

# Nursing Intervention On Knowledge of Cord Care Among Mothers Attending Two Selected Primary Health Centres in Owo Local Government area, Ondo State

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## Abstract

Cord care serves as a major determinant of the neonate's morbidity or mortality within the first month of life. This study therefore examined the nursing intervention on knowledge of cord care among mothers attending two selected Primary Health Centers in Owo local government area of Ondo State. This study adopted two groups pre-test – post-test quasi-experimental design to assess the effect of training on mothers attending immunization clinics in two selected health centres in Owo Local Government Area on the knowledge of cord care. Total enumeration approach was considered to select 84 mothers in two Primary Health Centres. A self-administered questionnaire was used. Data collected were analysed using descriptive and inferential statistics. The study revealed that the pre-intervention knowledge mean score of participants on cord care among mothers in both the control (48.4%) and experimental (47.6%) groups are below average. The findings further revealed that the post-intervention knowledge mean score in the experimental group 19.01 (90.50%) is better than that of the control group 10.69 (50.9%) Also, no significant differences were found in the pre intervention knowledge (Mean difference = 0.17,  $t_{(82)} = 1.287$ ,  $p = .236$ ) mean scores of participants on the cord care in the control and experimental group. Significant differences were reported in the post intervention mean score on knowledge (Mean diff. = 8.32,  $t_{(82)} = 5.286$ ,  $p = .000$ ) of cord care in the control and experimental group. It was recommended among

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others that health care providers in the community health facilities should continue to create awareness on standard protocol for umbilical cord care.

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## Introduction

Yearly, about 3.3 million neonatal deaths occur around the globe; of these, more than 30% are caused by infections (Karumbi, et al., 2012). Neonates are prone to infections because of their immature immune system, thus making them susceptible to infections, commencing as early as umbilical cord stump infection. The umbilical cord stump could serve as a route of entry for infections as it enhances growth of some beneficial microorganisms (commensals) and other harmful microorganisms which on entering the blood stream becomes systemic (neonatal sepsis). Neonatal sepsis as a result of cord infection is estimated to exceed 15% of neonatal deaths worldwide (Coffey & Brown, 2017; Liu, et al., 2015). It is also the third leading reason for deaths of infants in their first month of life.

The microbes that cause the cord infection are mostly acquired from the mother's birth canal, the environment in which the baby is delivered, the hands of the person taking and assisting with the delivery, and poor umbilical cord stump care practices by mothers. Thus to prevent cord infection, it is essential for mothers to be equipped with sufficient knowledge about hygienic cord care practices, and consequences of poor cord care practices. Ideal umbilical cord care skills for new-born by mothers and important members of the family during the first week of life, particularly in settings with poor sanitation, have the likelihood of preventing and thus eradicating neonatal deaths (Coffey & Brown, 2017).

Numerous studies have done on umbilical cord care, proper handling of cord care, old-fashioned practices of cord care, antimicrobial agents used in cleaning the cord, normal standard of cord care, and most of the researches were channelled to the methods used in cord care such as dry cord care, rubbing of topical agents amongst others, etc. However, existing literature showed that mothers have various opinions about cord care practices. While some are of the opinion that there is no distinctive way for caring for babies' cord stump than ensuring that the cord is hygienic, others have the choice of handling and caring for the cord stump of their babies as they deem fit.

In Nigeria, researches have revealed that umbilical cord infections has led to about 10% and 19% of neonatal morbidities and its resultant estimated 30–49% neonatal deaths (Afolaranmi, et al. 2018). The National Demographic Health Survey (NDHS, 2018), revealed that Nigeria records the neonatal death rate of 37 deaths per 1,000 live births and neonatal death varies according to place of residence, zone, mother's literacy rate, and household wealth. Mortality rates in municipal areas are steadily lower than those in rural areas with infant death being 43% higher in rural areas (86 deaths per 1,000 live births) than in urban areas (60 deaths per 1,000 live births). There is evidence that a mother's education is related to her baby's possibility of dying. Hence, postpartum care visits offer an ideal opportunity to educate a new mother on ways to care for herself and her new-born baby and the benefits of educating mothers is obvious for all childhood death categories.

The fact that most mothers cannot recognize the early signs of cord infections and do not bring their babies to health centres till the babies have devastating sepsis likewise the various views of some mothers who think that there are no extra-ordinary ways of caring for their babies' cords beyond ensuring its cleanliness, and the believe that they are at freedom to handle and care for their babies' cords the way they like is an issue. This depicts the poor level of understanding of mothers towards proper cord care practices and this is a problem to be considered because cord care understanding by mothers, which invariably determine how well the baby will thrive in the neonatal period and thus eliminate neonatal mortality. The study, therefore, aims to impact knowledge to mothers to effect positive behavioral change towards cord care practices in communities. This study specifically:

1. examined the pre-intervention knowledge mean score of participants on cord care in the control and experimental group;
2. implemented the instructional package on knowledge of cord care among mothers attending immunization clinics; and
3. determined the difference in the post intervention knowledge mean score of participants on cord care in the control and experimental group.

### Research Questions

The following research questions were raised for this study:

1. What is the pre-intervention knowledge mean score of participants on cord care in the control and experimental group?
2. What is the post intervention knowledge mean score of participants on cord care in the control and experimental group?

### Research Hypotheses

The following research hypotheses were formulated for this study:

1. There is no significant difference in the pre-intervention knowledge mean score of participants on cord care in the control and experimental group
2. There is no significant difference in the post intervention knowledge mean score of participants on cord care in the control and experimental group.

### Methodology

This study adopted two groups pre-test – post-test quasi-experimental design. The study was conducted in two selected Primary Health centres in Owo Local Government Area, Ondo state. The study population targeted mothers attending immunization clinics in the two selected Primary Health Care centres in Owo Local Government Area, Ondo State. The average monthly attendance of mothers for the routine immunization clinic in the health facilities is 86. A total of 84 mothers of neonates attending the selected PHC immunization clinics were sampled for this study which included 29 mothers from Emure-Ile Primary Health Centre, and 55 mothers from Oke-Mapo Primary Health Centre. Total enumeration method was used while purposive sampling technique was utilized in selecting the two PHCs because of the high attendance recorded in the last 6 months (April - September, 2020). The two Primary Health centres will be assigned to the experimental and control groups through purposive sampling technique too.

The instrument used for data collection was questionnaire which elicited information on knowledge of cord care. It consisted of sections A and B. Section A consisted of six items which elicited responses on demographic variables of participants like age, marital status, educational status, ethnicity, and religion. Section B measures mothers' knowledge on cord care. It consisted of a total number of 20 questions. Ten items were raised on the general knowledge of cord care and knowledge of mothers on signs of cord infection. The overall correct score for the mothers' knowledge on cord care is 20. The scores are categorized into three: Scores between 1 and 7 are considered below average, scores between 8 and 14 are considered average knowledge, while scores between 15 and 20 are considered above average knowledge.

The study instrument ensured face and content validity by presenting it to experts in maternal care and community health practice for correction. A pilot study was used to ensure the reliability of the research instrument. This was done by using homogeneous population that met the inclusion criteria but in a different setting and it involved 10% of the total population size. Reliability of the instrument was tested using Cronbach's Alpha model

technique which yielded value of 0.817.

Data collection was in three major phases which included pre-intervention stage, intervention stage and post-intervention stage. The completed test paper was coded and analysed using the Statistical Package for Social Science (SPSS) version 27. The two research questions of the study were answered using descriptive statistics of mean, standard deviation and percentages. Inferential statistics of independent t-test was utilized to test hypotheses 1 and 2. All the hypotheses were tested at 0.05 level of significance.

## Results

**Question 1:** What is the pre-intervention knowledge mean score of participants on cord care in the control and experimental group?

**Table 1: Pre-intervention knowledge mean score of participants on cord care in the control and experimental group in the control and experimental group**

Knowledge of cord care	Category of scores	Control		Experimental	
		F	%	F	%
Below average	1-7	13	44.8	27	49.1
Average	8-14	12	41.4	20	36.4
Above average	15-21	4	13.8	8	14.5
Total		29	100.0	55	100.0
Mean (%)		10.16 (48.4)		9.99 (47.6)	

Results from Table 1 shows the pre-intervention knowledge mean score of participants on the cord care in the control and experimental group. Thirteen (44.8%) participants in the control had knowledge mean score below average, 12 (41.4%) and 4 (13.8%) had knowledge mean scores at average and above average respectively on the cord care. At the experimental group, 27 (49.1%) had knowledge mean score below average, 20 (36.4%) had an average knowledge and only 8 (14.5%) had knowledge that was above average. The table also revealed the pre-intervention knowledge mean score of participants on the cord care in the control to be 10.16 (48.4%) and experimental group 9.99 (47.6%). It could be said from the outcome of this finding that the pre-intervention knowledge mean score of participants on the cord care in both the control and experimental group are below average.

**Question 2:** What is the post intervention knowledge mean score of participants on cord care in the control and experimental group?

**Table 2: Post-intervention knowledge mean score of participants on cord care in the control and experimental group in the control and experimental group**

Knowledge of cord care	Category of scores	Control		Experimental	
		F	%	F	%
Below average	1-7	11	37.9	-	-
Average	8-14	14	48.3	19	34.5
Above average	15-21	4	13.8	36	65.5
Total		29	100.0	55	100.0
Mean (%)		10.69 (50.9)		19.01 (90.5)	



Results from Table 2 shows the post-intervention knowledge mean score of participants on cord care in the control and experimental group. Eleven (37.9%) participants in the control had knowledge mean score below average, 14 (48.3%) and 4 (13.8%) had knowledge mean scores at average and above average respectively on cord care. At the experimental group, 19 (34.5%) had knowledge mean score above average and 36 (65.5%) participants had knowledge that was above average. The table also revealed the post-intervention knowledge mean score of participants on cord care in the control to be 10.69 (50.9%) and experimental group 19.01 (90.5%). It could be said from the outcome of this findings that the post-intervention knowledge mean score of participants in the experimental group is better than that of the control group after intervention.

### Test of Hypotheses

**Hypothesis 1:** There is no significant difference in the pre-intervention knowledge mean score of participants on cord care in the control and experimental group.

**Table 3: Independent t-test to show the difference in the pre-intervention knowledge mean score of participants on cord care in the control and experimental group**

	N	Mean	Std. Deviation	Std. Error Mean	df	T	Mean diff	P value
Control	29	10.16	2.87	0.41				
Experimenta	55	9.99	3.29	0.44	82	1.287	0.17	.256

Table 3 presents the result of hypothesis. The result of the first hypothesis indicated that there is no significant difference in the pre-intervention knowledge mean score of participants on cord care in the control and experimental group (Mean difference = 0.17,  $t_{(82)} = 1.287$ ,  $p = .256$ ). Going through the pre-intervention knowledge mean scores, one can say that there is no significant difference between control group (N = 29, Mean = 10.16, Std. dev. = 2.87) and the experimental group (N = 55, Mean = 9.99, Std. dev. = 3.29). Based on this, the earlier set hypothesis is accepted. Therefore, there is no significant difference in the pre-intervention knowledge mean score of participants on cord care in the control and experimental group.

**Hypothesis 2:** There is no significant difference in the post intervention knowledge mean score of participants on cord care in the control and experimental group.

**Table 4: Independent t-test to show the difference in the post intervention knowledge mean score of participants on cord care in the control and experimental group**

	N	Mean	Std. Deviation	Std. Error Mean	df	T	Mean diff.	P value
Control	29	10.69	2.75	0.44				
Experimenta	55	19.01	6.60	1.12	82	5.286	8.32	.001

Table 4 presents the result of hypothesis three postulated and it indicated that there is a difference in the post intervention knowledge mean score of participants on cord care in the control and experimental group (Mean diff. = 8.32,  $t_{(82)} = 5.286$ ,  $p = .000$ ). Going through the knowledge mean scores, one can say that there is a significant difference between post intervention knowledge mean score of participants on cord care in the control group (N = 29, Mean = 10.69, Std. dev. = 2.75) and the experimental group (N = 55, Mean = 19.01, Std. dev. =

6.60). Based on this, the earlier set hypothesis is rejected. Therefore, the difference observed in the post intervention knowledge mean score of participants on cord care in the control and experimental group could not have happened by chance but due to the educational intervention the participants in experimental group were exposed to.

### Discussion of Findings

The outcome of this study revealed that the pre-intervention knowledge mean score of participants on the cord care in the control and experimental group were below average which was an indication that their knowledge level was not good. Majority of the participants in both groups had below average knowledge. This implies that mothers still lack adequate knowledge of cord care practices in communities because child care practices still depend largely on the traditional beliefs and practices. This study is in tandem with the findings of Faheim, et al (2019) who conducted a quasi-experimental study to evaluate the effect of an educational program of mothers' knowledge and practice about umbilical cord care; to compare cord-cleansing using human milk versus alcohol 70% and povidine-iodine 10% on clinical outcomes of umbilical cord in healthy new-born. Their results indicated that, before the intervention of the educational program, there was lack of satisfactory knowledge and practice among mothers in all groups related to cord care.

The results revealed the post-intervention knowledge mean score of participants on cord care in the control to be below average while that of the experimental group was above the average. It could be said from the outcome of this findings that the post-intervention knowledge mean score of participants in the experimental group is better than that of the control group after intervention. Mothers in the experimental group displayed a higher level of knowledge of cord care as most of them were adjudged as having above average knowledge which is in synergy with what was obtained in other studies conducted in Nepal and Nigeria where only few mothers lacked knowledge on cord care (Afolaranmi, et al, 2018; Susmita & Smita, 2017). Also, findings were obtained from other studies where less than half to below a quarter of the mothers had adequate knowledge of cord care (Osuchukwu et al, 2017, Punitha & Kumaravel, 2016). This variation in the level of knowledge of cord care could be attributable to ease of access to health information, varying educational levels of the respondents, place of residence, place of delivery and cultural affiliations among others.

The result of the first hypothesis indicated that there is no significant difference in the pre-intervention knowledge mean score of participants on cord care in the control and experimental group. There is no difference observed in the knowledge mean score of participants' cord care in the control and experimental group. Findings from this study have shown that knowledge about umbilical cord care among the respondents in the present study in both groups was poor to a greater percentage. This could be because women learn more from observing others caring for the cord as an alternative to proper teaching. This is comparable to a study in South India which also showed that mothers' knowledge of cord care was poor (Punitha & Kumaravel, 2016). Also, a study among women in Calabar by Osuchukwu, et al (2017) indicated that poor knowledge of umbilical cord care.

It was revealed that there is difference in the post intervention knowledge mean score of participants on cord care in the control and experimental group. The difference observed in the post intervention knowledge mean score of participants on cord care in the control and experimental group could not have happened by chance but due to the educational intervention the participants in experimental group were exposed to. This research revealed that majority of the participants in the experimental group had above average knowledge of umbilical cord care which may be as a result that mothers received good educational



intervention. This result is similar to Udosen, et al (2019) who in their study found that most mothers were knowledgeable because they received antenatal care from the hospital this is in variance with a research carried out by Joel-Medewase et al. (2008) where education on cord care was also relatively low. These findings suggest that there is still room for improvement regarding knowledge of umbilical care.

### Conclusion

This study has shown that there were gaps in knowledge of umbilical cord care of the mothers. Those who received information on cord care practiced more appropriately and more knowledgeable.

### Recommendations

Based on the findings of this study, it was recommended that

- i. Information on appropriate umbilical cord care should be given to mothers during antenatal care and before discharge from health care facilities by Health Care Workers.
- ii. Educational intervention regarding cord care is required during the period of antenatal and postnatal visit.

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