KNOWLEDGE, ATTITUDE AND PRACTICE OF MOTHERS REGARDING COLOSTRUM FEEDING TO NEWBORNS IN RURAL PAKISTAN: A CROSS-SECTIONAL STUDY

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ABSTRACT

OBJECTIVE: To assess the knowledge, attitude and practice of mothers regarding colostrum feeding to newborns in North of Sindh province, Pakistan.

METHODS: This cross-sectional study involving nursing mothers who are having any children under 2 years, conducted in three districts (Larkana, Qamber Shahdadkot and Dadu) of Sindh province, Pakistan from September-2015 to January-2016. Systemic random sampling technique was used and every third woman was selected. Self-made questionnaire translated in Urdu and Sindhi language was used to assess socio-demographic status, knowledge, attitude and practice about colostrum from pregnant and nursing women. Data was analysed by SPSS-20.

RESULTS: Of the 384 mothers, 269 (70.1%) nursing mothers had some knowledge about health benefits of colostrum while 115 (29.9%) had no knowledge about health benefits of colostrum. About 72.1% (n=277) mothers offered colostrum feeding while 27.9% (n=107) discarded colostrum believing that colostrum as non-milk, non-nutritious and causing diarrhea.

The mothers who discarded colostrum offered honey (n=80/107; 74.8%); water (n=19/107; 17.7%) and herbal preparation (n=8/107; 7.5%) to babies as pre-lacteal feeding. The practice of discarding colostrum is more prevalent among the mothers aging ≤20 years (n=94/107; 87.9%), illiterate (n=89/107; 83.2%), experienced first pregnancy (n=70/107; 65.4%) and delivered their child at home (n=85/107;79.4%). Out of 384 mothers, 109 (28.4%) started breast-feeding in first hour after delivery & 231 (60.2%) mothers received guidance about benefits of colostrum feeding from the healthcare professionals.

CONCLUSION: More than a quarter mothers don't know about the health benefits of colostrum and offered pre-lacteal feeding to babies. Majority received guidance from health-professionals.

KEY WORDS: Colostrum (MeSH); Immunoglobulins (MeSH); Enzymes (MeSH); Cytokines (MeSH); Growth Factors (MeSH); Bilirubin (MeSH); Knowledge (MeSH); Attitude (MeSH); Pre-lacteal feeding (Non-MeSH); Mothers (MeSH).

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INTRODUCTION

Colostrum is bright yellowish thick milk[1] secreted from mammary glands during late pregnancy and continuing during the first few days after child birth.[2,3] Colostrum is rich with immunoglobulin (IgA, IgG and IgM), enzymes, cytokines and growth factors.[2] Along with that, colostrum has also laxative effects that helps baby to excrete the excess bilirubin and aid to pass the stool.[3]

The World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) recommend exclusive breastfeeding for first six months of life.[4] Exclusive breastfeeding from birth up to six months has many long term physiological and psychological effects on mother and child, and it reduces infant morbidity and mortality.[5] However, multiple social and cultural factors have been observed that cause delayed breastfeeding due to presence of colostrum.[5,6] A study conducted in tertiary care hospitals of Karachi, Pakistan revealed that 90% of the mother offered colostrum as first feed to the baby whereas other study in Lahore showed only 35% infants receive colostrum as their first feed.[8] There are various studies conducted in developing countries showed variable results regarding colostrum feeding to the infants like Ethiopia 21%,[5] India 36.9%,[9] Nigeria 56%,[10] Nepal 71%,[2] and Malawi 96%.[11]

In Pakistan, there are a lot of customs, practices and cultural influences in terms of colostrum use for newborn feeding. The objective of present study was to assess the knowledge, attitude and practices of colostrum feeding among nursing mothers. By assessing the knowledge, attitude and practices of mothers regarding colostrum feeding to newborn can give us idea for need modification if needed. Hence different interventions can be used to develop the real essence of providing colostrum to newborn and enhance babies' immunity.

METHODS

This multicentre cross-sectional study was conducted in different maternity centres and outpatient clinics in North part of Sindh Province, Pakistan. Data was collected from three districts (Larkana, Qamber Shahdadkot and Dadu) from September 2015 to January 2016. Study included all the nursing mothers, who were having any children

under 2 years of age, residing in three selected districts of Sindh and visiting selected maternity and outpatient clinics during the time of study. The study excluded all the other nursing mothers, who did not have any successful live birth, or were not willing to participate in the study. Considering the lack of data regarding exact figures of children under 2 years of any districts, WHO formula for sample size calculation was used. By keeping the margin of error of 5%, confidence interval of 95% and population of 50%, 384 sample size was calculated. Since the data was collected from 3 different districts, therefore total sample size was divided into 3 equal parts i.e. 128 for each district.

All the women were approached by systemic random sampling technique in which every third woman was selected. Self-made questionnaire translated in Urdu and Sindhi language was introduced. Questionnaire focused on socio-demographic status, knowledge, attitude and practice about colostrum from pregnant and nursing women. Validity of question was done by face validity method whereas reliability of questionnaire was tested by cronbach alpha with obtained value of 0.624.

Data collection was done by the lady health workers (LHWs) and Nurses, working in the selected clinics and maternity centres. A voluntary written informed consent was taken from all respondents before introducing questionnaire and institutional consent was taken from respective authorities. Data was entered first in Microsoft Excel 2016 and then in SPSS version 20. Data was analysed for descriptive statistics. Chi square test was applied to measure the association of mother's age, education, institutional care, domiciliary care with the colostrum feeding practices and a p-value <0.05 was considered significant.

RESULTS

A total of 721 mothers were approach out of which 566 were falling in the inclusive criteria of study. Out of these 566 mothers, only 468 mothers were has responded to this study questionnaire, however only 384 mothers have completely responded to the study questionnaire. The major reasons for non-participation and incomplete participation were: family restriction, time constraint and unexpected disturbance (attending

TABLE I: KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT COLOSTRUM AMONG NURSING MOTHERS

Description	Category	Frequency (n; %)
What do you know about colostrum? (n=384)	It is kind of milk. Good for baby	277 (72.1%)
	It is colorful embarrassing discharge. It should be discarded.	107 (27.9%)
Do you know any benefit of colostrum? (n=384)	It is very nutritious to baby	180 (46.9%)
	It aids immune system	81 (21.1%)
	It helps in passing the first stool of baby.	8 (2.1%)
	Don't know	115 (29.9%)
Who guides you for colostrum feeding? (n=384)	Nobody	122 (31.8%)
	Consulting midwife	120 (31.2%)
	Lady health Visitor	80 (20.8%)
	Consulting doctor	31 (8.1%)
	Family	31 (8.1%)
When did you offer your first breastfeed to baby? (n=384)	within half hour	19 (5%)
	within 1 hour	90 (23.4%)
	within 6 hours	158 (41.2%)
	within 24 hours	22 (5.7%)
	After 24 hours	95 (24.7%)
Who asked you not to offer colostrum feeding to baby? (n=384)	No body	254 (66.2%)
	Family	85 (22.1%)
	I do not prefer to give colostrum to baby	22 (5.7%)
	Healthcare professional due to poor health of baby	19 (5%)
	Healthcare professional due to my Caesarean Section	4 (1%)
Colostrum should be discarded because? (n=107/384, 27.9%)	It is not milk. It is not nutritious	90 (84.1%)
	It causes diarrhea	14 (13.1%)
	It is not good for child health	3 (2.8%)
What do you offer in pre-lacteal feeding? (n=384)	None (Prefer Breastfeed)	277 (72.1%)
	Honey	80 (20.8%)
	Water	19 (5%)
	Herbal preparation	8 (2.1%)

phone calls, physician calls for consultation and crying of children).

Total 384 nursing mothers participated in study. Each district contributed around 33% participants. The socio-demographic variables of the study were district of residence, age and education of nursing mothers, number of children and place of delivery of last child.

Table I shows that among total participants, 72% (n=277) nursing mothers stated breast leaking (colostrum) as a kind of milk that is beneficial for child health. Among the total participants, around 70% (n=269) nursing mothers had knowledge about health benefits of colostrum on child health. About 68% (n=262) mothers responded that they received guidance about the benefits of colostrum feeding from the healthcare professionals (60%) and family (8%). The participants of this study were also questioned on initiation of breast-feeding. Out of total participants 28% (109/384) initiated breastfeeding within an hour. On asking for the reason of delay of initiation of breastfeeding, nursing mothers responded that it was due to family (22%) followed by advice of healthcare professional (6%). Out of 28% (n=107) nursing mothers who discarded colostrum believed that colostrum as non-milk and non-nutritious (84%) and causing diarrhea (13%). However, there were practices of different pre-lacteal feeding to babies.

Table II shows association among colostrum feeding and discarding with socio-demographic & other factors. The cross tabulation of participants' responses had shown statistically significant results having p-value <0.05. That indicates the colostrum discarding is associated with district, age, education, number of children, place of delivery of last child, breastfeeding initiation time and with pre-lacteal feeding.

DISCUSSION

Colostrum, an essential feed for the newborns that strengthens the immune system and helps in growth and repair of body.[12] In this study simple assessment regarding the knowledge, attitude and practice of colostrum feeding among mothers of rural areas of Sindh was conducted. The main result of study

TABLE II: ASSOCIATION OF COLOSTRUM WITH VARIOUS FACTORS

Description	Category	Total (n=384)	Colostrum Feeding (n=277)	Colostrum Discarding (n=107)	p-value
District	Larkana	128 (33.33%)	108 (39%)	20 (18.7%)	=0.001
	Qamber Shahdadkot	128 (33.33%)	78 (28.2%)	50 (46.7%)	
	Dadu	128 (33.33%)	91 (32.9%)	37 (34.6%)	
Age	≤20 years	150 (39.1%)	56 (20.2%)	94 (87.9%)	<0.001
	21-40 years	230 (59.9%)	217 (78.4%)	13 (12.1%)	
	>40 years	4 (1%)	4 (1.4%)	0	
Education	No Education	133 (34.7%)	44 (16%)	89 (83.2%)	<0.001
	Primary / Secondary	154 (40.1%)	140 (50.5%)	14 (13.1%)	
	Matriculation / Intermediate	85 (22.1%)	81 (29.2%)	4 (3.7%)	
	Graduation or higher	12 (3.1%)	12 (4.3%)	0	
Number of Children	Primipara	104 (27.1%)	34 (12.3%)	70 (65.4%)	<0.001
	Multipara	280 (72.9%)	243 (87.7%)	37 (34.6%)	
Place of delivery of last child	Home	146 (38%)	61 (22.1%)	85 (79.4%)	<0.001
	Government Maternity Centre / Hospital	84 (21.9%)	76 (27.4%)	8 (7.5%)	
	Private Maternity Centre/Hospital	154 (40.1%)	140 (50.5%)	14 (13.1%)	
Breastfeed Initiation	Within half hour	19 (5%)	19 (6.9%)	0	<0.001
	Within 1 hour	90 (23.4%)	90 (32.5%)	0	
	Within 6 hours	158 (41.2%)	145 (52.3%)	13 (12.2%)	
	Within 24 hours	22 (5.7%)	15 (5.4%)	7 (6.5%)	
	After 24 hours	95 (24.7%)	8 (2.9%)	87 (81.3%)	
Pre-lacteal feeding	Water	19 (5%)	0	19 (17.7%)	<0.001
	Honey	80 (20.8%)	0	80 (74.8%)	
	Herbal preparation	8 (2.1%)	0	8 (7.5%)	
	None (Prefer Breastfeed)	277 (72.1%)	277 (100%)	0	

shows that 28% (n=107) of mothers feel that the colostrum is the dirty milk and that need to be discarded, while in Karachi city this type of thinking and practice is prevalent in among 10% mothers.[7] The difference in numbers can be due to urban-rural setting of Sindh.

In this study, there were 28% (n=107) mothers who feel that the colostrum is not milk, having harmful effects on child health and may cause diarrhea. A study conducted in Rawalpindi also reflect similar type of finding where 35% mothers believe that colostrum as harmful for child health and 15% mothers practiced to discard colostrum before initiating breastfeeding.[13] Moreover, in our study, there were only 28% (n=109/384) mothers who initiated breastfeeding within an hour after the child birth and around 25% (n=95/384) mothers initiated feeding after 24 hours. Similar results were found from the study conducted in Military Hospital, Rawalpindi in which only 14% mother initiated breast feeding within an hour whereas 26% mothers initiated breast feeding 24 hours after child birth.[13] Another study conducted in Karachi maternity centres where around 41% mothers initiated breastfeeding soon after birth and 3.2% mothers even initiated after first week.[14]

This study identifies around 28% mothers prefer to use either water or honey or herbal preparation as pre-lacteal feed compared to the colostrum as first meal to newborn. The practice for discarding colostrum and replacing it with other pre-lacteal feeding is not only common in Pakistan but it is also common in neighbouring countries, i.e. India. Different books in Indian ancient Sanskrit have advised to discard colostrum for first few days and recommended different pre-lacteal feeding, i.e. honey or butter for the discharge of meconium.[15] Surprisingly, such type of beliefs and practices still exist across the India and Pakistan.

A myriad of factors is responsible for pre-lacteal feeding and for colostrum discard. From the result of this study it is evident that the practice of discarding colostrum and pre-lacteal feeding is more prevalent among those women who have delivered their child either at home 79% (n=85), or have experienced first pregnancy 65% (n=70). Moreover, illiteracy 83% (n=89) and young age of mothers i.e. 88% (n=94) has direct relation with colostrum discarding practices. A significant association ($p<0.001$) of maternal age, education, delivery units and the number of pregnancy was observed with the colostrum use as practices. Similarly, a prospective study conducted in antenatal clinics of Maldives among mothers, revealed that advanced maternal age has inverse association with the pre-lacteal feeding.[16] In addition, another study conducted in Nepal showed high association of maternal education, primigravida, domiciliary care and delivery with pre-lacteal feeding practices by multiple logistic regression analysis.[17]

One limitation of study is that data is collected only from three districts of Sindh. This data does not represent overall situation of country or of province about colostrum feeding. There could be different results especially in some remote areas of Baluchistan and Northern areas of KPK province of Pakistan. Another limitation of study could be that data is collected from the nursing mothers that visited maternity or outpatient clinics during the time of survey. This study does not capture the total nursing mothers including those who did not visit the health facility. This may result in over reporting or under reporting of results. There is need of extensive survey that may show the true picture of society about the colostrum feeding.

Based on the result of this study, there is need to increase of health awareness among locals about benefits of colostrum feeding. Local health NGOs and health authorities should scale up their health education and promotion strategies and emphasize on child health in first 2 years of life and highlight the value of colostrum feeding and exclusive breastfeeding in child development.

CONCLUSION

More than a quarter mothers do not know the health benefits of colostrum. Many of mothers considers colostrum as dirty milk that causes diarrhea to their baby. Women delivering babies in domiciliary setting follow the different myths and replace the colostrum with water, honey or ghutti as pre-lacteal feed.

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REFERENCES

1. Bhale P, Jain S. Is colostrum really discarded by Indian mothers? Indian Pediatr 1999 Oct;36(10):1069-70.
2. Joshi S, Barakoti B, Lamsal S. Colostrum Feeding: Knowledge, Attitude and Practice in Pregnant Women in a Teaching Hospital in Nepal . WebmedCentral:Int J Med Mol Med 2012;3(8):WMC003601
3. La Leche League International (LLLI). What is colostrum? How does it benefit my baby? 2016 [Cited on: March 04, 2017]. Available from:http://www.llli.org/faq/colostrum.html.
4. World Health Organization (WHO), United Nations International Chidren's Emergency Fund (UNICEF). Global strategy for infant and young child feeding. WHO, Geneva, 2003. ISBN: 92 4 1562218. [Cited on: March 04, 2017]. Available from: http://www.who.int/nutrition/publications/infantfeeding/9241562218/en/
5. Rogers NL, Abdi J, Moore D, Nd'iangui S, Smith LJ, Carlson AJ, et al. Colostrum avoidance, prelacteal feeding and late breast-feeding initiation in rural Northern Ethiopia. Public Health Nutr 2011 Nov;14(11):2029-36. DOI: 10.1017/S1368980011000073. Epub 2011 Apr 21
6. Mehkari S, Zehra N, Yasin H, Rauf A, Jaliwala HA, Zehra T, et al. Breastfeeding and Weaning: Awareness and Practices among Female Health Providers working in a Tertiary Care Hospital of Karachi-Pakistan. Int J Women's Health Reprod Sci (IJWHR) 2014;2(5):281-6. DOI: 10.15296/ijwhr.2014.45

7. Hanif R, Khalil E, Sheikh A, Harji A, Haris S, Rasheed MW, et al. Knowledge about breastfeeding in accordance with the national policy among doctors, paramedics and mothers in baby-friendly hospitals. J Pak Med Assoc 2010;60(10):881-6.
8. Kulsoom U, Saeed A. Breast feeding practices and beliefs about weaning among mothers of infants aged 0-12 months. J Pak Med Assoc 1997;47(2):54-60.
9. Raval D, Jankar DV, Singh MP. A study of breast feeding practices among infants living in slums of Bhavnagar city, Gujrat India. Healthline 2011;2(2):78-83.
10. Okolo SN, Adewunmi YB, Okonji MC. Current breastfeeding knowledge, attitude, and practices of mothers in five rural communities in the Savannah region of Nigeria. J Trop Pediatr 1999;45(6):323-6.
11. Kamudoni P, Maleta K, Shi Z, Holmboe-Ottesen G. Infant feeding practices in the first 6 months and associated factors in a rural and semiurban community in Mangochi District, Malawi. J Hum Lact 2007 Nov;23(4):325-32. DOI: 10.1177/0890334407307567
12. Uruakpa FO, Ismond MAH, Akobundu ENT. Colostrum and its benefits: A review. Nutr Res 2002;22(6):755-67. DOI: 10.1016/S0271-5317(02)00373-1
13. Aisha R, Batool F, Sultana S. Knowledge, Attitude and Practices about Colostrum Feeding among Pregnant Women in Military Hospital Rawalpindi of Pakistan. Open J Nurs 2016;6(4):309-13. DOI: 10.4236/ojn.2016.64032.
14. Khaliq A, Qamar M, Hussaini SA, Azam K, Zehra N, Hussain M, et al. Assessment of knowledge and practices about breastfeeding and weaning among working and non-working mothers. J Pak Med Assoc 2017 Mar;67(3):332-8.
15. Sabharwal V. Myths and beliefs surrounding complementary feeding practices of infants in India. J Commun Nutri Health 2014;3(1):34-8.
16. Raheem RA, Binns CW, Chih HJ, Sauer K. Determinants of the introduction of prelacteal feeds in the Maldives. Breastfeed Med 2014 Nov;9(9):473-8. DOI: 10.1089/bfm.2014.0028. Epub 2014 Jun 25.
17. Khanal V, Adhikari M, Sauer K, Zhao Y. Factors associated with the introduction of prelacteal feeds in Nepal: findings from the Nepal demographic and health survey 2011. Int Breastfeed J 2013 Aug 8;8(1):9. DOI: 10.1186/1746-4358-8-9.

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

JS: Concept, acquisition, analysis & interpretation of data; drafting the manuscript; final approval of the version to be published

AK: Study design; drafting the manuscript; critical review; final approval of the version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest

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