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A STUDY TO ASSESS THE EFFECTIVENESS OF SAFE DELIVERY APP ON KNOWLEDGE REGARDING DECISION SUPPORT TOOL AMONG FINAL YEAR GENERAL NURSING AND MIDWIFERY STUDENTS AT SELECTED NURSING INSTITUTIONS, KOLLAM

Abstract

The present study investigated the effectiveness of safe delivery app on knowledge regarding decision support tool among final year general nursing and midwifery students at selected nursing institutions, Kollam.

Objectives: The objectives of the study were to assess the pre-test knowledge regarding decision support tools in the safe delivery app, to introduce safe delivery app as an educational intervention among the final year General Nursing and Midwifery students, to assess the post-test knowledge regarding decision support tools in the safe delivery app and to find the association between pre-test knowledge scores regarding decision support tools in the safe delivery app and selected demographic variables among final year General Nursing and Midwifery students at selected nursing institutions, Kollam.

Materials & Methods: Purposive sampling technique was used in this study. The research design was one group pre-test post-test design. The tools used for this study were a demographic proforma and a structured knowledge questionnaire. Pre-test was conducted followed by intervention. Post-test was conducted after the intervention. The data collected were tabulated and analyzed by using descriptive and inferential statistics.

Result: Pre-test knowledge scores showed that 77% of students had poor knowledge, 19% had average knowledge, and 4% had good knowledge regarding decision support tool in Safe Delivery App. The computed 't' value of 82.71 was greater than the table value at 0.05 level of significance. Thus, the study concluded that there was significant difference between the pre-test and post-test knowledge scores regarding decision support tools in safe delivery app among final year General Nursing and Midwifery students. This study confirmed that Safe Delivery App was effective in increasing the knowledge level of final year General Nursing and Midwifery students regarding decision support tool.

Keywords: Assess, Effectiveness, Safe Delivery App, Knowledge, decision support tool.

Introduction

The Safe Delivery App is an innovative mobile-based tool designed to support healthcare workers by providing instant access to evidence-based guidelines for managing deliveries and obstetric emergencies. It acts as both a learning aid and a clinical decision support system. The safe delivery app aims to improve knowledge and skills of health workers in health system to improve the quality of care and potentially save the lives of mothers and newborns. One of the main drives of maternal and newborn mortality and morbidity

in India is the lack of quality of care in health facilities. This study aims to design World Health Organization guideline for positive experience in the form of a mobile application and examine its effectiveness in imparting knowledge among midwifery students. In India, the maternal mortality ratio (MMR) is 97 per 1,00,000 live births, and the neonatal mortality rate (NMR) is 20 per 1,000 live births (According to Sample Registration System, 2023).¹¹ The World Health Organization (2023) estimates that approximately 295,000 maternal deaths occur annually due to complications related to pregnancy and childbirth, and approximately 2.4 million neonatal deaths occur within the first month of life. The lack of timely, evidence-based clinical decision-making among frontline healthcare providers is a major obstacle to improving maternal and neonatal outcomes. As of April 2025, there are eight research studies worldwide evaluating the effectiveness and impact of Safe Delivery App (SDA), and six research studies in India evaluating the effectiveness and impact of Safe Delivery App (SDA). There are no research studies specifically conducted in Kerala. Hence, this study is essential to evaluate the usefulness and effectiveness of the safe delivery app in enhancing the knowledge, skills, and preparedness of GNM students in managing emergency obstetrics and newborn care. The safe delivery app helps the students to enhance their clinical knowledge, increase the clinical skills and confidence, provides a quick reference during clinical work, support self-learning and also improves their decision-making skills.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of Safe Delivery App on knowledge regarding decision support tool among final year General Nursing and Midwifery students at selected nursing institutions, Kollam.

OBJECTIVES

1. To assess the pre-test knowledge regarding decision support tools in the safe delivery app among final year General Nursing and Midwifery students at selected nursing institutions, Kollam.
2. To introduce safe delivery app as an educational intervention among the final year General Nursing and Midwifery students at selected nursing institutions, Kollam.
3. To assess the post-test knowledge regarding decision support tools in the safe delivery app among final year General Nursing and Midwifery students at selected nursing institutions, Kollam.
4. To find association between pre-test knowledge scores

regarding decision support tools in the safe delivery app and selected demographic variables among final year General Nursing and Midwifery students at selected nursing institutions, Kollam.

HYPOTHESES

All hypotheses were tested at 0.05 level of significance.

H1: There will be significant difference between the pre-test and post-test knowledge scores regarding decision support tools in safe delivery app among final year General Nursing and Midwifery students at selected nursing institutions, Kollam.

H2: There will be significant association of the pre-test knowledge scores regarding decision support tools in the safe delivery app with selected demographic variables among final year General Nursing and Midwifery students at selected nursing institutions, Kollam.

METHODOLOGY

Research approach: Quantitative approach

Research design: one group pre-test post-test research design.

Research settings: In selected Nursing Institutions, Kollam.

Population: Final year General Nursing and Midwifery students.

Sample size: 100 Final year General Nursing and Midwifery students based on the inclusion criteria.

Sampling technique: Purposive sampling technique.

Tools and Technique

Tool

Section A: Demographic Proforma

Section B: Structured knowledge questionnaire

Data collection process: The study was conducted among 100 samples who satisfied the inclusion criteria. The investigators obtained approval from the concerned authority. Samples were collected from Benziger School of Nursing, Kollam, and Upasana School of Nursing, Kollam through purposive sampling technique. The investigators assessed the knowledge regarding decision support tool in Safe Delivery App by using Google Forms. A WhatsApp group was created specifically for the study, and all participants were added. On the same day, the Safe Delivery App was introduced to the participants. Daily follow-ups were conducted through the WhatsApp group. On the sixth day, a post-test was administered using the same structured knowledge questionnaire.

Inclusion criteria

- Final year General Nursing and Midwifery students who were studying at selected nursing institutions, Kollam.
- Students who had knowledge regarding basic obstetric

care.

Exclusion criteria

- Students who were not willing to participate.
- Students who were not available during the time of data collection.
- Students who had already participated in similar studies on decision support tools.

Analysis and Interpretation

Data were entered using Microsoft Excel worksheet and analyzed using appropriate statistical tests. Data were analyzed using descriptive and inferential statistics. Demographic proforma and knowledge questionnaire regarding decision support tool in Safe Delivery App were analyzed in frequency and percentage. The effectiveness of safe delivery app on knowledge regarding decision support tool among final year general nursing and midwifery students was analyzed using descriptive statistics such as mean, standard deviation and inferential statistics using paired 't' test. The chi-square test was used to assess the association between pre-test scores of knowledge regarding decision support tool in Safe Delivery App with selected demographic variables such as age, gender, type of institution, area of residence, type of family, previous exposure to safe delivery app, use of smart phone for learning purposes, access to internet facility, and academic performance in previous year.

Results

Section A

Description of sample characteristics

Table 1: Frequency and percentage distribution of sample characteristics

N=100			
Sl.no	Demographic variables	Frequency	Percentage
1.	Age		
	Below 20 years	3	3%
	20-22 years	64	64%
	23-25 years	29	29%
	Above 25 years	4	4%
2.	Gender		
	Female	100	100%
	Male	0	0%
3.	Type of Institution		
	Private	100	100%
	Government	0	0%

4.	Area of Residence		
	Urban	70	70%
	Rural	30	30%
5.	Type of Family		
	Nuclear	81	81%
	Joint	17	17%
	Extended	2	2%
6.	Previous exposure to Safe Delivery App		
	Yes	16	16%
	No	84	84%
	If yes, specify the source of exposure		
	College curriculum	8	50%
	Workshops/ Seminars	2	12.5%
	Self-exploration	3	18.75%
	Others	3	18.75%
7.	Use of smartphone for learning purposes		
	Frequently	47	47%
	Occasionally	29	29%
	Rarely	19	19%
	Never	5	5%
8.	Access to Internet facility		
	Yes-Regular access	73	73%
	Yes-Limited access	23	23%
	No access	4	4%
9.	Academic performance in previous year		
	Above 75 %	43	43%
	60%-75%	54	54%
	Below 60%	3	3%

Section B: Description of knowledge scores of safe delivery App on decision support tool

Table 2: Frequency and percentage distribution of pretest knowledge scores.

N=100			
Score	Range	Frequency	Percentage
0-6	Poor	77	77%
7-13	Average	19	19%
14-20	Good	4	4%

Table 2 shows that 77% of students had poor knowledge, 19% had average knowledge, 4% had good knowledge regarding decision support tool in Safe Delivery App in pretest

Table 3: Frequency and percentage distribution of post-test knowledge scores.

N=100

Score	Range	Frequency	Percentage
0-6	Poor	4	4%
7-13	Average	37	37%
14-20	Good	59	59%

Table 3 shows that 4% of students had poor knowledge, 37% had average knowledge, 59% had good knowledge regarding decision support tool in Safe Delivery App in posttest.

Section C: Effectiveness of Safe Delivery App on knowledge regarding decision support tools.

Table 4: Mean, standard deviation, 't' value of pretest and posttest knowledge scores regarding decision support tool in Safe Delivery App.

	N	Mean	SD	't'
Pretest	100	7.78	3.29	82.71
Post-test	100	13.57	3.99	

t=2, significant at 0.05 level.

The data presented in table 4 show that the post-test score (13.57) is greater than the pretest score (7.78) on knowledge regarding decision support tool in Safe Delivery App. The 't' value (82.71) is greater than the table value (2) at 0.05 level of significance. Hence hypothesis H1 states that there will be significant difference between the pretest and post-test knowledge scores regarding decision support tools in Safe Delivery App among final year General Nursing and Midwifery students at selected nursing institutions, Kollam was accepted, indicating the effectiveness of safe delivery App on knowledge regarding decision support tool among final year General Nursing and Midwifery students.

Section D: Association between pretest knowledge scores and selected demographic variables.

Table 5: Association between knowledge and selected demographic variables.

N=100

Variables		Knowledge		df	Chi square value	Table value	Significance
	Poor	Average	Good				
Age							
< 20 years	33	0	0	6	122.55	12.59	S
20-22 years	44	4	0				
22-25 years	0	15	2				
> 25 years	0	0	2				

Area of Residence							
Urban	70	8	0	2	35.92	5.99	S
Rural	7	11	4				
Type of Family							
Nuclear	43	4	0	4	30.35	9.49	S
Joint	32	15	2				
Extended	2	0	2				
Previous exposure to SDA							
No	40	3	0	6	18.73	12.59	S
College curriculum	10	6	2				
Workshop/ Seminars	12	6	1				
Self-exploration	15	4	1				
Use of smartphone learning purposes for							
Frequently	57	4	0	6	68.77	12.59	S
Occasionally	20	15	2				
Rarely	0	0	2				
Never	0	0	0				
Access to Internet facility							
Yes-Regular access	25	10	0	4	7.99	9.49	NS
Yes-Limited access	45	9	4				
No access	7	0	0				
Academic performance in previous year							
> 75%	47	15	0	4	20.14	9.49	S
60%-75%	20	4	1				
< 60%	10	0	3				

The calculated Chi-square values for demographic variables such as age, area of residence, type of family, previous exposure to the Safe Delivery App, use of smartphone for learning purposes, and academic performance in the previous year were greater than the table value at the 0.05 level of significance, a significant association was observed between these variables and the pre-test knowledge scores regarding decision support tools in the Safe Delivery App. However, for the demographic variable 'access to internet facility', the calculated Chi-square value was less than the table value, indicating no significant association with pre-test knowledge scores.

Hence, Hypothesis H₂, which states that there will be a significant association between pre-test knowledge scores regarding decision support tools in the Safe Delivery App and selected demographic variables among final year General Nursing and Midwifery students at selected nursing institutions, was accepted for the variables: age, area of residence, type of family, previous exposure to the Safe Delivery App, use of smartphone for learning purposes, and

academic performance in the previous year, and rejected for the demographic variable 'access to internet facility'.

Discussion

The present study was conducted to assess the effectiveness of Safe Delivery App on knowledge regarding decision support tool among final year General Nursing and Midwifery students at selected nursing institutions, Kollam. To achieve the objectives of the study pre-experimental, "one group pre-test post-test only design." was adopted. The Sample was selected by the purposive sampling technique. The sample consisted of 100 final year General Nursing and Midwifery students. The findings of the study have been discussed in relation to objectives and other similar studies.

To Assess the knowledge regarding Safe Delivery App:

In the present study, frequency and percentage distribution of pretest-test knowledge scores showed that 77% of students had poor knowledge, 19% had average knowledge and only 4% had good knowledge regarding decision support tool in Safe Delivery App. While Frequency and percentage distribution of post-test knowledge scores showed that 4% of students had poor knowledge, 37% had average knowledge, 59% had good knowledge regarding decision support tool in Safe Delivery App.

The above findings were supported by a study which was conducted to assess the level of knowledge regarding Safe Delivery App among Nursing officers of Subharti hospital at Meerut, Uttar Pradesh. In this study 42.55% had adequate knowledge and 5% had inadequate knowledge regarding Safe Delivery App.

Assess the effectiveness of Safe Delivery App:

In the present study, Mean, standard deviation, 't' value of pretest and post-test knowledge scores of final year General Nursing and Midwifery students were computed. The calculated paired 't' value (82.71) was greater than the table value (2) at 0.05 level of significance. It was found that, there was significant difference between the pre-test and post-test knowledge scores regarding decision support tools in safe delivery app among final year General Nursing and Midwifery students. This study confirmed that Safe Delivery App was effective in increasing the knowledge level of final year General Nursing and Midwifery students.

The above findings were supported by a study conducted by Rajiv Gandhi University at selected school of Nursing. The findings revealed that management of obstructed Labor was moderate (13.75%) and inadequate (86.25%) before the administration of STP. The STP was effective in enhancing the knowledge of final year GNM students. The post-test knowledge scores after the administration of STP were found to be high (65%) and moderate (35%).

Association between pre-test knowledge scores regarding decision support tools in the safe delivery app and selected demographic variables:

The present study showed significant association of pretest knowledge scores of final year General Nursing and Midwifery students with selected demographic variables such as age, area of residence, type of family, previous exposure to Safe Delivery App, use of smartphone for learning purposes

and academic performance in previous year.

The above findings are supported by a study which was conducted to assess the effectiveness of Safe Delivery App in enhancing Nursing students' knowledge of maternal sepsis and its management at a selected college in Punjab. This study showed significant association between knowledge and demographic variables such as age, parental occupation, mobile phone use, prior awareness of SDA, study time in the app. Exposure to maternal sepsis cases did not show significant association between knowledge and selected demographic variables.

Conclusion

The present study was conducted to assess the effectiveness of Safe Delivery App on knowledge regarding decision support tool among final year General Nursing and Midwifery students at selected nursing institutions, Kollam. The study revealed that the Safe Delivery App significantly improved the knowledge of final-year General Nursing and Midwifery students regarding decision support tools. Post-test results showed a clear increase in the proportion of students with good knowledge compared to pretest scores. The findings also indicated a significant association between students' pretest knowledge and various demographic factors, highlighting the influence of personal and educational characteristics on learning outcomes. Overall, the Safe Delivery App proved to be an effective educational tool for enhancing students' knowledge and understanding of decision support processes in maternal health care.

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