

KNOWLEDGE OF SAFE SWADDLING PRACTICES AMONG MOTHERS OF NEONATES VISITING A TERTIARY-CARE HOSPITAL IN A DEVELOPING COUNTRY

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INTRODUCTION

Swaddling is an ancient practice of closely wrapping neonates in a thin sheet or blanket with the head exposed to help them feel safe and secure.¹ A recent meta-analysis highlighted this tradition's potential advantages and drawbacks.² It has been shown that swaddling or wrapping aids them in sleeping well and reduces awakening. It also helps recreates the restricted space in the womb.³ Different studies have revealed that swaddled babies wake less frequently and sleep longer than non-swaddled babies.⁴ Being wrapped up snugly can prevent neonates from being disturbed by their startle reflex.³ Wrapping also improves neuromuscular development, lower heart rate variability and facilitates body temperature control.^{5,6} Swaddling is a quick and simple non-pharmacologic method that helps reduce heel stick pain in

ABSTRACT

OBJECTIVES

Swaddling of new-borne and infants remains common in the developing world, but little is known about maternal knowledge of swaddling. Therefore, this study aimed to determine the level of knowledge of safe swaddling practices among mothers of neonates visiting a Tertiary-Care Hospital.

METHODOLOGY

This cross-sectional study was conducted in the paediatric unit of tertiary care hospital in Peshawar city, Pakistan, between July and December 2018. A total number of 370 mothers of neonates who volunteered their participation were selected using a non-probability consecutive sampling technique. The study was based on a questionnaire comprised of socio-demographic and other questions related to the knowledge of safe swaddling practices.

RESULTS

A total number of 370 mothers of neonates knowledge were assessed. The study participants ranged between 17 - 49 years, with a mean age of 27.14 (SD ± 5.46). Of the total, 365 (98.6%) mothers were swaddling their babies, while only 5 (1.3%) reported not practising swaddling. Most mothers (51.1%) had good knowledge, while 44.3% had adequate knowledge, and only 4.6% had insufficient knowledge regarding safe swaddling. Knowledge of safe swaddling increased with age and parity. Most mothers (90%) correctly identified that "cotton cloth or light blanket should be used to swaddle baby".

CONCLUSION

It is concluded from this study that most mothers have adequate knowledge about safe swaddling, and the level of knowledge increases with age and parity. Safe swaddling techniques and information should be given to mothers at the beginning of antenatal care to benefit from its positive outcomes and, at the same time to avoid its drawbacks.

KEYWORDS: Knowledge, Swaddling, Practices, Mothers, Neonates

neonates.^{7,8,9} Most importantly, studies have shown that swaddling infants in the supine position has been associated with a reduced risk of Sudden Infant Death Syndrome (SIDS).⁴ It has also been reported that swaddling prevents infant rolling and the infant's head from being covered by bedding, both established risk factors for Sudden Infant Death Syndrome (SIDS).¹⁰ There are, however, some potentially adverse aspects of swaddling which need to be considered. Adverse outcomes include hyperthermia when a newborn is overdressed or when inappropriate material is used, delayed postnatal weight gain when a newborn is separated from their mother soon after birth and increased respiratory infections with tight wrapping, developmental of hips dysplasia if the baby is tied tightly with the cord around hips, this is more likely if a wooden board is used for swaddling a baby.^{11,12,13} This study aimed to collect information regarding

mothers knowledge of safe swaddling practices. The results of this study will assist the healthcare workers in judging the population's current practising knowledge that will identify the area of least knowledge to avoid the adverse outcome and wrong swaddling practices.

METHODOLOGY

This was a cross-sectional study following STROBE guidelines.¹⁴ The study participants were mothers of less than one-month-old neonates who presented to the paediatrics unit of Kuwait Teaching Hospital, a tertiary care facility in Peshawar, the capital city of Khyber Pakhtunkhwa province Pakistan, between July to December 2018. Participants were selected using a non-probability consecutive sampling technique. The institutional review board approved the study of the institution of Prime Foundation. Participants were asked to provide written consent in an IRB-approved format. Those who declined to give written informed consent were excluded from the study. A group of trained interviewers collected the data from mothers based on a questionnaire developed by the researchers per the related published literature. The questionnaire contained socio-demographic characteristics of the mothers and their infants, occupation of the parents, number of children, age of the child, swaddling starting time, duration/time she wrapped or intended to swaddle and ten other questions related to the knowledge of a mother regarding safe swaddling practices. To determine mothers knowledge level, criteria were developed for correct responses. Mothers who correctly answered 8-10 questions were classified as having a "Good level of knowledge", those who correctly answered 4-7 questions were classified as having a "Fair level of knowledge", and mothers who answered less than four questions were considered to have "Low level of knowledge". Data were entered and analyzed in SPSS version 24. The means and standard deviations were used to present the continuous variables, and the categorical variables were described as percentages. The chi-square test was used to compare categorical variables. An Independent t-test was used to compare the difference in age regarding views on swaddling. One-way ANOVA was used to compare a mother's mean age and knowledge level. Spearman's correlation test was used to infer the correlation between a mother's age parity and level of knowledge. A p-value of less than 0.05 was considered significant for all statistical decisions.

RESULT

The study included 370 mothers of neonates (>1 month). Mother's age ranged between 17 - 49 years,

having a mean age of 27.14 years with SD \pm 5.46. Most of the mothers were in the age group of 20-29 years. Three hundred and forty-three participants (92.7%) were housewives, while twenty-seven (7.3%) were working. Among the total, 39 mothers (10.5%) had one child, 59 (15.5%) had two children, and 272 (73.5%) had three-plus children Table: 1.

Table 1: Socio-Demographic Characteristics

Socio-Demographic Characteristic	N (%)
Age Group	
Less than 19	15(4.1 %)
20-29	225(60.8 %)
30-39	121(32.7 %)
40-49	09(2.4 %)
Mean age	27.14%
Maternal Employment	
Employed	27(7.3%)
Housewives	343(92.7%)
No children in the family	
One	39(10.5%)
Two	59(15.5%)
Three or more	272(73.5%)
Total	370(100%)

Of the total, 365 (98.6%) mothers were swaddling their babies, while only 5 (1.3%) reported not practising swaddling. The mean age of non-swaddling mothers was higher (27.80, SD \pm 5.80) compared to swaddling mothers (26.35, SD \pm 4.31); however, no statistically significant difference was identified when an independent t-test was used ($P < 0.05$). The majority of the swaddling mothers were non-working women (99.1%). The effect of history of employment was statistically significant with swaddling status when the chi-square test was applied ($P < 0.05$) [Table: 2]. Most swaddling mothers had three or more children (72.7%).

Table 2: Tendency to Swaddling According to Demographic Features

Demographic Characteristics	Swaddling		Total	P-Value
	Yes	No		
Overall	269 (98.9%)	03 (1.10%)	370(100%)	
Mother's mean age & SD	26.35 \pm 4.31	27.80 \pm 5.80	26.36 \pm 4.33	> 0.05 ^a
Working Status				
Yes	25(92.6%)	02(7.4%)	27(100%)	< 0.05 ^b
No	340(99.1%)	03(0.9%)	343(100%)	
Total	365(98.6%)	05(1.3%)	370(100%)	
No of Children				
One	38(97.4%)	01(2.6%)	39(100%)	> 0.05 ^b
Two	58(98.3%)	01(1.7%)	59(100%)	
Three or more	269(98.9%)	03(1.1%)	272(100%)	
<i>a=Independent t-test</i>				
<i>b= Chi-square test</i>				

A statistically significant association was identified when One-way ANOVA was used to compare the mean age of a mother with the level of knowledge

($p < 0.05$) Table 3. The level of knowledge increased with a mother's age and number of children. A statistically significant correlation was identified between the mothers level of knowledge and their age (correlation 0.15; $p < 0.05$) and parity (correlation 0.20; $p < 0.05$). Out of 370 participants, most mothers (51.1%) had good knowledge. 44.3% had adequate knowledge, while only 4.6% of mothers had a low level of knowledge regarding safe swaddling Table: 3 .

Table 3: Level of Knowledge and Mean Age

Level of Knowledge	N (%)	Mean Age of a Mother \pm SD	P-Value
Low	17 (4.5%)	25.29 \pm SD 4.18	< 0.05 ^a
Fair	164(44.3%)	26.23 \pm SD 4.36	
Good	189 (51.08)	27.42 \pm SD 4.20	
Total	370 (100%)	26.36 \pm 4.33	

a=Anova

The majority of the mothers (90%) correctly identified that "cotton cloth or light blanket should be used to swaddle baby", while about 85% accurately answered that: 1) "the whole body should be covered with swaddle cloth excluding head and neck", 2) "legs should not be tied crossing each other when swaddling baby", 3) "once swaddled, the baby should be put in the supine position to sleep" Table 4.

Table 4: Mother's Knowledge of Safe Swaddling Techniques

Questions (each correct answer received one point)	Proper Answer n (%)
1 Cotton cloth or a light blanket should be used to swaddle the baby.	334(90%)
2 Swaddling should be stopped once the baby can roll over himself.	199(53%)
3 The wooden board should not be swaddled very tightly.	280(75%)
4 Baby should not be swaddled very tightly.	301(81%)
5 A child should be able to bend his knees and hips when swaddled.	244(66%)
6 The whole body should be covered with swaddle cloth, excluding the head and neck.	320(86%)
7 Legs should not be tied or crossing each other when swaddling the baby.	315(85%)
8 Once swaddled, the baby should be put in the supine position to sleep.	303(82%)
9 Swaddling should be removed while feeding the baby.	152(41%)
10 Swaddled babies should be checked often to ensure their temperature is normal.	261(70%)

The areas of least knowledge were identified in the following two areas of mother education. Only 41% of the mothers had correctly determined that "swaddling should be removed while feeding the baby", while only 53% were aware that "swaddling should be stopped

once the baby can roll over himself" Table 4. Parity or education did not affect these three areas of maternal knowledge.

DISCUSSION

Swaddling remains a common practice in Pakistan, especially in the Khyber Pakhtunkhwa region, where most people live in a joint family system, and family ties are strong and greatly affect cultural and social values. The mothers follow the family traditions and obtain all their child-care information and knowledge from their elders, especially the mother-in-law. This traditional approach was observed in this study, where most mothers (73%) stated they received swaddling knowledge from their mother-in-law. A similar result was obtained in a study conducted by other researchers.¹⁵ Our study reported a swaddling frequency of 98.6%, per a study conducted by other researchers.¹⁶ Mothers level of knowledge regarding safe swaddling has important implications in child care. This study found that most mothers (>95%) had good or fair knowledge. In our study, the level of knowledge increases with a mother's age and the number of children. A quasi-experimental study reported significant improvement in nesting and swaddling knowledge for premature babies after three months of learning package intervention provided to neonatal ICU nurses.¹⁷ Contrary to our results, a study on knowledge attitudes and behaviours of mothers about infant personal care only reported 13% of safe swaddling knowledge, and most of the knowledge they received was from their healthcare professional.¹⁸ Our study highlights the following mother's education areas about safe swaddling techniques. Swaddling should be removed while feeding the baby. Adequate nutrition is key to early child development and survival. Swaddling may hinder baby feeding due to restrictions. It is, therefore, important to educate our mothers in the community to remove all swaddling while feeding the baby. A child should be able to bend his knees and hips when swaddled. An increased risk of hip dysplasia has been associated with incorrect swaddling. It is, therefore, important to educate mothers to avoid tight wrapping around their knees and hips while swaddling to prevent any related complications. Swaddling should be stopped once the baby can roll over himself. SIDS remain a great concern among children of this age. It is therefore important that babies, once able to roll/move, should not be swaddled to avoid asphyxiation associated with rollovers and face burial in pillow and bedding. Therefore, this message must reach the mothers and maternal care providers to educate their community better.

LIMITATIONS

This study achieved an excellent response of 95% and provided important benchmarking data for safe swaddling techniques. The limitation of our study is that it was a cross-sectional study, and the data was collected in a hospital setting.

CONCLUSION

Our study identified that most people have adequate knowledge about safe swaddling. The study also determined that the level of knowledge increases with age and parity. Safe swaddling techniques and information should be given to mothers at the beginning of antenatal care to benefit from its positive outcomes and, at the same time to avoid its drawbacks. These finding merits additional investigation in other cultural settings. Factors associated with maternal knowledge need to be further explored so that culture-specific, effective and focused interventions can be planned for parents of young children in Pakistan.

CONFLICT OF INTEREST: None

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