

Different Umbilical Cord Cutting Techniques Prevailing among Rural Population of District Attock

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ABSTRACT

OBJECTIVES: To study different umbilical cord cutting techniques prevailing among rural population of district Attock.

METHODOLOGY: This descriptive cross-sectional study conducted from April - June 2017 in the rural population of district Attock. The sample size was 300 which were selected by non-probability convenient sampling technique. The data was collected over a period of three months using a pre-tested self-structured questionnaire. Informed consent was taken. Data was analyzed in SPSS version 23.

RESULTS: A total number of 300 infants were included in this study. The mean age (in days) \pm SD of infants was 14.10 ± 8.96 . The mean age (in years) \pm SD of mothers was 27.58 ± 3.99 . Surgical blade usage for cord cutting was 50%, 48.7% used scissors while 1.3% used knife to cut the umbilical cord after birth. 8.7% mothers applied nothing on the cord for cord care, whereas 30.7% of mothers applied domestic products on the infant's umbilical cord which included fried onion, garlic, ghee, oil, kohl and turmeric. Chi-Square test revealed that the use of harmful domestic products was highest among the infants who were born at homes ($p < 0.05$). The application of medical or domestic products on the cord was irrespective of infant's gender and mothers' educational status.

CONCLUSION: This study revealed diversity in methods of cutting and caring the cord after birth among the rural population of district Attock. Most of the participants of this study maintained the good cord care practices; however, there were a significant proportion of participants who followed harmful traditional practices for their infant's cord care.

KEYWORDS: Umbilical Cord, Cord Care, Neonatal Mortality

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INTRODUCTION

The umbilical cord (also known as the navel string, birth cord or funiculumbilicalis) is a channel between the developing embryo or fetus and the placenta. Throughout parental development, the umbilical cord is part of the fetus and (in humans), typically comprises of two arteries and one vein, buried within Wharton's jelly. The fetus is supplied with oxygenated, nutrient-rich blood from the placenta via umbilical vein. On the contrary, the fetal heart pumps deoxygenated, nutrient-depleted blood through the umbilical arteries back to the placenta¹.

Umbilical cord is the utmost significant part of the newborn and is the main source of transmission of infection. As there is direct access to the main blood stream, germs can get easy way through umbilical cord. These results into severe newborn infection called septicemia or sepsis, which causes neonatal mortality². Fifteen percent of neonatal deaths occur because of neonatal sepsis, which is the 3rd prominent source of neonatal deaths worldwide³. According to the SDGs set by UN in 2015, the target number 2 & 3 aim to stop the neonatal deaths by year 2030⁴. The newborn's umbilical cord is a good medium for bacterial growth which may cause neonatal sepsis leading to death. The most common infections of this are due to

bacterial omphalitis and Clostridium tetani^{5,6}. For this reason the newborn's umbilical cord needs essential care in the first week of his life, particularly in poor hygienic settings, in order to prevent neonatal deaths. There are several injurious traditional practices being observed for umbilical cord care which have become an important public health issue. The high prevalence of neonatal sepsis in low and middle income countries can be reduced by having a good understanding of behavioral intentions that undergo these cord care traditional practices⁷. There are several different umbilical cord cutting techniques and application methods which are not medically recommended but are followed still in Pakistan. Owing to this perception, the need and urge to conduct this study amongst the rural population was conceived to get understanding regarding the cord cutting techniques and tools used and cord care practices carried out at home. For the purpose of better understanding the objective of the study was to identify the cord cutting technique & tools used by skilled birth attendants & traditional birth attendants and also the application of medical and domestic products used for cord care.

METHODOLOGY

It was a descriptive study conducted over a period of

Different Umbilical Cord Cutting Techniques Prevailing

three months from April - June 2017 in the rural population of district Attock. The sample size was 300 which were selected by non-probability convenient sampling technique. Sample size was calculated on the basis of confidence level at 95% with 6% absolute precision. Calculated sample size was 266 with 20% non-response rate. Total sample size was equal to 318 out of which 300 was selected on the basis of response and willingness to participate in study. The data was collected over a period of three months using a self-structured questionnaire. The self-structured questionnaire was pre-tested. Informed consent was taken from all the participants and before the start of study the rationale was explained to all the participants.

The inclusion criterion was to induct all the respondents with new born having the mean age (in days) \pm SD of infants was 14.10 ± 8.96 available at the time of study. Data was analyzed in SPSS version 23.

RESULTS

A total number of 300 infants were included in this study. The mean age (in days) \pm SD of infants was 14.10 ± 8.96 . The minimum age of infants was 1 day and maximum age was 36 days. The mean age (in years) \pm SD of mothers was 27.58 ± 3.99 . 95% of infants were healthy after birth, 3% got fever and 2% got jaundice. Use of surgical blade for cord cutting was 50%, where are use of scissor was 48.7% & use of knife was 1.3%

TABLE I: CHI-SQUARE TEST OF INDEPENDENCE TO FIND OUT ASSOCIATION BETWEEN INFANTS' PLACE OF BIRTH AND CORD CUTTING TOOL

Place of Birth	Person designated for cord cutting	Cord Cutting Tool			Total	X ² (df)	p-value
		Scissors	Surgical Blade	Knife			
Home	Traditional Birth Attendant (TBA)	19 (59.5%)	17 (40.5%)	1 (100.0%)	37 (59.5%)	2.43 (4)	0.66
Govt. Hospital	Skilled Birth Attendant (SBA)	112 (49.6%)	111 (49.1%)	3 (1.3%)	226 (100.0%)		
Total		146 (48.7%)	150 (50.0%)	4 (1.3%)	300 (100.0%)		

TABLE II: CHI-SQUARE TEST OF INDEPENDENCE TO FIND OUT ASSOCIATION BETWEEN INFANT'S PLACE OF BIRTH AND CORD CLAMPING TOOL

Place of Birth	Cord Clamping Tool		Total	X ² (df)	p-value
	Cord Clamp	Thread			
Home	22 (59.5%)	15 (40.5%)	37 (100.0%)	18.29 (2)	0.00
Govt. Hospital	198 (87.6%)	28 (12.4%)	226 (100.0%)		
Private Hospital	30 (81.1%)	7 (18.9%)	37 (100.0%)		
Total	250 (83.3%)	50 (16.7%)	300 (100.0%)		

The chi-square test of independence revealed that there was no significant association between the place of birth of infant and the cord cutting tool used to cut the umbilical cord after birth (Table I).

The chi-square test of independence revealed that there was a significant association between the place of birth of infant and the cord clamping tool used to clamp the umbilical cord after cutting. (Table II)

The chi-square test of independence revealed a statistically significant association between the place of birth of infants and the substances applied to the cord after cutting and clamping as cord care. The use of harmful domestic products was highest among the infants who were born at homes. (Table III)

TABLE III: CHI-SQUARE TEST OF INDEPENDENCE TO FIND OUT ASSOCIATION BETWEEN THE INFANTS' PLACE OF BIRTH AND SUBSTANCES APPLIED TO THE CORD

Place of Birth	Substance applied to the Cord			Total	X ² (df)	p-value
	Nothing	Medical Products	Domestic Products			
Home	6(16.2%)	9(24.3%)	22(59.5%)	37(100.0%)	25.04 (4)	0.00
Govt. Hospital	19(8.4%)	149(65.9%)	58(25.7%)	226(100.0%)		
Private Hospital	1(2.7%)	24(64.9%)	12(32.4%)	37(100.0%)		
Total	26(8.7%)	182(60.7%)	92(30.7%)	300(100.0%)		

TABLE IV: CHI-SQUARE TEST OF INDEPENDENCE TO FIND OUT ASSOCIATION BETWEEN MOTHER'S EDUCATION AND SUBSTANCES APPLIED TO THE CORD

Place of Birth	Substance applied to the Cord			Total	X ² (df)	p-value
	Nothing	Medical Products	Domestic Products			
Illiterate	8(13.8%)	32(55.2%)	18(31.0%)	58(100.0%)	25.04 (4)	0.00
Primary	3(5.2%)	37(63.8%)	18(31.0%)	58(100.0%)		
Middle	13(11.2%)	67(57.8%)	36(31.0%)	116(100.0%)		
Matric	2(3.9%)	35(68.6%)	14(27.5%)	51(100.0%)		
Intermediate	0(0.0%)	5(71.4%)	2(28.6%)	7(100.0%)		
Higher Education	0(0.0%)	6(60.0%)	4(40.0%)	10(100.0%)		
Total	26(8.7%)	182(60.7%)	92(30.7%)	300(100.0%)		

DISCUSSION

The newborn care differs extensively across different cultures. The individuals' concepts of health, illness, newborn care, the health seeking attitude and behavior are different in all cultures. The accomplishment of public health programs and interventions and healthy practices of policies depend upon clear understanding of the cultural context that builds the fundamental beliefs, practices and communal perceived meaning of umbilical cord functioning, cord health and illness¹¹.

In this study, the demographic profiles of the respondents revealed that majority of the respondents were young adults with mean age of 27 years. This means that they were at the peak of their reproductive health and require information on neonatal health and child survival. Majority of the respondents had middle and primary education. In another study, the mean age of respondents was 25.8 years. Majority of the respondents had secondary education and above¹². The umbilical cord was cut by skilled birth attendant (SAB) in cases where child was born in health facility or hospital but in cases of home delivery in rural population, the traditional birth attendants served the purpose along with assisting home birth.

In this study use of surgical blade for cord cutting at birth was 50%, 48.7% for scissors while 1.3% for knife to cut the umbilical cord after birth. The use of surgical blade, scissors or knife was similar among infants born at homes, private hospital and government hospital. The use of surgical blade, scissors or knife was also irrespective of infant's gender and mothers' education status. The studies led in Bangladesh and India demonstrated the use of traditional tools like bamboo shoots to cut the infants umbilical cord after birth.

During a study carried out in urban Pakistan, 60% of health care providers reported that they used new razor, while 10% of birth attendants used household knife to cut the umbilical cord after birth¹³. The study of Gilgit, Pakistan revealed that most of the

respondents of study used scissors, 28% used blade and 5% used knife to cut the cord¹⁴.

Findings from another study showed that there was common use of cord clamp and surgical blades/scissors in cord management which indicated good practice. Methylated spirit was also widely used in cord care. During another study in Pakistan, respondents revealed that 55% of them used the thread while 43.6% of respondents used cord clamp to clamp the cord after cutting. In this study most of the respondents (46%) claimed to have been used Chlorhexidine and 12.3% used spirit on the infant's umbilical cord. Nearly 61% of the respondents used medical products including Chlorhexidine, spirit, payodine and polyfax, 8.7% applied nothing on the cord, whereas 30.7% applied domestic products on the infant's umbilical cord which included fried onion, garlic, ghee, oil, kohl and turmeric.

The application of oil, fried onion and turmeric was most frequent. In a study conducted in Pakistan, 74% of mothers applied many substances on the cord. The household substances included mustard oil, coconut oil, machine oil, olive oil, ghee and kohl¹³. In another study of Pakistan, 77% of respondents applied some substances on the cord, which included cold cream, turmeric, mustard oil, ghee, dettol, wheat flour, powder, crushed apricot cream and antimony. The study conducted in Tanzania revealed that the respondents used saliva, hot knife, PPF powder, banana steam, burning wood, dirty door powder, shells and fish bone¹⁵. The mothers of Uganda applied powder, Vaseline, salty water, saline, soot, herbs, saliva, sap and spirit for cord care¹⁶.

It was revealed in a study that spores increase the risk of umbilical infection predominantly neonatal tetanus which accounts for more than 52% of neonatal deaths in developing countries¹⁷. Neonatal sepsis is responsible for more than 15% of neonatal deaths worldwide¹⁸.

These findings are in agreement with Sneeramaraddy CT 2006¹⁹, who documented that babies delivered in hospitals may be affected by traditional practices after

discharge as care of the cord during neonatal period is provided by mother and mother-in-law. The findings from this study is also in line with the report of Bang H 2011²⁰ which revealed the use of native and various forms of herbal preparation in cord care in a semi urban setting as the one studied.

Whatever the reasons may be unhygienic cord care is a risk behavior which can lead to neonatal infection and death as the umbilical vessels are still patent for a few days after birth, thus making umbilical cord a common route of entry for systemic infection in the newborn. This study revealed that there was a significant association between the place of birth of infant and the cord clamping tool used to clamp the umbilical cord after cutting. The use of standard cord clamp among infants born in government and private hospitals was significantly higher than the infants who were born at homes.

There was a statistically significant association between the place of birth of infants and the substances applied to the cord after cutting and clamping. The use of harmful domestic products was highest among the infants who were born at homes. The application of medical or domestic products on the cord was irrespective of infant's gender and mothers' education status. Application of different substances on umbilical cord varies according to region and area of living and the norms and values along with beliefs affect them.

Eneji R 2010²¹, in their study noted a significant correlation between mothers' level of education and clean cord management. They clinched that without considering the education level of the study subjects, this is almost impossible to consider behavioral changes in health care practice as it deeply impacts individual demeanor especially in the area of child bearing and neonatal care. Illiterate mothers were found to be lacking decision making power and they were not able to resist social pressure and always comply with existing tradition.

The findings of Meberg B 2007²² stated that majority of omphalitis was observed in babies with unhygienic cord care. Alam M 2008²³ also reported of umbilical infection among neonates whose umbilical cords were dressed with unhygienic materials. In this study, 9 infants got fever and 6 infants had jaundice due to inadequate cord care practices. It is of utmost important to introduce safe practices regarding cord care²⁴. The unhygienic practices can easily lead to tetanus²⁵. It also calls for the eradication of old and harmful practices in which various chemical used possess danger to both life and environment²⁶.

CONCLUSION

As there is a global push to achieve the decrease in infant mortality rate, there is a need to focus on the most primitive stage of life that is soon after birth. As various researches are exploring the umbilical cord

care practices, it is essential to recognize the care givers' context, pre-existing beliefs, norms and practices of different regions where the health policies regarding the umbilical cord care could be modified.

This study revealed diversity in methods of caring the cord after birth among the rural population of district Attock. Most of the participants of this study maintained the good cord care practices; however, there were a significant proportion of respondents who followed harmful traditional practices for their infant's cord care.

There is a need of creating awareness among people especially the rural population by carrying out population based health interventions to modify their beliefs, norms, traditions and practices for infant's cord care, that ultimately leads to a reduction in neonatal mortality rate in Pakistan.

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AUTHOR CONTRIBUTIONS

Khan MA: Idea, Data Collection, Data analysis

Aleem S: Data analysis

Mushtaq M: Data collection

Mian IS: Data collection

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