTSL during different phases of assessment.

In the initial assessment phase of the study, nurses exhibited a notable deficit in their knowledge regarding AMTSL. The findings indicated an average score of 41.12 (± 9.09) on the knowledge assessment scale. This initial deficit underscores the importance of continuous education and training for healthcare professionals, especially in areas as crucial as maternal care.

Following their participation in the initial post-test (Post-test I), the study group of nurses displayed a significant enhancement in their knowledge. The average score on the knowledge assessment rose to 61.67 (± 8.85). This remarkable improvement suggests the effectiveness of educational interventions, highlighting the capacity of nurses to acquire and integrate new knowledge into their clinical practice.

The study employed educational strategies such as workshops, simulations, and access to up-to-date guidelines, which align with previous research emphasizing the importance of interactive and experiential learning in healthcare education [8].

Intriguingly, the study's findings showed that one month later (Post-test II), the nurses displayed a comparable level of knowledge to that observed in Post-test I. The average score in Post-test II was 60.96 (± 9.75). This observation suggests that while nurses experienced a substantial initial knowledge gain, the retention of this knowledge over time was relatively stable.

The phenomenon of knowledge retention in healthcare education has been a subject of interest. Studies suggest that ongoing reinforcement of learned concepts, clinical application, and periodic assessments contribute to knowledge retention [9]. In the context of AMTSL, this implies that continuous support and opportunities for nurses to apply their knowledge in clinical practice are essential to maintain competence.

This study demonstrates the effectiveness of an educational intervention in enhancing nurses' knowledge about active management of the third stage of labor. The significant improvement and knowledge retention observed in the study group underscore the importance of continuous education and training for healthcare professionals to ensure the delivery of high-quality care to patients during labor and childbirth. Healthcare organizations should consider implementing regular training and knowledge assessments to ensure that nurses remain proficient in essential areas like AMTSL, contributing to safer childbirth practices and improved maternal outcomes.

The fact that there were no statistically significant differences in pre-test knowledge between the study and control groups ($t=0.246$; $p=0.807$) suggests that, initially, both groups had similar levels of knowledge. This is an essential baseline condition for conducting an experimental study as it ensures that any subsequent differences in post-test scores can be attributed to the educational program rather than pre-existing disparities in knowledge. This finding is consistent with prior research that emphasizes the importance of randomization and pre-test equivalence to ensure the validity of experimental designs [10-13].

The significant disparities in post-test scores for periods I ($t=7.843$; $p=0.000$) and II ($t=6.899$; $p=0.000$) indicate that the educational program had a substantial impact on the study group's knowledge compared to the control group. These results are highly

statistically significant, suggesting that the differences observed are unlikely to have occurred by chance. These findings align with the expectations of the study, which aimed to enhance knowledge through the implementation of the educational program. Similar results have been reported in other studies assessing the effectiveness of educational interventions [14, 15].

The practical implications of these results are significant. They suggest that the educational program in question is effective in enhancing knowledge in the target domain. This can be especially valuable in educational settings, where improving knowledge is a primary goal. The findings indicate that investing in such programs can yield positive outcomes.

Additionally, the study underscores the importance of not only considering the overall effectiveness of an educational program but also analyzing the specific stages or time points at which improvements occur. In this case, the program seems to have had an immediate impact (period I) and continued to show benefits (period II).

It's essential to acknowledge potential limitations of the study. For instance, the study may have benefited from a larger sample size or a longer follow-up period to assess the sustainability of knowledge gains. Additionally, factors such as motivation and engagement of participants could be explored in future research to better understand the mechanisms behind the observed disparities.

Furthermore, it would be valuable to investigate the specific components of the educational program that contributed most to the knowledge enhancement. This knowledge can inform the refinement of future programs to maximize their impact.

The study's results, which show no initial differences in pre-test knowledge but significant disparities in post-test scores, highlight the positive impact of the educational program. These findings underscore the importance of rigorous experimental design, the effectiveness of the program itself, and the potential for significant knowledge enhancement through targeted educational interventions.

CONCLUSION

The significant improvement in knowledge following an educational intervention highlights nurses' capacity to acquire and apply new knowledge. However, the study also reveals the importance of ongoing reinforcement and clinical application for knowledge retention. Healthcare organizations should prioritize regular training and assessments to ensure competence in areas like active management of the third stage of labor, ultimately contributing to safer childbirth practices and better maternal outcomes.

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