BREASTFEEDING PRACTICES AMONG INFANTS PRESENTING WITH ACUTE DIARRHEA

Faiqa Nazir[1], Rushna Younas[2], Sabahat Amir[2], Syed Imad Ali Shah[2], Abdul Khaliq[2], Syed Kaleem ur Rehman[2]

[1]Depatment of Pediatrics, Sardar Ali Raja Foundation Hospital, Islamabad – Pakistan

[2]Depatment of Child Health, Khyber Teaching Hospital Peshawar- Pakistan

ABSTRACT

Objectives: To determine the frequency of feeding practices among infants presenting with acute diarrhea.

Material and Methods: This cross sectional study was carried out from October 2019 to March 2020 in the Paediatric Out-Patient Department of Khyber Teaching Hospital, Peshawar. Infants with acute diarrhea were included in the study after meeting the inclusion criteria. Sampling was done by consecutive (non-probability) sampling. Sample size was 141 by using WHO sample size calculator. data was statistically analyzed using SPSS v23.

Results: Out of 141 infants who presented with acute diarrhea in our study, 26(18.4%) were exclusively breastfed, 79(56%) were partially breastfed, while 36(25.5%) were non breastfed. Out of 141, 80(56.7%) were male and 61(43.3%) were female, with frequency of exclusive breastfeeding in males being 17.5% and in females being 19.7%. The mean age of the infant presenting with diarrhea was 3.25 months, while the mean age of the mother in the study was found to be 26.4 years. The rate of exclusive breastfeeding was 7.7% in working mothers compared to 19.5% in housewives.

Conclusion: The most common feeding practice among infants presenting with acute diarrhea is partial breastfeeding which is not as effective as exclusive breastfeeding in preventing and reducing morbidity from diarrheal diseases.

Key Words: Feeding practices, Exclusive breastfeeding, Partial breastfeeding, Non breastfeeding and Acute Diarrhea.

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INTRODUCTION

Diarrheal diseases are the second leading infectious cause of mortality globally, after lower respiratory infections, among children.[1] Diarrhea is a global problem. In 2016, diarrhea was the eighth leading cause of mortality, responsible for more than 1·6 million deaths. More than a quarter (26·93%) of diarrheal deaths occurred among children younger than 5 years, and about 90% (89·37%) of diarrheal deaths occurred in south Asia and sub-Saharan Africa.[2]

Global mortality may be declining rapidly, but the overall incidence of diarrhea has only declined from 3.4 to approximately 2.9 episodes per child-year in the past 2 decades, and it is estimated to account for 23 million childhood disability-adjusted life years. In addition to the risk of mortality, persistently high rates of diarrhea, especially prolonged and persistent diarrhea among young children may be associated with long term adverse outcomes. Diarrheal illnesses, especially early and repeated episodes among young children can be associated with malnutrition, micronutrient deficiencies, and significant deficits in psychomotor and cognitive development.[3]

Malnutrition is another public health problem, often associated with an increased risk of mortality and commonly a cause and a consequence of diarrheal disease. Indeed, diarrhea episodes among malnourished children seem to be more complicated and prolonged than among non-malnourished children, and convey a worse prognosis.[4]

Breastfeeding has documented short and long term medical and neurodevelopmental advantages. Thus, the decision to breastfeed should be considered a public health issue and not only a lifestyle choice. The American Academy of Pediatrics and the World Health Organization recommend that infants should be exclusively breastfed or given breast milk for 6 months.[5] Complementary foods are introduced after this initial period, but breastfeeding is recommended for another two years or more.[6] Despite efforts to promote exclusive breastfeeding through 6 months, less than 50% of women continue to breastfeed at 6 months.[5] Lack of exclusive breastfeeding among infants 0- 5 months of age and no breastfeeding among children 6-23 months of age are associated with increased

Correspondence
Dr. Sabahat Amir
Associate Professor
Department of child Health, Khyber Teaching Hospital
Peshawar - Pakistan
Email: sabahatamir7@gmail.com
Cell: +92-333-9128955
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diarrhea morbidity and mortality in developing countries. In Africa, Asia, Latin America, and the Caribbean, only 47-57% of infants less than 2 months and 25-31% of infants2-5 months are exclusively breastfed.[7]

Feeding practices like early breastfeeding initiation, exclusive breastfeeding, complementary feeding initiation, complementary food hygiene, hand washing at the time of feeding, and child vaccination are factors associated with childhood diarrhea.

An increasing number of studies has confirmed that breastfeeding acts as a protective factor against diarrhea, which reduces the occurrence of childhood diarrhea and its severity.[8] Pakistan is a populous country of 185 million people with the fourth highest burden of child mortality globally, and insufficient progress in improving child survival.[9] Diarrhea and other infectious diseases remain major killers .[10]

In order to address the preventable causes of acute diarrhea, we conducted this study to determine the role of exclusive breastfeeding. Not much local data is available in our population regarding feeding practices among children presenting to health care facility with diarrhea so that the rate of exclusive breastfeeding be increased through parental education and by providing good environment for breastfeeding.

MATERIAL AND METHODS

It was a descriptive (cross-sectional) study, conducted on patients coming to Out Patient Department of Khyber Teaching Hospital, Peshawar. Patients from all socioeconomic groups come to this hospital. Calculated sample size was 141 using 19% proportion of exclusive breastfeeding, 95% confidence interval and 7% margin of error by using WHO sample size calculator.

Sampling was done by consecutive (non-probability) sampling. Infants with Acute Diarrhea (3 or more episodes of watery diarrhea in 24 hours), of either gender, with ages between 1-6 months were included in our study, after taking written informed consent. We defined feeding practices as either exclusively breast fed (meaning they were getting only breast feed), partially breast fed (meaning children were given breast feed as well as other form of feed like cow's milk, formula milk, honey or any other thing) and not breastfed (meaning these babies were not breast fed and were on feed other than breast milk).

Data was collected on pre designed proforma including name, age, gender and feeding practice of the infant, as well as age and working status of the mother and was analyzed using SPSS v23. Mean +/- Standard deviation were calculated for continuous variables like age. Frequency and percentages were calculated for categorical variables like gender and breastfeeding practices. Breastfeeding Practices were stratified among age and gender of the infant and age and working status of the mother to see the effect modification.

RESULTS

In our study 141 infants with acute diarrhea were observed for feeding practices, out of 141, 26(18.4%) were exclusively breastfed, 79(56%) were partially breastfed, while 36(25.5%) were not breastfed. In the study population, 80(56.7%) were male and 61(43.3%) were female, with frequency of exclusive breastfeeding in males being 17.5% and in females being 19.7%. The mean age of the infant presenting with diarrhea in our study was 3.25 months with +/- 1.2 SD, with minimum and maximum ages between 1.5 months and 5.5 months respectively. Mean age of the mother in the study was found to be 26.4 years with +/- 4 standard deviation from the mean, with minimum and maximum ages between 18 and 35 years respectively. Working status of the mother was also considered in our study which showed that the rate of exclusive breastfeeding was only 7.7% in working mothers compared to 19.5% in housewives.

Table 1: Breastfeeding Practices

Breastfeeding Practices	Frequency	Percentage
Exclusively breastfed	26	18.4%
Partially breastfed	79	56.0%
Not breastfed	36	25.5%
Total	141	100.0%

Table 2: Working status wise distribution of breastfeeding practices

Working Status of the Mother	Breastfeeding Practices			Total
	Exclusively Breastfed	Partially Breastfed	Not Breastfed	
Working Lady	1 (7.7%)	9 (69.2%)	3 (23.1%)	13 (100%)
House Wife	25 (19.5%)	70 (54.7%)	33 (25.8%)	128 (100%)
Total	26 (18.4%)	79 (56.0%)	36 (25.5%)	141 (100%)

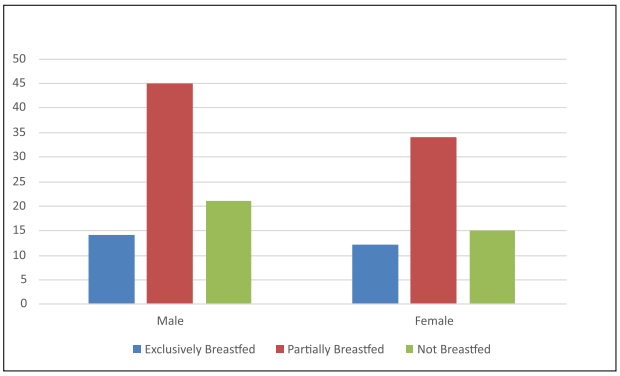

Fig 1: Gender wise distribution of Breast feeding practices in infants.

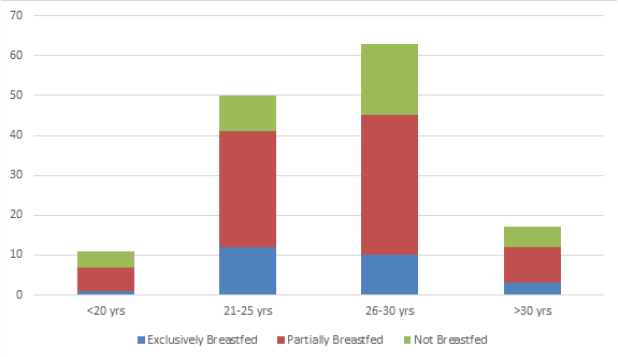

Fig 2: Breastfeeding practices amongst different age groups of mothers.

DISCUSSION

Results of our study showed that out of 141, only 26 (18.4%) were exclusively breastfed, 79 (56%) were partially breastfed, while 36 (25.5%) were non breastfed, these results are comparable to the results of some other studies as in one study, carried out in Canada had results similar to our study which clearly shows that at six months of age, the proportion of infants who were exclusively breastfed was only 15.5%. After adjusting for the infant's age, and the interaction between the type of breastfeeding and the infant's age, exclusive breastfeeding significantly protected the infant against many of the studied morbidities (OR: 0.28, CI: 0.15-0.51) and specifically against diarrhea (OR: 0.38, 95% CI: 0.17-0.86)[11] thus confirming the protective role of exclusive breastfeeding on diarrhea.

In another study, significant decrease in diarrheal episodes was observed among infants who were exclusively breastfed compared to those who were not (OR: 0.26, 95% CI: 0.08-0.83).[12] A study on infants who were exclusively and predominantly breastfed experience less diarrheal episodes compared to those who were not breast fed with AOR: 0.31, 95% CI: 0.16-0.59, p <0.001 for exclusively breastfed and AOR: 0.30, 95% CI: 0.10-0.89, p=0.031 for predominantly breastfed.[13]

Our study results are also comparable to a study in England which showed that formula feeding was associated with nearly a fourfold increase in diarrheal disease compared with exclusive breast milk in infants aged under and over 6 months. Receiving no breast milk and not receiving exclusive breast milk were both significantly associated with an increase in diarrheal disease (AOR: 2.74 and 3.62 respectively). [14] Another study in Botswana also showed the protective effect of exclusive breastfeeding against diarrhea as exclusive breastfeeding was present in only 12% of infants presenting with diarrhea.[15] A study in Vietnam showed the incidence of diarrhea being 12.2%, although 99% of the children were breastfed, the prevalence of exclusive breastfeeding in the first 4 months was 21.3%.[16]

Low rates of exclusive breastfeeding have been found in our study which were also evident by another study in Egypt in which only 9.7% were exclusively breastfed for 6 months.[17] Another study in Saudi Arabia revealed that only 24.4% of infants were exclusively breastfed at the age of 6 months.[18] Another study also supported our results that maternal age <20 years and primiparity are responsible for improper feeding technique and are more in need of support and guidance for appropriate breastfeeding techniques.[19] Our study results that working mothers were less likely to exclusively breastfed their infants is also supported by another study in India in which also only 13.6% of the working mothers exclusively breastfed their infants.[20] In another study more than or 6 months of exclusive breastfeeding reduced significantly the risk for more than or 1 episode of gastrointestinal infection(s) during months 1-9 compared to no or less than 4 months of breastfeeding AOR: 0.60; 95% CI: 0.44-0.82.[21]

In one of local study in Lahore, it was found out that non breastfed infants were four times more admitted in the hospital for the management of ailments as compared to the breastfed infants. The breastfeeding was 43% at 3 months and 20% at 6 months. The acute diarrhea was 6% in breastfed and 21% in non-breastfed infants[22] thus again showing the protective effect of breastfeeding on diarrhea.

It was found in another study that not breast feeding was associated with a 165 % [relative risk (RR) 2.65, 95 % confidence interval (CI) 1.72-4.07] increase in diarrhea incidence in infants aged 0-5 months, a 32 % (RR: 1.32, 95 % CI 1.06-1.63) increase in those aged 6-11 months, and a 32 % (RR: 1.32, 95 % CI 1.06-1.63) increase in those aged 12-23 months. Not breastfeeding was also associated with a 952 % (RR: 10.52, 95 % CI 2.79-49.6) increase in diarrhea mortality as compared to exclusive breastfeeding in infants aged 0-5 months of age, a 47 % (RR: 1.47, 95 % CI 0.67-3.25) increase as compared to any breastfeeding practice in those aged 6-11 months, and a 157 % (RR: 2.57, 95 % CI 1.10-6.01) increase in those aged 12-23 months.[23]

LIMITATIONS

The limitation of our study was that it was performed in a single hospital, the results could have been better if the study was carried out on a wider scale with a bigger sample size.

RECOMMENDATIONS

As evident from our study, diarrhea in infants who were exclusively breastfeed was the least among other groups. Breast feeding in first 6 months of life is very important not only for infants' growth but also to protect them from diarrhea, which is the leading cause of morbidity and mortality in this age group particularly in de-

veloping country like ours. So certain suggestions and recommendations should be drawn by us as a pediatrician for competent authorities for the promotion of exclusive breastfeeding and also health education of mothers during their antenatal visits, and thus obstetrician should also be involved. It is also recommended that each mother especially young ones should be observed for mothers' and infants' positioning and attachment at the onset of breastfeeding and if subsequent counseling needed, should be given on correct positioning and attachment. There should be no promotion of formula milk on any media. Working mothers should be encouraged and given good environment to continue breastfeeding.

CONCLUSION

Exclusive breastfeeding reduces the incidence of diarrhea and thus has got protective effect against diarrheal diseases. The most common feeding practice is partial breastfeeding which is not as effective as exclusive breastfeeding in preventing and reducing morbidity from diarrheal diseases. Education of mothers regarding advantages of exclusive breastfeeding is thus required particularly in antenatal clinics to improve the prevalence of exclusive breastfeeding. Working mothers are least likely to exclusively breastfed their infants, so such mothers should be counseled and working environment should be made comfortable and favorable for breastfeeding mothers so as to improve the health of the infants by increasing the prevalence of exclusive breastfeeding and thereby reducing the incidence of diarrhea.

REFERENCES

1. Troeger CE. Quantifying risks and interventions that have affected the burden of diarrhoea among children younger than 5 years: an analysis of the Global Burden of Disease Study 2017. Lancet Infect Dis. 2020 Jan 1;20(1):37-59.
2. Troeger C. Estimates of the global, regional, and national morbidity, mortality, and aetiologies of diarrhoea in 195 countries: a systematic analysis for the Global Burden of Disease Study 2016. Lancet Infect Dis. 2018 Nov 1;18(11):1211–1228. doi: 10.1016/S1473-3099(18)30362-1.
3. Bhutta ZA. Acute Gastroenteritis in Children. Nelson Textbook of Pediatrics. 20th ed. New Delhi: Elsevier; 2015. p. 1854-75.
4. 4. Acácio S, Mandomando I, Nhampossa T,Quintó L, Vubil D, Sacoor C, et al. Risk factors for death among children 0–59 months of age with moderate-to-severe diarrhea in Manhiça district, southern Mozambique. BMC Infect Dis. 2019;19:322. doi: 10.1186/s12879-019-3948-9.
5. 5. Parks EP, Shaikhkhalil A, Groleau V, Wendel D, Stallings VA. Feeding Healthy Infants, Children, and Adolescents. Nelson Textbook of Pediatrics. 20th ed. New Delhi: Elsevier; 2015. p. 286-95.
6. 6. Santos FS, Santos LH, Saldan PC, Santos FCS, Leite AM, Mello DF. Breastfeeding and Acute Diarrhea among children enrolled in the family health strategy. Texto Contexto Enferm, 2016; 25(1):e0220015. Available from: http://dx.doi.org/10.1590/0104-070720160000220015.
7. 7. Lamberti LM, Walker CLF, Noiman A, Victoria C, Black RE. Breastfeeding and the risk for diarrhea morbidity and mortality. BMC Public Health. 2011;11(3):3-15.
8. 8. Shati AA , Khalil SN, Asiri KA, Alshehri AA, Deajim YA, Al-Amer MS, et al. Occurrence of Diarrhea and Feeding Practices among Children below Two Years of Age in Southwestern
9. Saudi Arabia. Int. J. Environ. Res. Public Health. 2020 Jan 22;17:722. Available from: www.mdpi.com/journal/ijerph.
10. 9. Bhutta ZA, Hafeez A, Rizvi A, Ali N, Khan A, Ahmad F,et al. Reproductive, maternal, newborn, and child health in Pakistan: challenges and opportunities. Lancet. 2013 Jun 22; 381(9884):2207-18.
11. 10. Qamar FN, Zaman U, Quadri F, Khan A, Shaikh BT, Azam I, et al. Predictors of diarrheal mortality and patterns of caregiver health seeking behavior in in Karachi, Pakistan. J Glob Health. 2016 Dec;6(2): 020406.
12. 11. Diallo FB, Bell L, Moutquin JM, Garant MP. The effects of exclusive versus non-exclusive breastfeeding on specific infant morbidities in Conakry. Pan Afr Med J. 2009 Apr 3;2:2.
13. 12. Rohmah H, Hafsah T, Rakhmilla LE. Role of exclusive breastfeeding in preventing diarrhea. AMJ. 2015 Mar; 2(1).
14. 13. Ogbo FA, Nguyen H, Naz S, Agho KE, Page A. The association between infant and young child feeding practices and diarrhea in Tanzanian children. Tropical Medicine and Health. 2018;46:2.
15. doi: 10.1186/s41182-018-0084-y.
16. 14. Quigley MA, Cumberland P, Cowden JM, Rodrigues LC. How protective is breastfeeding against diarrheal disease in infants in 1990s England? A case-control study. Arch Dis Child. 2006 Mar;91(3):245-250.
17. 15. Creek TL, Kim A, Lu L, Bowen A, Masunge J, Arvelo W, et al. Hospitalization and mortality among primarily non breastfed children during a large outbreak of diarrhea and malnutrition in Botswana, 2006. J Acquir Immune Defic Syndr. 2010;53(1):14-9.
18. 16. Nakamori M, Nguyen XN, Nguyen CK, Cao TH, Nguyen AT, Le BM, et al. Nutritional status, feeding practice and incidence of infectious diseases among children aged 6 to 18 months in northern mountainous Vietnam. J Med Invest. 2010 Feb;57(1-2):45-53.
19. 17. Al Ghwass MM, Ahmed D. Prevalence and predictors of 6 month exclusive breastfeeding in a rural area in Egypt. Breastfeed Med. 2011 Aug;6:191-6.
20. 18. El-Gilany AH, Shady E, Helal R. Exclusive breastfeeding in Al-Hassa, Saudi Arabia. Breastfeed Med. 2011;6:209-13.
21. 19. Goyal RC, Banginwar AS, Ziyo F, Toweir AA. Breastfeeding practices: Positioning, attachment (latch-on) and effective suckling – A hoapital-based study in Libya. J

Family Community Med. 2011 May;18(2):74-9.

22. 20. Chudasama RK, Amin CD, Parikh YN. Prevalence of exclusive breastfeeding and its determinants in first 6 months of life: A prospective study. Online J Health Allied Sci. 2009; 8(1):3.

23. 21. Rebhan B, Kohlhuber M, Schwegler U, Fromme H, Abou-Dakn, Koletzko BV. Breastfeeding duration and exclusivity associated with infants' health and growth: data from a prospective cohort study in Bavaria, Germany. Acta Paediatr. 2009;98:974-80.

24. 22. Mustansar M, Ali I, Choudhary MZA, Zafar S, Anwar S, Ashraf S, et al. Evaluation of feeding practices and infants morbidity. J Allama Iqbal Med Coll. 2009 Dec;7(4):40-9.

25. 23. Turin CG, Ochoa TJ. The Role of Maternal Breast Milk in Preventing Infantile Diarrhea in the Developing World. Curr Trop Med Rep. 2014 Jun;1(2):97-105. Available from: https://doi.org/10.1007/s40475-014-0015-x.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under

Nazir F:	Principal author, article writing and data collection
Younas R:	Literature searching & Writing References
Amir S:	Statistical analysis and review
Shah SIA:	Statistical analysis and review
Khaliq A:	Literature searching
Rehman SK:	Article writing

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.