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Original Research Article

Nurses Knowledge and Practice Regarding Neonatal Hypothermia Khartoum State Hospitals 2017

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Abstract

Neonatal hypothermia recognized as an important contributing factor to neonatal morbidity, and has been associated with mortality risk in newborns and young infants (1, 2). This study aimed to assess nurse's knowledge and practice regarding neonatal hypothermia in Khartoum state hospitals.

Keywords: Nurses Knowledge, neonatal hypothermia, mortality risk.

INTRODUCTION

A descriptive cross-sectional hospital based study was conducted in 2017 at Omdurman maternity hospital and National Ribat teaching hospital the sample included 100 nurses who agreed to participate in this study. The data was collected using chick list and self-administered questionnaire which including two parts demographic characteristics, and nurses' knowledge regarding neonatal hypothermia validity and reliability of scales was checked by a pilot study. Data was analyzed statistically using SPSS version 16, both descriptive and inferential statistical methods were used such as student t-test and Pearson's correlation one-way analysis of variance. P value was set at < 0.05 for statistically different tests.

RESULTS

The results revealed that knowledge of nurses regarding neonatal hypothermia is above average. The main of knowledge of nurses is (mean 1,60, p = 116) and Nurses' Practice regarding Neonatal Hypothermia is high (mean 98, p =.001) except for Continuous and reassessing of thermal state and other vital sign which was below average (mean 37) and" There aren't significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia according to Nurses' Ages. And "There were significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia according to their educational Levels and according to their Experiences.

CONCLUSION

In current study nurses are knowledge regarding neonatal hypothermia and their practice need improvement. The study recommended specialises courses for nurses before working in neonatal intensive care unit.

OBJECTIVES

General objective

To study knowledge and practice of nurses regarding neonatal hypothermia

Specific objectives

- To assess nurses' knowledge regarding
- definition, cause and risk factors, clinical feature prevention
- Management of neonatal hypothermia
- To assess nurses' practice regarding management of neonatal hypothermia

MATERIALS AND METHODS

Study designs

- A cross-sectional descriptive hospital- based study was conducted to at Omdurman maternity hospital. And National Ribat teaching hospital.

Study area

- The study was carried out at Omdurman maternity hospital which is located in Omdurman locality. The hospital department is a neonatal intensive care unit (NICU) which consists of three rooms, one for premature babies with incubators and two

resuscitation, another two for term baby with two resuscitation, 50 Cots and the third one septic room has two resuscitation 35 Cots. The total nurse's work in NICU was 70 nurses. This study included all the staff in this hospital who works in nursery.

- Ribat teaching hospital located at Khartoum state. Hospital has a neonatal intensive care unit (NICU) which consist of two room, septic room include 8 incubator and 4 warmer and 8 monitor and one neonatal CPAP, another room a septic baby include 8 incubator and 4 warmer and 8 monitor and one neonatal CPAP. The total nurse's work in NICU was 20 nurses and consideration to their level of education.

Study population

- Nurses working at Omdurman maternity hospital and National ribat teaching hospital Period of October 2016- march 2017.

Sample size and sample technique

- There are no previous studies conducted in Sudan or Sudanese nurses working overseas with similar study objectives. As such the following equation was used to determine the sample size for the current study based on studies conducted in India, Malaysia and Uganda 29, 82%.
- N = (1.96)2pq /(0.05)2=(1.96)2/.365/365/0.05=210
- 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 of 100 nurse's number working selected.

Data collection tools

- A self – administered questionnaire (Questionnaire A) demographic data and second information about nurses knowledge
- The variable the questionnaire included two parts; the first was the background information of nurses such as age, education level, and years of experience.
- Second questionnaire (Questionnaire B) information about neonatal hypothermia and cause of hypothermia and risk factor of neonatal hypothermia the two questionnaires were collected and analyzed .Data collection started on October 2016 and continued until March 2017.

- **Variable of the study**
- **Independent variable**
  Socio-demographic data
- **Dependent variable**
  Assessment of knowledge and practice of nurses' regarding neonatal hypothermia

Ethical consideration

Official letter from Ribat University was taken to manager of Omdurman maternity hospital and Ribat teaching hospital. Then individual agreement of nurses, the goal of research has been explaining to responder and inform about the right and confidentiality.

Validity and reliability of data collection tools

In order to check the validity of the knowledge and practice regarding neonatal hypothermia items in the current research population, the data collection tool was applied on pilot sample consist of 100 nurses. The sample was selected randomly from the research population. After the responses, Pearson correlation was conducted to get correlation coefficients between scores of each items and the total score of the subscale in which the item belonging to. This helped in determining the consistency of the scale. The result of these computations was shown on the table 4.1 below.

Pilot Study for Questionnaire

To study the measure properties of the questionnaire items in the recent research population, the researcher applied the questionnaire on a pilot sample consisted of (32) nurses, selected randomly from research population. After scoring responses the researcher did the flowing:

Internal consistency

The researcher applied Person correlation equation to get correlation coefficients between scores of each item to the total score of the subscale in which the items lay down, and to the total score of the questionnaire. The flowing table shows the results of these computations:

Table-4-1: Shows results of Person correlation coefficients between scores of each items with the total score

Knowledge questionnaire				Practice Checklist			
Item	R	**Item**	R	**Item**	R	**Item**	R
4	.663	13	.525	1	.148	7	.320
5	.423	14	.335	2	.148	8	.635
6	.235	15	.420	3	.115	9	.288
7	.231	16	.228	4	.300	10	.144
8	.591	17	.500	5	.221	11	.221
9	.345	18	.571	6	.144	12	.466
10	.135	19	.177				
11	.350	20	.436				
12	.434	21	.409				

Reliability Coefficients

The researcher computed both Cronbach's Alpha and Spearman-Brown Coefficients for each subscale and for total scores. The flowing table shows the results of these computations:

Table-4-2: Shows results of Cronbach's Alpha and Spearman-Brown Reliability Coefficients for each subscale and for total stigma scores

Sub-Scales	No of Items	Reliability Coefficients	
		Alpha	Spearman-Brown
Knowledge questionnaire	14	.804	.872
Practice Check list	12	.613	.663

RESULTS

Table-4-3: Shows study sample descriptions according to Gender and to Other Demographic variables

Descriptions Variables	Levels	Frequency	Percent
Education Level	Diploma	33	33
	B. Sc	59	59
	Master	8	8
	Total Sum	100	100
Age	Less than 30	83	83
	30 – 40	15	15
	Above 40	2	2
	Total Sum	100	100
Years of Experience	Less than 5	76	76
	5 – 10	20	20
	Above 10	4	4
	Total Sum	100	100

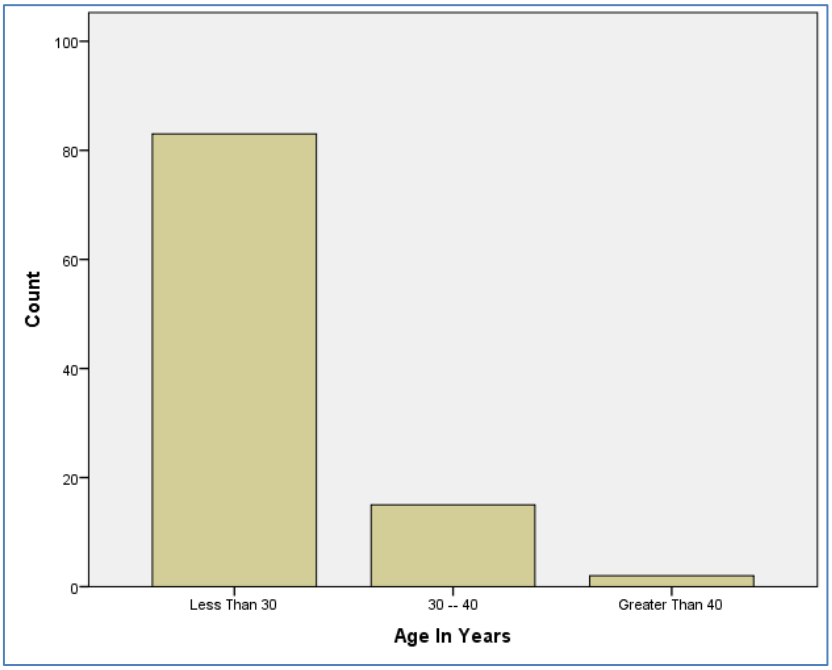

Fig-1: show age of the Nurses whom working in neonatal intensive care unit Khartoum state hospital (most of the nurses are young their age less than30)

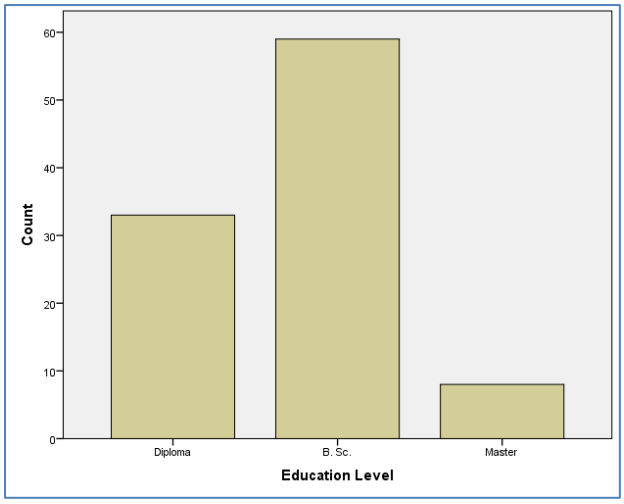

Fig-2: show the educational level of Nurses whom working in neonatal intensive care unit in Khartoum state hospital (most of the nurses' educational level is B.Sc.)

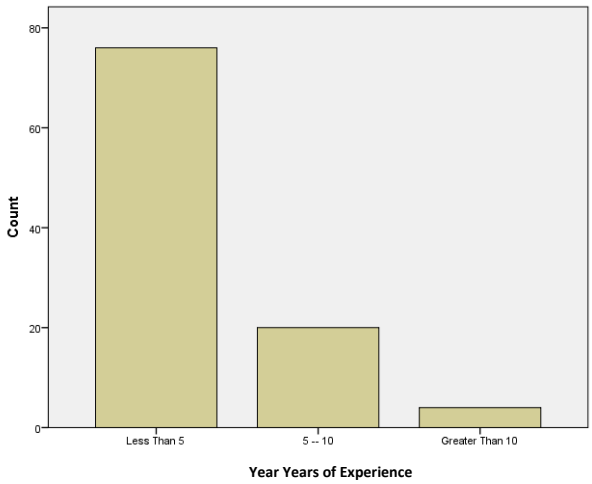

Fig-3: show experience of the nurses whom working in neonatal intensive care unit Khartoum state hospital (most of the nurses' their experience less than 5 years)

Hypothesis No (1)

To test hypothesis no (1) which wording: "Nurses' Knowledge regarding Neonatal Hypothermia in the recent research population is high"; the researcher applied one sample (t) test. The flowing table shows the results of this procedure:

Table-4-4: Shows the results of one sample (t) test to determine Nurses' Knowledge regarding Neonatal Hypothermia in the recent research population

Items of Knowledge questionnaire	Mean	SD	test value	Cal. (T) value	Df	Prob	Inference
1/Neonatal hypothermia occur when the body temperature become less than 36,5 c*	1.60	.79	1.50	1.202	99	.116	Above average
2/ **classification of neonatal hypothermia**	1.05	.93	1.50	-4.703	99	.001	Med (Average)
3/**Risk factor and causes of hypothermia**	1.87	.49	1.50	7.424	99	.001	High
4/ Morbidity of neonatal hypothermia	1.76	.63	1.50	4.140	99	.001	High
5/ Benefit of skin to skin contact (kangaroo mother care)	1.90	.42	1.50	9.298	99	.001	High
6/ promotes health and welling by effective thermal control e g incarriage breast feeding)	1.94	.32	1.50	13.467	99	.001	High
7/ importance of continuity for health promotion and welling being at home	1.67	.75	1.50	2.179	99	.016	High
8/ prevention of neonatal hypothermia (how to prevent)	1.75	.65	1.50	3.851	99	.001	High
9/ Management of neonatal hypothermia	1.53	.82	1.50	.373	99	.355	Above average
10/ The newborn body wiped dried and wrapped immediately after birth	1.88	.46	1.50	8.017	99	.001	High
11/Neonatal hypothermia is lead to neonatal mortality and morbidity	1.76	.61	1.50	4.255	99	.001	High
12/Hypothermia is one causes of deaths in infancy period	1.74	.63	1.50	3.765	99	.001	High
13/Oil message is uses for thermal protection	1.08	.98	1.50	-4.216	99	.001	Med (Average)
14/Rewarming quickly is very effective for the management of Neonatal hypothermia	1.86	.47	1.50	7.555	99	.001	High
Knowledge Total Score	28.81	5.94	27.0	3.030	99	.002	High

Results of Hypothesis No (2)

To test hypothesis no (2) which wording: ""Nurses' Practice regarding Neonatal Hypothermia in the recent research population is high", the researcher applied one sample (t) test. The flowing table shows the results of this procedure:

Table-4-5: shows the results of one sample (t) test to determine Nurses' Practice regarding Neonatal Hypothermia in the recent research population

Items of Practice Checklist	Mean	SD	Cal. (T) value	P value	Inference
1-Prepare the warmer before admission baby to NICU	.98	.14	16.169	.001	High
2 **Measure vital sings immediately especially temperature**	.98	.14	16.169	.001	High
Monitor blood glucose and continue monitoring vital sign	.91	.29	5.478	.001	high
3/ **Warm and safe transportation if need admission to NICU**	.84	.37	2.377	.010	High
4/ **Fans to be kept off to prevent hypothermia**	.94	.24	7.858	.001	High
5/ Management of neonatal hypothermia put baby in inside incubator	.92	.27	6.146	.001	High
6/Continuous observation of thermal state and other vital sign	.37	.49	-2.584	.006	Below average
7/ **Reassessment of temperature (especially if body temperature reaches 34c***)	.34	.48	-3.264	.001	Below average
8/ Monitor blood pressure heart rate and temperature and blood glucose preventive to reduce heat loss.	.52	.50	.300	.383	Med (Average)
9/**Advice the mother Skin to skin contact between mother and neonate.**	.90	.30	4.895	.001	High
10/ **Advice and incarriage breast feeding immediately.**	.92	.27	6.146	.001	High
11/ **Advice the mother appropriate clothing and bedding and covering head properly.**	.96	.20	10.538	.001	High
Practice Total Score	9.58	1.66	3.450	.001	High

Results of Hypothesis No (3)

To test hypothesis no (3) which wording: "flowing table There aren't significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia in the recent research population according to Nurses' Ages". The researcher applied one-way analysis of variance. The shows the results of this procedure:

Table-4-6: Shows results of One-way analysis of variance to explain the significance of differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia in the recent research population according to Nurses' Ages

Variables	Source	Sum of Squares	df	Mean Square	F	Sig.
Knowledge Total Score	Between Groups	40.632	2	20.316	.577	.566
	Within Groups	3414.721	97	35.203		
	Total	3455.354	99			
Practice Total Score	Between Groups	4.360	2	2.180	.796	.456
	Within Groups	265.822	97	2.740		
	Total	270.182	99			

Results of Hypothesis No (4)

To test hypothesis no (4) which wording: "There aren't significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia in the recent research population according to Nurses' Education Levels". The researcher applied one-way analysis of variance. The flowing table shows the results of this procedure:

Table-4-7: Shows results of One-way analysis of variance to explain the significance of differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia in the recent research population according to Nurses' Education Levels

Variables	Source	Sum of Squares	Df	Mean Square	F	Sig.
Knowledge Total Score	Between Groups	114.176	2	54.088	3.058	.039
	Within Groups	3400.177	196	17.167		
	Total	3515.354	195			
Practice Total Score	Between Groups	117.0	2	.085	3.031	.0649
	Within Groups	3500.012	97	18.184		
	Total	3417.182	99			

Results of Hypothesis No (5)

To test hypothesis no (5) which wording: "There aren't significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia in the recent research population according to Nurses' Experience Levels". The researcher applied one-way analysis of variance. The flowing table shows the results of this procedure:

Table-4-8: Shows results of One-way analysis of variance to explain the significance of differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia in the recent research population according to Nurses' Experience

Variables	Source	Sum of Squares	df	Mean Square	F	Sig.
Knowledge Total Score	Between Groups	114.532	2	53.266	2.930	.051
	Within Groups	3424.822	97	35.307		
	Total	3455.354	99			
Practice Total Score	Between Groups	118.357	2	.579	3.064	.038
	Within Groups	269.825	97	2.782		
	Total	270.182	99			

DISCUSSION

In this study about demographic data of participant'sabout76 % their years of experience between 1-5 years, and their qualification were 33% have diploma, 59% B.Sc. degree, 8% post graduated.

In this study the Nurses' Knowledge regarding Neonatal Hypothermia in the recent research population is high. A similar study was conducted at selected maternity hospital of Bagalkot [1]. In this study sample was 100 nurses, on an average of 72.73% had good knowledge and practice regarding neonatal hypothermia (34) and in this study Nurses' Practice regarding Neonatal Hypothermia in the recent research population is High.

Most of the nurses they know what is neonatal hypothermia. A Similar Study was conducted as a part of the research project in Tanzania 95 %. Nurses' Practice regarding Neonatal Hypothermia in the recent research population is High.

A similar study of practice regarding neonatal hypothermia in, Zambia ,revealed that community members and health workers are aware of danger of neonatal hypothermia Community members report practice such as birth place warming, drying bathing and wrapping of the newborn delayed bathing and immediate and exclusive breastfeeding, which contribute to keeping newborns warm in zambia [2] was good. In this study the prevalence of neonatal hypothermia was high.

A similar study the exact prevalence of neonatal hypothermia in sub – Saharan Africa [3] is not known. Data emanating from hospital based studies from various countries suggest a high prevalence such as Nigeria.

In this study there no significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia according to their ages. Few studies aspects surrounding the knowledge and practice according to their age is no significant found in India, Kumar [4].

But There significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia according to their Nurses' Education Levels

A similar study about average of nurse's knowledge according to social and graduation –related to variables to educational level – [5].

In this study there no significant differences in Nurses' Knowledge and Practice regarding Neonatal Hypothermia according to Nurses' Experience Levels.

A similar study difference was observed between knowledge and practice regarding neonatal hypothermia according to nurse's experience the average is significant [6].

CONCLUSION

In this study nurses knowledge regarding neonatal hypothermia was high and they need to improve their practice.

Possible interventions include the skin- to-skin care, newborn warmers to prevent hypothermia and improving their practices and services.

RECOMMENDATIONS

- Training staff to support mothers in the provision of neonatal hypothermia
- Education mother about kangaroo mother care and breast feeding to reduce neonatal hypothermia.
- Skin to skin contact in the first hour of life and incarriage mothers breastfeeding
- Overhead warmer can be used to be used to control the cold environment especially in winter.

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