



Midwives' Knowledge and Practice Regarding Immediate Care of Newborns at Khartoum State Hospitals 2022

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Abstract. Most newborns breath and cry at birth with no help, and immediate care after birth is simple but important. This study aimed to assess midwives' knowledge and practice regarding immediate care of the newborn. The study was conducted on 116 midwives in three hospitals in Khartoum state. A descriptive cross-sectional study conducted in Omdurman Maternity Hospital Turkey Hospital and Bashir University Hospitals during period from December 2021 - 2022. Data was collected by interview questionnaire and observation check list. The data was analyzed using statistical package for social science (SPSS) version 16 program using frequency percentage Pearson correlation coefficient. The p value was set at < 0.05 for statistically different test. The current study revealed that midwives were knowledgeable regarding immediate care of newborns. Most of the midwives did not perform complete physical examination, did not apply eye care, did not perform APGAR Score completely at the first minute, did not Screen for the disease, and did not document all the procedure, also did not check rectal temperature, and accordingly not being sure about the passage of meconium.

The study concludes that most of the midwives are knowledgeable regarding immediate care of the newborn but there lacking in their practice the study recommended continues training program to improve midwives' practice.

Keywords: Midwives' Knowledge · Midwives' Practice · Newborn Care

1 Introduction and Background

Most babies breathe and cry at birth with no help, and immediately care after birth is simple but important [1].

From 133 million livebirths, 3.7 million die during neonatal period and 3 million are stillborn worldwide. Ninety-eight percent of these deaths from developing countries where 90% of babies are born and 76% of these deaths occur in early neonatal period according to recent estimation neonatal mortality in developing countries was 31 deaths per 1000 [2, 3], on other hand The risk of death in the neonatal period was over seven times greater than in developed countries and 10 times in least developed countries [2].

The assessment and examination of the newborn must be done at birth and within first hours of life and should include assessment of color, tone, breathing and heart rate and must be done immediately after birth which assessing physiological adaptation into extra-uterine life [4].

Postnatal check-up within six hours of delivery which recommended by the World Health Organization. Recent standards explain that newborn and infant physical examination until 72 h after birth (5) and should be made compulsory to reduce deaths of mothers and neonates [5]. So Essential newborn care protocol standard procedures that baby receives at birth including immediate drying, skin to skin contact, clamping of the cord after 1 to 3 min, non-separation of baby from mother, and breastfeeding initiation [6].

New born basic needs to be protected, to be breathe normally, to be warm and to be fed [3]. In Sudan midwives whom they given the care for new born and also given the care for Women in labor have need for companionship, empathy and help, so four dimensions to the support that women want in labor: emotional support, informational support, physical support and advocacy [7].

1.1 Problems Statement

The risk of death in the neonatal period was over seven times greater than in developed countries and 10 times in least developed countries.

1.2 Justification

Assessment of the quality of the care it mandatory which provided by midwives in Sudan to safe the child hood and to be sure regarding immediate care of the newborn.

Most neonatal deaths usually occur in the first 24 h of life. No enough researches conducted regarding this issue.

1.3 General Objective

To Study Midwives' Knowledge and practice regarding immediate care of the new born.

1.4 Specific Objectives

To identify midwives' knowledge regarding immediate care of the newborn.

To assess midwives practice regarding immediate care of the newborn.

2 Literature Review

Immediate care of newborn is the care of the newborn after birth immediately in the delivery room started before explosion of the placenta and before mother and infant are transferred to the postpartum unit.

Most newborns breath and cry after birth just about 10% of newborns require some assistance and Less than 1% need resuscitations [5, 6]. Although their factors which

are successfully decreasing mortality among children under five such as immunization and diarrhea control programs despite that still there are high newborn mortality rate in developing countries [2, 8]. The research identified that the main causes of 85% of newborn deaths from three main causes: infections, birth asphyxia, and complications of prematurity, on other hand many newborns deaths due to mother's poor health or due to lack of access to essential care [2, 8]. The nursing care of the newborn is directed toward promoting the physical well-being of the infant and supporting the family. Immediate care of the infant after delivery in birth place, because numerous physiological adaptations begin right after birth, so immediate care is a very important and essential part of infant care [2, 8]. Preparation for a Baby's Birth It is important to prepare the environment, equipment, and supplies that are needed for the care of a newborn at birth and Prevent Infection. Every birth should be attended by someone who has been trained in initiating and performing immediate care of newborn additional trained personnel necessary if full resuscitation is required [8].

2.1 Precautions for Infection Control during Delivery

Procedure include hand washing: Always wash hands with soap and water and wearing gloves.

So, always wear gloves when touching potentially contaminated materials.

For face and eye protection, wear mask and eye protection and wear a gown to prevent soiling of clothing. In addition, handling newborn care materials and equipment in a manner that will prevent secondary transmission. Regarding the surface, it should be regularly cleaned and disinfected. Handling bed linens soiled with potentially infectious material in a manner that will prevent secondary transmission. Handling and putting the baby into the mother's abdomen at the time of birth, immediate care of newborn starts during delivery when the baby's head is born, excess mucus wiped gently by sterile gauze from his eyes, nares and mouth. Recording the baby date of birth, sex of the baby and hospital admission are noted once the baby has been completely expelled from his mother [3, 9].

So prefill the immediate care of newborn include:

1. Clearing the Airway.
2. Evaluating Cardio respiratory Function.
3. Temperature Regulation.
4. Put an Identification band and Security.
5. Clamping and cutting the Umbilical Cord and warm the baby.
6. The temperature of the room should be warm and prepare.
7. Enough light should be prepared to check newborn color and breathing, also consider the privacy [2, 8].

After delivery lay the newborn on a clean and soft surface such as the mother's abdomen and the cutting of the cord should be performed by sterile instrument [9, 10].

If baby need resuscitation, provide warmth, clear airway (insure that the away is open and clear, dry stimulate to breathe, make sure that there is adequate, circulation monitoring, give oxygen as necessary, assist ventilation with positive pressure and spo²

monitoring, intubate the trachea, provide chest compressions and administer medication [10].

3 Method

3.1 Study Design

In order to fulfill the aims of the current study, a cross-sectional descriptive hospital-based study was conducted in Khartoum State, the national capital of Sudan.

3.2 Setting

The total number of the midwives 116 from the three states of Khartoum are Khartoum, Khartoum North and Omdurman. The main hospitals specialized in midwifery were chosen from the three states. In Khartoum, Bashir and Eltrki was chosen and in Khartoum North, Bahri was the selected hospital whereas in Omdurman, Maternity hospital which is the biggest maternity hospital in the capital.

The selection of the above hospitals was based on the fact that they have large numbers of delivers and adequate numbers of midwives in labor room.

3.3 Sample Size and Sample Techniques

The following equation was used to determine the sample size for the current study based on studies conducted in Khartoum university.

$$N = (1.96)^2 pq / (0.07)^2 = (1.96)^2 \times .20 \times .20 \div 0.07 \times 0.07$$

where p value equals (1) and q value = $1 - p$, N is the number of participants or the sample size. In the current study, a total caver of 116 nurses working in the Pediatric department were selected.

A multi stage sampling method was selected in recruiting the midwives in the previously mentioned hospitals so as to give equal chance to participants and avoid any selection bias. The list of the midwives was obtained from the human resource officers and the names were entered in a ballot in order to select participants randomly and give all the midwives equal chances for inclusion in the current study, thus avoiding selection bias.

3.4 Data Collection Technique

An interview questionnaire (Questionnaire A) included the. The total number of statements included in the scale were 18. A coded questionnaire (Questionnaire 1). All the procedures and arts related to the immediate care of newborn were observed. The two questionnaires were collated and analyzed Data collection started at 2021 and continued until February 2022. The variable the questionnaire included two parts the first was the background information of midwives such as age, gender, education level and the second focused on midwives' knowledge. A second questionnaire (Questionnaire B) targeted midwives to assess their performance i.e. the service provided by them included 18 items.

3.5 Ethical Considerations

The approval to conduct the current study was sought from the scientific committee at of the ministry of health The four selected hospitals were approached and ethical permission was obtained from the general directors. All midwives participated in the study were those who actually voluntary agreed to complete the study. Midwives were approached with a full description of the study and its aims the information obtained treated with high privacy and confidentiality. Any information revealing the identity of any individual was not included in the final report or in other communication prepared throughout the course of the study.

4 Results

4.1 Validity and Reliability of Data Collection Tools

In order to check the validity of the scales items in the current research population, the data collection tool was applied on a pilot sample consisting of 20 subjects). The sample was selected randomly from the research population. After scoring the responses Cronbach Alpha was conducted to get correlation coefficients between scores of each item and the total score of the subscale in which the item belonging to. This helped in determining the internal consistency of the scale. The results of these computations were shown on Tables 1, 2, 3, 4, 5, 6, and 7 and Figs. 1, 2, and 3.

Table 1. Reliability coefficient

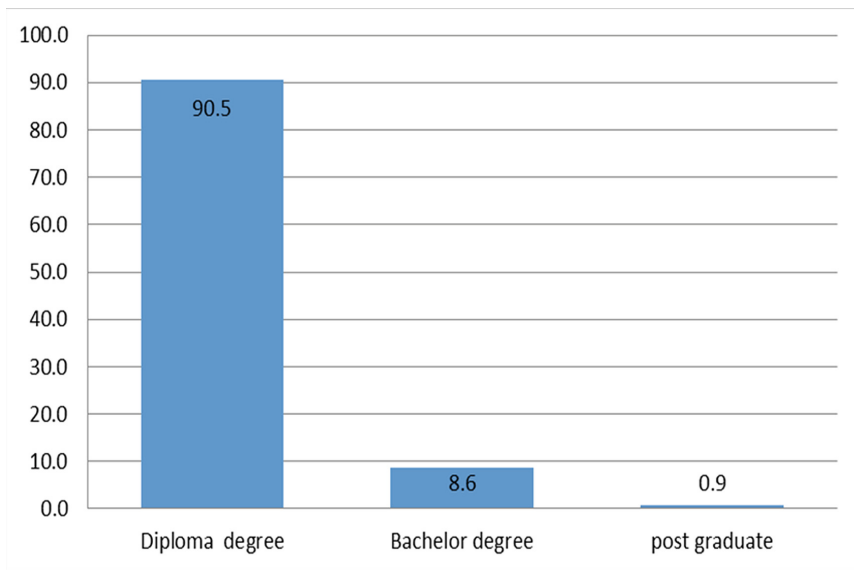
	No of Items	Reliability Coefficient
		Alpha
Knowledge of Immediate Care of The newborn	18	0.65
Check List	18	0.84

Table 2. Show the age of the midwives whom working in labor Khartoum state hospitals 2022

Age by years		
	Frequency	Percent
21–30	3	2.6
31–40	27	23.3
>40	86	74.1
Total	116	100.0

Table 3. Marital status of midwives whom working in labor room of Khartoum state hospitals 2022

Marital status		
	Frequency	Percent
Married	113	98.3
Single	2	1.7
Total	115	100.0

**Fig. 1.** Educational level of midwives whom working in the labor Khartoum state hospitals (2022)

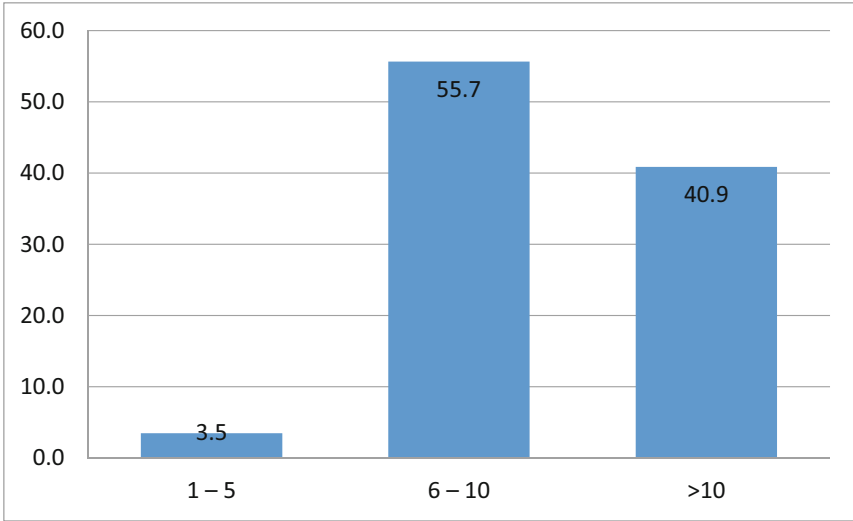


Fig. 2. The experience of midwives whom working in the labor Khartoum state hospitals 2022

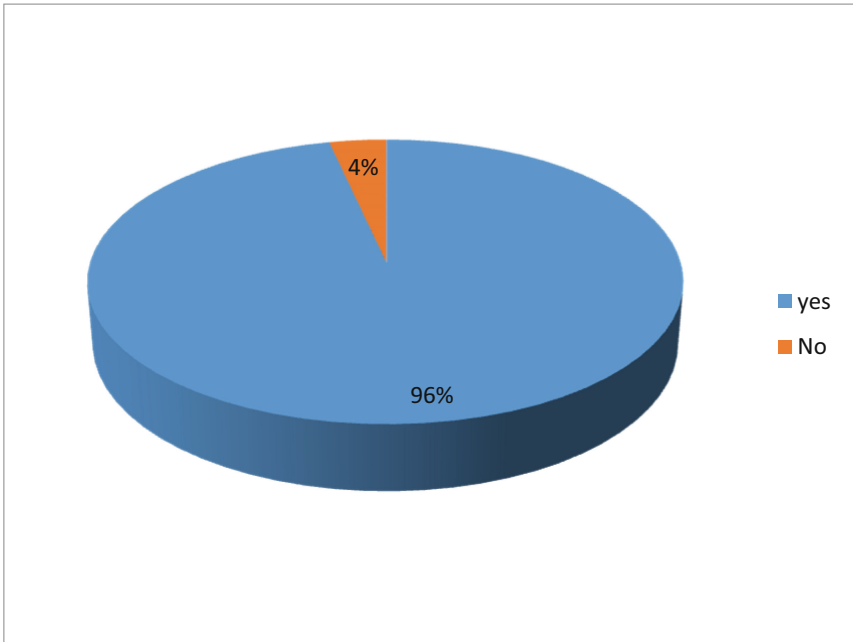


Fig. 3. Percentage of training regarding neonatal course among midwives in Khartoum state 2022

Table 4. Knowledge of the midwives whom working in the labor Khartoum state hospitals 2022 regarding the immediate care of the newborn

Knowledge The Items of	No		Yes	
	Frequency	Percent	Frequency	Percent
To carry out good interpersonal communication and to take complete history about the mother and neonate	50	43.1%	66	56.9%
Clamp, cut and clean the umbilical cord	0	0.0%	116	100.0%
Dry the infant.	0	0.0%	116	100.0%
warm and start skin to skin contact	0	0.0%	116	100.0%
Suctioning from: Mouth. Pharynx. And nose To ensure patency of airway	0	0.0%	116	100.0%
Assigning APGAR Score at the first Minute	81	69.8%	35	30.2%
Injection oxytocin or to mother arm or thigh	0	0.0%	116	100.0%
Check rectal temperature	10	8.6%	106	91.4%
To perform complete physical assessment	10	8.6%	106	91.4%
Encourage Breast feeding	35	30.2%	81	69.8%
Applying eye care	27	23.3%	89	76.7%
Perform Umbilical care	39	33.6%	77	66.4%
Administering of vitamin K prophylaxis	0	0.0%	116	100.0%
Administering hepatitis B, BCG vaccines at birth	0	0.0%	116	100.0%
Weight the baby	0	0.0%	116	100.0%
Be sure passage of meconium	1	0.9%	115	99.1%
Screening for the diseases	37	31.9%	79	68.1%
Documentation	37	31.9%	79	68.1%

Table 5. The practice of midwives regarding immediate care of the newborn Khartoum state hospital 2022

Check list	Not Done		Done	
	Frequency	Percent	Frequency	Percent
To carry out good interpersonal communication and to take complete history about the mother and neonate	104	89.7%	12	10.3%
Clamp, cut and clean the umbilical cord	0	0.0%	116	100.0%
Put identification band immediately	58	50%	58	50%
Dry the infant.	0	0.0%	116	100.0%
warm and the neonate	0	0.0%	116	100.0%
During clamping cutting the umbilical cord putting the infant on mother's abdomen	50	43.1	66	56.1
Suctioning from: Mouth. Pharynx. And nose To ensure patency of airway	0	0.0%	116	100.0%
Assigning APGAR Score at the first Minute	105	90.5%	11	9.5%
Infection control throughout procedure cutting umbilical cord, sectioning considering the	65	50%	65	50%
Check rectal temperature	112	96.6%	4	3.4%
To perform complete physical assessment	112	96.6%	4	3.4%
Encourage Breast feeding	1	0.9%	115	99.1%
Applying eye care	98	84.5%	18	15.5%
Perform Umbilical care	0	0.0%	116	100.0%
Administering of vitamin K prophylaxis	0	0.0%	116	100.0%
Administering hepatitis B, BCG vaccines at birth	0	0.0%	116	100.0%
Weight the baby	8	6.9%	108	93.1%
Be sure passage of meconium	102	87.9%	14	12.1%
Screening for the diseases	105	90.5%	11	9.5%
Documentation	104	89.7%	12	10.3%

Table 6. Correlation between midwives' knowledge and their experience

	Total Knowledge	
	Correlation Coefficient	P-value
Educational degree	-0.122	0.193
Years of experience	0.352	0.0001

Table 7. Correlation between midwives practice and their experience

	Total Practice	
	Correlation Coefficient	P-value
Educational degree	-0.106	0.258
Years of experience	0.458	0.0011

5 Discussion

Most neonatal deaths usually occur in the first 24 h of life, and three-quarters of neonatal deaths occur in the first week after birth [11]. So Essential newborn care protocol standard procedures that baby receives at birth including immediate care of the new born to saving the newborn. The current study reveal that most of midwives their age above 40 years' table (2) and most of them and their experience between (6–10) consist with study done at university of Khartoum by Dr Faizia Ali 2013.

Most of the midwives having diploma of midwifery and receiving courses regarding neonatal care and this consist with study done in 2015 by Fatima Ahmed which reveal that most of the midwives communicate but their communication not in good way also not taking complete history about the mother and neonate and this not consist with study done Yemaneh and Dagnachew [12] which reveal that Responding positively to mothers asking their question counselling the mother.

Although 50% of the midwives had poor communication and most of them (81%) of them not know the Apgar scoring. Most of them were knowledgeable regarding newborn care 90%-100%.

Regarding infection control just 50% of midwives considering the infection control through the delivery and when performing the for the newborn and this this was better than study done by Yemaneh and Dagnachew [12] which show that most of respondents not performing hand washing before and after delivery.

All midwives clamp, cut and clean the umbilical cord and this consist with study done by [12], Dr Faiza 2013 which that 80% of midwives using separate scissor for cutting the umbilical cord. About 50% of the midwives putting the I deification pand immediately and this better than study done by Yemaneh and Dagnachew [12] which done in Ethiopia just 23% putting the identification card and also better than study by Dr Faiza 2013 in Khartoum state which reveal that 24% putting the identification card immediately which explain that the practice of the midwives improving and all of

the mothers drying and warming the infant performing the sectioning insuring patency airway patency, Administering of vitamin K prophylaxis Administering hepatitis B, BCG vaccines at birth and Screening for the diseases this not consist with study done by Tepi & Aman 2016 in utopia which reveal that just 55% give vit K. In addition, just 50% of midwives putting the infant on mother's abdomen during clamping and cutting umbilical cord and this consist to some extend with study done by Dr Faiza which reveal that 67% of the midwives putting the infant on mother's abdomen during cutting the umbilical cord.

Most of the midwives not perform complete physical, applying eye care assessment, APGAR Score at the first Minute Screening for the diseases, document all the procedure, check rectal temperature and being sure about the passage of meconium and this consist with study done by Dr Faiza 2013 Fatima eteal which conducted in Khartoum state 2015 their sties reveal that most of the midwives not applying the care not performing the Apgar scoring and checking the rectal temperature and also not considering all documentation.

The correlation with midwife's knowledge and practice with midwife's experiences and their educational level the study reveal that that there was significant correlation between midwives' experiences and midwives' knowledge and practice but insignificant correlation between the midwives' level of education and midwives practice, that explain improvement of practice and knowledge increase by their experience's more the educational level.

6 Conclusion

Most of midwives were knowledgably regarding newborn care (90%–100%) but they did not know the Apgar scoring (81%) and there was lacking in their practice (70%).

7 Recommendations

Service training must be done by medical department to midwives regarding immediate care of newborn periodically.

Upgrading educational status of the midwives to be updating and improve their practice regarding immediate care of the newborn.

Providing motivation to those who have good knowledge and practice.

Educational curriculum must include neonatology.

Encouraging of postgraduate study and courses regarding neonatology.

Planning to put the pediatric nurses to attend the delivery and performing the immediate care of newborn.

References

1. Moss, W.J., Ramakrishnan, M., Storms, D., Siegle, A.H., Weiss, W.M., Muhe, L.: Child Health in Complex Emergencies. The National Academies Press, Washington (2006)
2. World Health, O.: Neonatal and Perinatal Mortality: Country, Regional and Global Estimates. World Health Organization, Geneva (2006)

3. Harvey, S.A., Blandón, Y.C., McCaw-Binns, A., Sandino, I., Urbina, L., Rodríguez, C., et al.: Are skilled birth attendants really skilled? A measurement method, some disturbing results and a potential way forward. *Bull World Health Organ* 85, 783–790 (2007)
4. Sinclair, M., Ratnaike, R.D.: *Writing for evidence based midwifery* (Year)
5. Redactive Media Group, <https://www.rcm.org.uk/media/2768/evidence-based-midwifery-march-2012.pdf>
6. Syed, U., Asiruddin, S., Helal, M.S., Mannan, I.I., Murray, J.: Immediate and early postnatal care for mothers and newborns in rural Bangladesh. *J Health Popul Nutr* 24, 508–518 (2006)
7. Expertise: Personal contact with expertise from Khartoum state hospitals. In: Mokhtar, K.M. (ed.), (2018)
8. Verywell Family, <https://www.verywellfamily.com/whos-who-in-the-delivery-room-2752947>
9. World Health, O., United Nations Population, F., World, B., United Nations Children's, F.: *Pregnancy, childbirth, postpartum and newborn care: a guide for essential practice*. World Health Organization, Geneva (2015)
10. The State of Queensland, <https://www.health.qld.gov.au/qcg/publications>
11. Organization, W.H.: *Newborn care until the first week of life: clinical practice pocket guide* (2009)
12. Yemaneh, Y., Dagnachew, E.: *Knowledge and Practice of Immediate NewBorn Care (Inc.) among Health Professionals in Governmental Health Facilities of Bahir Dar City, North Ethiopia 2016*. *Quality in primary care* 25, (2017)

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