

## Effect of Education Program on Midwives knowledge Regarding Immediate Care of Newborn on in Governmental Hospitals Sinnar state. Sudan, 2022

Comment [NA1]:

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### ABSTRACT

**Background:** Newborn immediate care is the care given to the neonate after birth by qualified personnel in the delivery room. The midwives are the first contact of the newborns so we need them to be knowledgeable and aware about initial care and assessment of the neonate to decrease incidence of mortality and morbidity rate by using standard process for the immediate care of newborn.

**Aim:** To assess the effect of education program for immediate care of newborn on midwives knowledge.

**Methods:** A quasi-experimental design was conducted at Sinnar State in governmental hospitals and covered midwives who were working in Obstetrical and Gynecological departments. The sample size consisted of (96) midwives

during the period of (February to July 2020). Data were collected by using questionnaire designed was applied to the midwives pre and post intervention to determine their knowledge regarding immediate care of newborn. Data analysis was performed by statistical package for social sciences (SPSS) (Version 26) presented in tables and figure, t-test was used to test the differences between the means.

**Results:** The result revealed that midwives pre knowledge were (42.5%, 17.5% and 19.8%) for the good knowledge, satisfied knowledge and poor knowledge respectively. However for midwiferies post-knowledge were (82.3%, 9.4% and 8.3%) for the good knowledge, satisfied knowledge and poor knowledge respectively. Total mean score of midwives knowledge were (24.1%, 68.4%) for the pre and post midwives knowledge respectively. All the parameter items for midwives knowledge were statistically significant ( $P<0.05$ ) between pre and post midwives knowledge except for vital signs taken immediately after birth.

**Conclusion** The study findings showed that program had been an effective method of increasing the midwives' knowledge about immediate care newborn.

**Key words:** *Effectiveness, Education, Immediate newborn care, knowledge, midwife, Program*

## INTRODUCTION

Newborn immediate care is the care given to the neonate after birth by qualified personnel in the delivery room (Afjeih, *et al.*,2013.) the neonatal and postnatal period, which is the first 28 days and weeks after childbirth is very critical to the survival of both neonate and mother. During this period, major changes occur which determine the well-being of both mothers and their babies (WHO, 2014). Lack of adequate care could result in significant ill health and even death during this period. During this period most maternal and infant deaths occur, most especially in developing countries (WHO, 2018).For a child to develop properly and to reach its maximum potential in the future, the care given at birth (i.e. immediate newborn care) is of immense importance (Shahjahan, M. *et al.*, 2012) which is influenced by newborn care and maternal care services received at health facilities at the time of birth and home care practices of mothers. Causes of neonatal deaths in Nigeria and globally are mostly as a result of infections, prematurity and birth asphyxia (Wang, H. *et al.*, 2013) The presence of a skilled professional/birth attendants in labor and delivery can reduce neonatal deaths drastically.

Worldwide about eight newborn babies die every minute. Every year more than four million babies die during first week of life due to inadequate care. However, reduction of newborn mortality can be accomplished by improving the

quality of care provided to newborn babies. In developing countries 99% of the four million neonatal deaths per year. The highest numbers of deaths occur in South-central Asia and the highest rates are in sub-Saharan Africa. (Marcica, I .2010).In Sudan in Wad Medani Obstetrics and Gynecology Teaching Hospital, there is high level of neonatal mortality and morbidity (11.7%), most babies take much time to decide about seeking care and admission The equipment's in the nursery are not adequate . they are either not available or not operating (May M, *et al.*, 2015).

Immediate newborn care (INC) is the care given to newborns in the transitional period(immediately after birth) is crucial to their survival. Nurses- midwives require adequate knowledge to provide immediate newborn care interventions (You, D. *et al.*, 2015). The care given to newborns immediately within the first few hours of birth was critical for their survival. However, their survival depends on the nurse- midwife's knowledge to deliver appropriate newborn care interventions. Therefore, the knowledge of health care workers on immediate newborn care was vital to reduce neonatal morbidity and mortality. Nurses- midwives require knowledge provide immediate newborn care interventions (Abdu, H. *et al.*, 2019). Professional care at birth is crucial for both the newborn baby and mother. Nurses- midwives are regularly placed in the care of newborns admitted to formal health care facilities. Improving their knowledge

are very important aspects of these health facilities (Rutebemberwa, *et al.*, 2009).

The most important for newborn and maternal survival are labor, birth and the immediate postnatal period. Unfortunately, in low and middle income countries most mothers and newborns do not receive adequate care. Studies were showed that many newborn lives can be saved by using procedures involving simple equipment provided by a single professional birth attendant who cares for the mother and the neonate. Caring of all newborns involves immediate and thorough drying, skin to skin contact, cord clamping and cutting after the first minutes after birth, early initiation of breastfeeding, and exclusive breastfeeding. After the first hour of life, newborns should receive eye treatment, vitamin K, and recommended immunizations (WHO, 2020).

The essential newborn protocol is a series of time bound and chronologically ordered care that a baby receives at birth, and it has standardized elective procedural steps: dry and stimulate, evaluate breathing, cord care, keep the newborn warm, initiate breastfeeding within the first one hour. Heat warmer that provide a constant source of warmth. Most important advances in intensive care have created a need for highly skilled personnel trained in the art of neonatal intensive care (Gerald and Sandra, 2010). Nurses in the neonatal care units

should be highly trained in the management of variety of sophisticated mechanical devices, and educated in the infant's behavior, interpreting observations of others and timing interventions appropriately.

The objective of this study was determining the effectiveness of education program on midwives' knowledge before and after the educational program regarding immediate Care of Newborn.

#### MATERIALS AND METHOD

##### **Study Design, Sample and Setting:**

The research is a quasi-experimental design. The research universe consists of the midwives who work at Sinnar State, capital Singa. It is located on the western east of the Blue Nile and about 37.844 km<sup>2</sup> south of Khartoum in October 2019 to August 2022. According to data in 2019. The Study population consists and midwives who were working at governmental hospital, in Obstetrical& Gynecological in hospital, midwives who had midwifery certificate were directly involved in the provision for neonatal services, in Singa and Sennar in hospital during the period of the study. The total number covered in this study was 96 participants who distributed in Sinnar maternity hospital and Singa hospital.

**Instruments and Procedure:**

Data in the research were collected with questionnaire forms that were created via Google Forms and these forms were sent via social media such as Facebook, WhatsApp, Gmail, etc. due to the pandemic. The questionnaire form was constituted by the researcher by reviewing the literature (Baghlani, *et al.*, 2019). The questionnaire form consists of two parts. The first part has questions about socio-demographic characteristics such as age, qualifications, years of experience and attendance of previous training courses (Fig. 1, 2), the second part has 35 questions about the midwives' knowledge was reviewed regarding immediate care of the newborn. This tool was used to measure the nurses' knowledge before and after the education program to evaluate the effect of the education program on their knowledge (Table, 1 and 2). The first pilot study done to test accuracy of the questioner, the pre questionnaire will provide to participants to measure their knowledge and then education program has been conducted, midwives divided into groups according to their working hours and working place.

**Statistical Analysis**

In order to statistically analyze the data collected from the study sample to arrive at the results, the researcher used the SPSS-26 and Microsoft Excel (2010) package. To analyze the data, statistical procedures were used as descriptive statistic and inferential statistic with a p-value equal or less than 0.05 were considered significant and t-test.

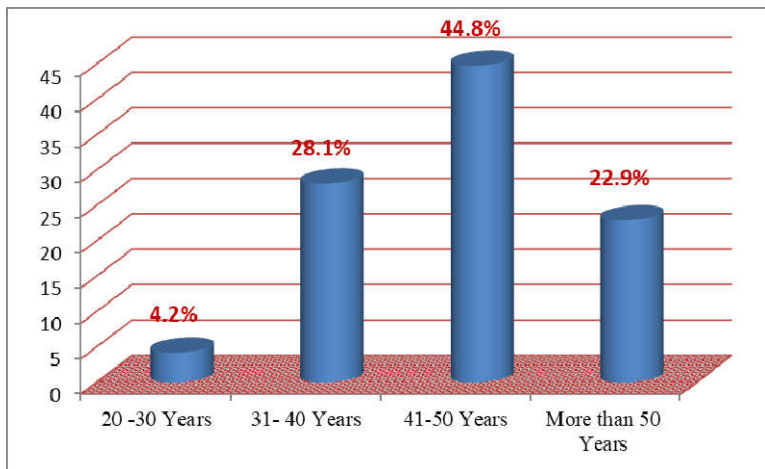
**Ethical Approval:**

Approval from University of Bahri faculty of postgraduates studies, permission of ministry of health and approval from all hospitals. Verbal informed consent was obtained from the participants, confidentiality of response to both questionnaire and personal data sheet was assured. The participant were provide essential information for consent form and their signatures taken on consent form. The participant have right to with draw from the study at any time and that there would be no potential physical economical or legal harm to the participants. The result available and given the hospital



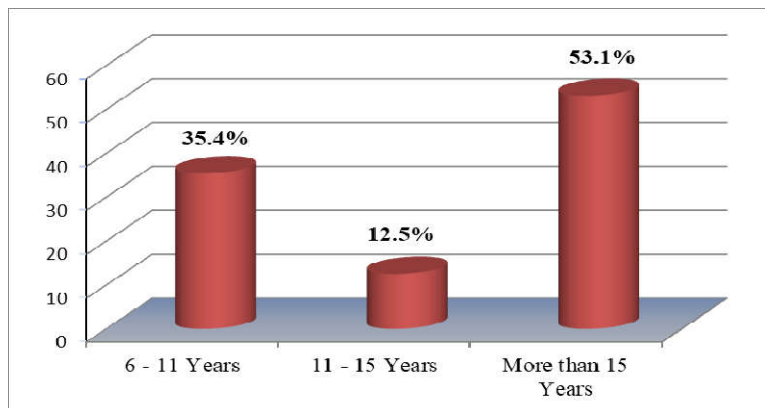
## RESULTS

### 1. Socio demographic



**Fig. (1).Distribution of study group according to their age n=96**

Figure (1) showed (44.8%) of the study sample at age ranged from 41 – 50 years



**Fig. (2) Distribution of study group according to their years of experience  
n=96**

Figure (2) showed (53.1%) of the study sample the years of experience were more than 15 years.

**2. Knowledge assessment findings**

**Table (1): Pre and post midwives good knowledge answers about immediate care of newborn frequency and percentages n=96**

Knowledge	Pre test	Post test		Sig. (2-tailed)	
	f	%	f		%
<b>Newborn health</b>					
Characteristic of the newborn skin	15	15.6%	81	84.4%	
Characteristic of the newborn head	25	26.7%	83	86.3%	
Factor affecting of the newborn health	06	06.3%	83	84.3%	
Normal body weight	13	13.5%	84	87.3%	
Normal head circumference	02	2.1%	87	90.6%	
Normal chest circumference	13	13.5%	92	95.8%	
<b>Mean knowledge percent</b>		<b>15.1</b>		<b>87.6</b>	<b>0.00</b>
<b>Vital signs taken immediately after birth</b>					
Normal heart rate	05	05.2%	23	24.6%	

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The best site to take body temperature	13	13.5%	20	20.8%	
<b>Mean knowledge percent</b>		<b>09.3%</b>		<b>21.5%</b>	<b>0.61</b>
<b>Newborn health</b>					
Definition	11	11.5%	41	42.7%	
Importance	43	44.8%	88	91.7%	
Equipment	38	39.6%	87	90.6%	
Steps of the immediate care	38	39.6%	87	90.6%	
Prevention heat loss	55	57.3%	89	90.8%	
signs of body temperature loss	45	46.9%	83	84.3%	
Method of clean airway	28	29.2%	59	61.5%	
Equipment used in suction	33	34.4%	50	52.1%	
Adequate breathing and circulation	22	22.9%	39	40.6%	
<b>Mean knowledge percent</b>		<b>36.2%</b>		<b>71.7%</b>	<b>0.01</b>

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**Whereas, f = Frequency, % = percent. Sig. =Significant at p-value =  $\square$  0.05**

The table showed after the intervention, the knowledge about the characteristic of the newborn skin, head and factor affecting of the newborn, was improved from (84.4%, 86.3% and 84.7%). The table showed after education program the mean knowledge percent about vital signs taken immediately after birth, was (from 9.3% to 21.5%) but there was no significant relation. Education program significant (P  $\square$  0.05) increased items of newborn health between pre and post midwives knowledge (Table 1).

**Table (2): Continue pre and post midwives good knowledge answers about immediate care of newborn frequency and percentages n=120**

Knowledge	Pre test		Post test		Sig. (2-tailed)
	f	%	f	%	
<b>Apgar score</b>					
Used	11	11.2%	91	94.8%	
Characteristic	05	05.2%	87	90.6%	
Evaluate	05	05.2%	79	82.2%	
<b>Mean knowledge percent</b>		<b>07.2%</b>		<b>89.2%</b>	<b>0.00</b>
<b>Newborn resuscitation</b>					
Decided newborn need resuscitation	25	26.0%	79	82.2%	
Steps	39	40.6%	78	81.3%	
Equipment and supply need	51	53.1%	78	81.3%	
Ratio of ventilation to compression	08	08.3%	68	70.8%	
<b>Mean knowledge percent</b>		<b>32.0%</b>		<b>78.9%</b>	

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<b>Newborn health</b>					
Umbilical cord contains	05	05.2%	24	25.0%	
The distance between the navel and the umbilical cord	05	05.2%	15	15.8%	
care of umbilical cord	29	30.2%	28	29.2%	
Contact baby site in skin to skin contact	18	18.8%	74	77.4%	
Characteristics of skin care	38	39.6%	82	85.4%	
Time starting breast feeding	07	07.3%	30	31.2%	
Benefits of breast feeding for baby	60	62.5%	74	76.7%	
baby position during breast feeding	29	30.2%	72	75%	
<b>Mean knowledge percent</b>		<b>24.8%</b>		<b>60.0%</b>	<b>0.049</b>
<b>Drug used immediately after birth</b>					
Medication used in eye	08	08.3%	14	14.5%	
Time	05	05.2%	19	19.8%	
Drug used to prevent bleeding	34	35.4%	86	89.6%	
<b>Mean knowledge percent</b>		<b>16.3</b>		<b>41.3%</b>	<b>0.39</b>

*Whereas, f = Frequency, % = percent. Sig. =Significant at p-value =  $\square$  0.05*

Data in the table (2), showed after education program the knowledge about the decision that the newborn need resuscitation, steps, equipment and supply need and the ratio of ventilation to compression in newborn resuscitation was improved from (82.2%, 81.3%, 81.3%, and 70.8%). Education program significantly ( $P \leq 0.05$ ) increased items of apgar score, newborn resuscitation,

newborn health and drug used immediately after birth between pre and post midwives knowledge

**Table (3): Pre and post midwives knowledge answers about the best site to take pulse and concept care of newborn frequency and percentages n=120**

Knowledge	Pre test		Post test	
	f	%	f	%
<b>The best site to take pulse</b>				
Radial	03	03.1%	02	02.1%
Apical	83	86.5%	91	94.4%
Femoral	02	02.1%	02	02.1%
Dorsal	01	01.0%	01	01.0%
Non	07	07.3%	0.0	0.0%
<b>Mean</b>	<b>96</b>	<b>100%</b>	<b>96</b>	<b>100%</b>
<b>Concept</b>				
<b>Yes</b>	42	43.8%	96	100%
<b>No</b>	54	56.3%	00	0.0%
<b>Mean</b>	<b>96</b>	<b>100%</b>	<b>97</b>	<b>100%</b>

Whereas, f = Frequency, % = percent.

The table showed after education program there was no significant change reported concerning the best site to take pulse. The knowledge about concept, used, characteristics and evaluate of Apgar score, was improved from 43.8% to 100% for yes answers. However, from 56.3% to 0.0% for No answers (Table 3).

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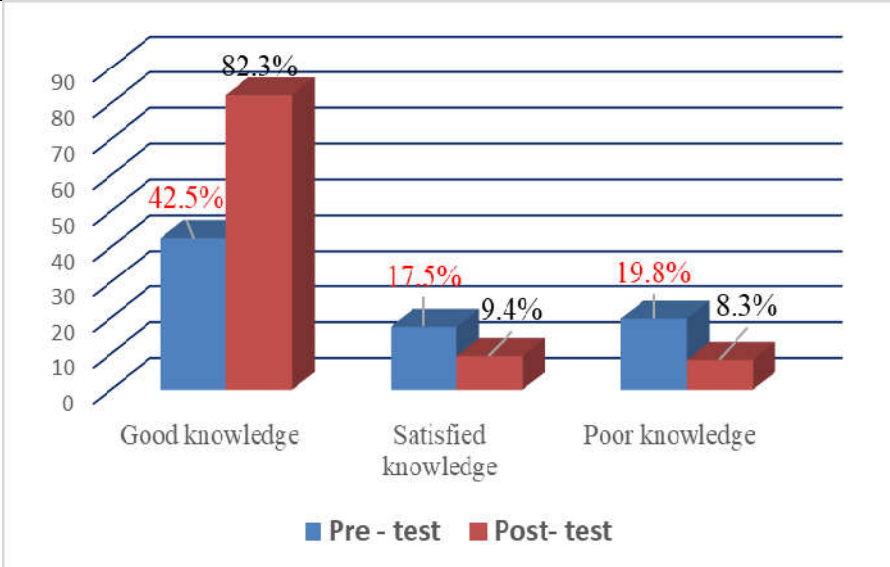
**Table (4): Comparing between pre and post education program regarding midwives immediate care of newborn n=120**

Item	X±SD	F	Sig. (2-tailed)
Pre total mean knowledge	24.1 ± 17.2	9.87	0.001
<b>Post total mean knowledge</b>	<b>68.4 ± 27.1</b>		

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Whereas, X = mean percent. SD = standard deviation. Sig. =Significant at p-value =  $\leq 0.05$

Data in Table (4) indicated that the education program statistically significant ( $P \leq 0.05$ ) increased total score knowledge regarding immediate care of newborn between pre and post midwives knowledge.



**Fig. (3): Distribution of study group according to their knowledge pre and post-test**

### DISCUSSION

In developing countries 99% of the four million neonatal deaths per year. The highest numbers of deaths occur in South-central Asia and the highest rates are in sub-Saharan Africa (Marcia, I.2010) Midwives are the first line staff to deal with neonates requiring urgent help. Neonatal care training is deficient in midwifery schools. Also there is lack of education program neonatal care for hospital midwives newborn care services in Sudan have not progressed well over the years. InWad Medani Pediatric teaching hospital was found to be significantly high



and necessary equipment's are not available in NICU (May. *et al.*, 2015). This study was conducted during period from February to July 2020 in Sinnar State on in governmental hospitals and covered midwives who were working in Obstetrical and Gynecological departments to provide important information about the level of midwives knowledge regarding immediate care of newborn.

The study revealed that, all of study population were females this result similar to the findings of another study in Sudan, which showed that all neonatal care nurses (100%) in the NICU were female. This can be attributed to hospital polices (Babeker, Z. 2015). The majority of midwives were age ranges between 41-50 years, this result was disagreed with Jennifer *et al.*, (2018) who studied that more than half of the nurses- midwives' were aged between (22- 24) years. (44.8%), followed by whose age ranges from 31-40 years (28.1%), and above 50 years (22.8%). Regarding the level of education the study showed that all of midwives at level of diploma degree. This result was disagreed with Gebru,*et al.*, (2019) who studied that majority (83%) of nurses-midwives were diploma graduated. The highest percentage (53.1%) of study sample was midwives their experience more than 15 years at governmental hospitals. This result was agreed with Traore (2018) who revealed that the study sample have more than five years of professional experience in midwifery. This study showed that after the

education program, the knowledge of the participants was significantly improved ( $P < 0.05$ ) in different relevant areas such as, the factor affecting newborn health, importance of immediate care of the newborn, equipment needed in immediate care of the newborn, steps of immediate care of the newborn and in using Apgar score. Likewise, similar findings were reported by Perez (2022) who agreed that; the education evidence based interventions, are useful in push the newborn care related knowledge.

This study showed that after the education program, the knowledge of the participants was significantly improved ( $P < 0.05$ ) in different relevant areas such as the best site to take body temperature immediately after birth, and how to care of babys temperature. In similar context, Purnamasari, *et al.*, (2017) agreed with our findings and indicated that there was significant difference in nurses' knowledge pre- and post-education intervention ( $p < .001$ ;  $\alpha = .05$ ). Moreover, Manuama, *et al.*, (2022) agreed that education on prevention of heat loss is an effective strategy to promote nurses' knowledge.

The current study revealed that (19.8%) of the midwives showed a poor knowledge and after applying for the educational program and conducting the post-test, the midwives expressed good knowledge (82.35). Similar result was by Shireen, (2022) who indicated that (83.3%) of the midwives showed a lack

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of knowledge and after applying for the educational program conducting the post-test, the midwives expressed good knowledge (86.7%). The result showed that all the parameter items for midwives knowledge were statistically significant ( $P \leq 0.05$ ) between pre and post midwives knowledge except for vital signs taken immediately after birth. This result agree with Shreen, (2022), indicated that there was a statistically significant difference between the study group and the control group in the post-test measurement after implementing the educational program ( $P = 0.000$ ). There were high significant differences in participants' knowledge at pretest and posttest before and after the implementation of education program for study sample (Wafaa and Igbal, 2021).

### CONCLUSION

The study findings showed that the education program regarding immediate newborn care contributes in improving nurse- midwife's knowledge. The educational program had been effective method of increasing the nurses- midwives' knowledge regarding immediate newborn care.

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## RECOMMENDATIONS

Based on the conclusion the study recommended the following:

- The health care Providers should be encouraged to upgrade their educational level to build their skill retention and expose themselves to newborn care.
- The hospital should be make policy for pediatrician has to attend in labor room for 24 hour
- The ministry of health should be work to improve infrastructure, equipment, and supplies at basic level and ensure availability off all necessary supplies and equipment.

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