

Practice of breastfeeding and Immunisation in a periurban community in Pakistan

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Abstract

Objective: To assess the practice of breastfeeding and immunisation in a peri-urban community and correlate it with maternal care during pregnancy of the index child.

Methods: This community-based, cross-sectional survey was conducted at Shifa Tameer-e-Millat University and Shifa College of Medicine, Islamabad, Pakistan, from June 2014 to January 2016, using a self-generated questionnaire. Systemic random sampling method was used to collect data. SPSS 21 was used to analyse the data and to find associations between maternal care and practices of breastfeeding.

Results: There were 1,275 participants in the study. The mean age of the participants was 31.61 ± 8.026 years and the mean number of family members was 7.28 ± 3.42 . Overall, 1,121 (87.9%) women had exclusively breastfed all their children while 906 (71.1%) women had their children fully vaccinated. The mean duration of exclusive breastfeeding was 5.30 ± 1.31 months while the mean duration of mixed breastfeeding was 16.70 ± 8.62 months. Mothers who were given prenatal care were 2.60 and 2.91 times more likely to do exclusive breastfeeding and immunisation, respectively, compared to women who were not given prenatal care ($p < 0.05$).

Conclusion: There is a dire need to focus more on routine services compared to massive immunisation and breastfeeding campaigns.

Keywords: Breastfeeding, Vaccination, Prenatal care, Immunisation. (JPMA 67: 682; 2017)

Introduction

Exclusive breastfeeding plays an integral role in ensuring the child health and survival. According to the World Health Organisation (WHO), 800,000 child lives can be saved every year if every child is breastfed within an hour of birth, given only breast milk for their first six months of life, and is continued to be breastfed for up to the age of two years.¹ Deviation from the above-mentioned recommendation significantly increases the mortality and morbidity.² Suboptimal breastfeeding results in the death of 11.6% of children younger than 5 years worldwide.³ According to the WHO, exclusive breastfeeding is defined as no other food or drink, not even water, except breast milk (including milk expressed or from a wet nurse), but allows the infant to receive ORS [oral rehydration salts], drops and syrups (vitamins, minerals and medicines).¹

Breastfeeding has innumerable advantages for both the mother and the infant.⁴ Breastfeeding improves the nutritional status of the child^{4,5} and decreases the mortality and morbidity of the child.^{6,7} Prevalence of breastfeeding differs from one continent to another, from one region to another and from one society to another. This difference is due to different cultural, socio-economic

status⁸ and religious beliefs.⁹ A cross-sectional study done in Pakistan revealed that exclusive breastfeeding was reported only in 54% of the mothers.¹⁰

Immunisation averts about 2-3 million deaths each year.¹¹ Around 129 countries had reached at least 90% coverage of diphtheria-tetanus-pertussis (DTP3) vaccine by 2013.¹¹ Vaccination is a very safe and effective way of preventing a vast array of potentially fatal and life-crippling diseases in children. Fatal diseases like small pox have been completely eradicated due to vaccination. Today, polio only exists in 3 countries; Nigeria, Pakistan and Afghanistan.

In light of the importance of this phenomenon and its positive role in child health, the current study was planned to assess the prevalence of breastfeeding practices and immunisation and its correlation with maternal care during pregnancy of the index child.

Subjects and Methods

This community-based, cross-sectional study was conducted at Shifa Tameer-e-Millat University and Shifa College of Medicine, Islamabad, Pakistan, from June 2014 to January 2016. The survey for the study was done in a peri-urban area of the city using a self-generated questionnaire. The questionnaire was evaluated by a group of physicians for face validity in terms of readability, feasibility, clarity of wording, layout, and style. Test-retest

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reliability of the questionnaire was done by administering the same questionnaire to a group of 50 participants with an interval of one week. Participants were not informed about the re-administration of the questionnaire on the first session. The response of the first administration was used to assess the construct validity and internal consistency. Cronbach's alpha was used to assess the internal consistency. The Cronbach's of the maternal component of the questionnaire was found to be 0.82 while that of the immunisation component of the questionnaire was 0.76. McNemar's test was applied to assess the test-retest reliability. After ethics approval was granted by the institutional review board, systemic random sampling method was used to collect data. The starting point was the first household on the first street. In each street, the first household was selected followed by the 3rd and then the 5th and so on. If a household member refused to give consent the next household in order was selected. Informed consent was obtained from all the participants. Only members of the household between the ages of 18 and 45 years and permanent residents of that area were selected. All the study personnel were trained in interviewing skills, the content of the questionnaire, data quality, and ethical conduct of human research. The sample size was calculated using

WHO sample size calculator, keeping 87.9% as prevalence of exclusive breastfeeding, confidence interval at 95% and absolute precision required 2%.¹² SPSS 21 was used to analyse the data. Logistic regression was used to find associations between maternal care and practices of breastfeeding.

Results

There were 1,275 participants in the study. The mean age of the participants was 31.61 ± 8.026 years and the mean number of family members was 7.28 ± 3.42 . The mean numbers of income earning family members were 1.51 ± 0.932 . About 1,121 (87.9%) women had exclusively breastfed all their children. The mean duration of exclusive breastfeeding was 5.30 ± 1.31 months while the mean duration of mixed breastfeeding was 16.70 ± 8.62 months. Out of 971 (76.2%) mothers who had at least one other child, 913 (94%) breastfeed their first child while 837 (86.2%) mothers breastfeed all their children. The mothers who had breastfed their first child were 19.4 times more likely to breastfeed all their children as compared to mothers who did not breastfeed their first child ($p < 0.001$).

Antenatal care was received by 950 (74.5%) of the participants from an obstetrician working in a local

Table-1: Logistic Regression of Breast Feeding.

Variables		Breast feeding		Odd ratio (95% CI)	p-value
		Yes	No		
Prenatal Care Taken	Yes	910	40	2.603 (1.530-4.430)	0
	No	295	30		
Delivery Mode	Vaginal	1070	55	2.71 (1.440 -5.099)	0.002
	LSCS	135	15		
Breast Feeding Technique	Yes	814	37	1.58 (0.951-2.625)	0.077
	No	391	33		
Mother Complication during or after Delivery	Yes	89	8	0.733 (0.329-1.630)	0.446
	No	1116	62		
Baby Complication before or after Delivery	Yes	150	18	0.405 (0.227-0.723)	0.002
	No	1055	52		

CI: Confidence interval

LSCS: Lower segment Caesarean section.

Table-2: Effect of prenatal care on vaccination status.

Variables		Vaccination Status		Odd ratio (95% CI)	p-value*
		Complete	Incomplete/ Not done		
Prenatal Care Taken	Yes	742	208	2.912 (2.205-3.845)	<0.001
	No	164	161		
	No	37	332		

*p-value was obtained using chi-square test

CI: Confidence interval.

community hospital or in a private clinic. The mean number of antenatal visits was 4.24 ± 4.074 . The breastfeeding technique was taught to 851 (66.7%) women. Also, 1,125 (88.2%) women had delivered their child via normal vaginal delivery while 150 (11.8%) had their child via lower segment Caesarean section. Moreover, 685 (53.7%) women delivered at the hospital while 582 (45.6%) delivered at home and 8 (0.6%) delivered at a nursing home. Only 97 (7.6%) mothers had complications during labour or after labour while 168 (13.2%) newborns had complications during or after delivery.

Furthermore, 906 (71.1%) women had their children fully vaccinated while 167 (13.1%) women had children whose vaccination status was partially incomplete. The child was labelled as fully vaccinated if he had completed the entire course of all the vaccines included in the Expanded Programme on Immunisation (EPI) of Pakistan. The mean number of children below the age of 5 was found to be 3.24 ± 1.79 . About 202 (15.8%) mothers did not get their children vaccinated. Out of those mothers who had at least one other child, about 796 (82.0%) completed the immunisation of their first child while only 687 (70.8%) mothers completed the immunisation of all their children. The mothers who had completely immunised their first child were 6.45 times more likely to complete immunisation of all their children as compared to mothers who did not breastfeed their first child ($p < 0.001$).

About 785 (61.6%) mothers had their vaccination card. Most of the mothers got their children vaccinated from a hospital 773 (60.6%) while the remaining got their children vaccinated from family clinic 220 (17.3%) and private clinic 19 (1.5%). About 62 (4.9%) mothers got their child vaccinated (polio vaccine only) at their own home. The mean number of times a child was vaccinated was 4.42 ± 2.37 .

Hosmer-Lemeshow goodness-of-fit test showed chi-square = 17.360, $p = 0.004$. The model explained 7.8% (Nagelkerke R²) of the variance in breastfeeding value of 7.8 and correctly classified 1,206 (94.6%) of the cases. Prenatal care received, vaginal delivery mode and no baby complication were found to be significantly associated with exclusive breastfeeding. The families living in the community belonged to the lower socio-economic class and all the mothers who participated in the study had studied till 5th class (Table-1).

Mothers who were given prenatal care were 2.912 times more likely to get their child completely immunised ($p < 0.001$) compared to mothers who were not given prenatal care (Table-2).

Discussion

In the current study, breastfeeding technique was taught to 851 (66.7%) women. In a study conducted in the United States (US), about 25% women chose not to initiate breastfeeding.¹³ In another US study, nearly 90% of the mothers did not initiate breastfeeding when their health care provider or their family member preferred formula feeds.¹⁴ This indicated that health care advisor and family members have a significant role in promoting breastfeeding. Proper breastfeeding education should be given to the mother during their antenatal visits. Different studies have concluded that inculcation of breastfeeding education in prenatal care can effectively increase the rate of breastfeeding initiation as well as increase the frequency of breastfeeding duration.^{15,16} Prior breastfeeding education programmes in the community could be one of the reasons why 87.9% of the women in our study had exclusively breastfed all their children. This percentage is slightly higher than a study where 86% of the women breastfed their child.¹⁴ In a study done on Nepalese pregnant women, it was concluded that mothers who receive proper antenatal care were 1.25 times more likely to initiate breastfeeding within an hour after birth than women without proper antenatal care.¹⁷ According to WHO, antenatal care is the routine health control of presumed healthy pregnant women without symptoms, in order to diagnose diseases or complicating obstetric conditions without symptoms and to provide information about lifestyle, pregnancy and delivery.¹

According to our study, mothers who were given prenatal care were 2.60 times more likely to do exclusive breastfeeding as compared to women who were not given prenatal care. A prospective cohort study carried out in Hong Kong concluded that longer prior breastfeeding experience had a significant positive influence on subsequent breastfeeding duration.¹⁸ Our study had similar results. Mothers who had breastfed their first child were 19.4 times more likely to breastfeed all their children as compared to mothers who did not breastfeed their first child.

Breastfeeding has multiple advantages. It benefits not only the child but also the mother. It helps the mother bond with her child. It aids in losing pregnancy weight at a faster rate. In addition, it causes involution of the uterus, and helps to return it to its normal size, and reduces the chances of post-partum haemorrhage. Research also shows that women who breastfeed their child have a lower incidence of breast and uterine cancers, diabetes and cardiovascular disease.¹⁹

Benefits of breastfeeding to the child are innumerable.

Breast milk contains immunoglobulins, which are invaluable in protecting the child from a multitude of infections, in the first couple of years of life. Children who are breastfed have a lower incidence of developing ear, respiratory and gastrointestinal infections. They also have a lower incidence of developing sudden infant death syndrome (SIDS), necrotising enterocolitis and asthma.¹⁹ Therefore, they have fewer hospital visits and stays.

Breastfeeding is also associated with a reduction in the risk of developing obesity and diabetes in childhood.²⁰ Studies have also linked breastfeeding, with higher intelligence quotients (IQs), education attainments and income.²¹ However, to avail all the above-stated advantages to the child, it is important that the child is breastfed properly. According to the American Academy of Paediatrics, breastfeeding should be continued for 12 months or as mutually desired by the mother and infant.²² The mean duration of mixed breastfeeding in our study was found to be 16.70 months.

Mothers who deliver via vaginal delivery are more likely to do breastfeeding as compared to those who underwent Caesarean section.^{23,24} Another study concluded that there was a longer interval delay between birth and first breastfeeding in the newborns delivered by Caesarean section (3.1 ± 5 hours vs 10.4 ± 9 hours, $p < 0.05$) as compared to newborns delivered by vaginal delivery.²⁵ In our study, mothers who delivered vaginally were 2.71 times more likely to do exclusive breastfeeding as compared to mothers who underwent a Caesarean section. This can be explained by the fact that patients who had undergone delivery via Caesarean section experience post-anaesthesia effects and post-operative pain and discomfort which may hinder them from initiating early breastfeeding.

Fragmentation of care and education, lack of facilities, lack of awareness about the importance of breastfeeding, family physician's view, local beliefs, low priority to breastfeeding, return to work,²⁶ fatigue associated with breastfeeding and poor milk supply are a few of the barriers to effective education and practice of breastfeeding. According to a study, many health professionals were found to have insufficient knowledge about breastfeeding and had a low level of confidence and clinical competence when dealing with breastfeeding-related issues. Health professionals should be given proper training in how to manage common breastfeeding problems to health professionals.²⁷

Immunisation is one of the most cost-effective health investments. It is a process by which the individual is made resistant/immune to an infectious disease via

administration of the vaccine. Immunisation protects against a vast array of diseases that can cause serious illness, disability, and death. Global Vaccine Action Plan (GVAP) aims to achieve vaccination coverage of $\geq 90\%$ nationally and $\geq 80\%$ in every district by 2020.¹¹ In our study, only 71.1% parents got their child fully vaccinated. The mothers who had completely immunised their first child were 6.45 times more likely to complete immunisation of all their children as compared to mothers who did not breastfeed their first child.

There are various factors that impede immunisation programmes. Religious belief, limited resources, competing for health priorities, poor management of health systems, inadequate monitoring and supervision, cold storage issue, political unrest and lack of access to the health facilities are a few of the factors that cause hindrance in the national vaccination programmes.

Although massive immunisation campaigns increase the awareness about vaccination, they are not as cost-effective as immunisation via routine services.¹¹ There is a dire need to improve the routine vaccination service. A study done in Pakistan found out that the EPI staff was not satisfied by the allowances and the overall service structure of the department.²⁸ The government should take solid steps to increase the motivation of vaccinators and improve the service structure of the department. Involvement of lady health workers can have a great impact on the efficacy of vaccination programmes.²⁹ A common problem in an urban setting is the lack of trust of the community on the government-supplied vaccine. Most of them think that commercially available vaccines are of better quality as compared with the publicly supplied vaccine. Incorporating private sector in routine vaccination programmes will solve this issue.³⁰

Misconceptions about the vaccine are one of the main challenges faced by the vaccination programmes in Pakistan. According to a study, children whose mothers were given prenatal care were found to have an increased probability of being fully immunised, receiving DTP vaccine, polio vaccine and measles vaccine by 9% ($p < 0.01$), 3% ($p < 0.1$), 6% ($p < 0.05$) and 6% ($p < 0.05$), respectively, as compared to the counterparts whose mothers did not seek prenatal care.³¹ Mothers who were given prenatal care were 2.91 times more likely to get their children immunised compared to women who were not given prenatal care. There is a need for intensive awareness campaigns to eliminate these misconceptions, especially in the rural communities. Religious leaders should be involved in such campaigns in order to remove religious misconceptions about the vaccine

programme.³² A study done in India concluded that children of illiterate parents usually had a higher dropout rate from pulse polio programme.³³ There is a need to improve the basic knowledge level of the community about immunisation programme via media campaigns and community awareness programmes. Interested community members should be enrolled in such programmes as they would have a greater say in the community. As they are an active part of the community, they will be able to communicate the information in a better and more effective way.

The current study had its limitations as well. It comprised mothers belonging to the lower socio-economic class and had studied till 5th class. Mothers belonging to the middle or upper socio-economic class and mothers with a higher educational level have a higher chance of breastfeeding and completing the immunisation course of their child as compared to mothers belonging to the lower socio-economic class or having a lower educational level.³⁴ Further studies on the impact of prenatal care on breastfeeding and immunisation for mothers belonging to the middle or upper socio-economic class and mothers with higher educational levels need to be done.

Conclusion

There is a dire need to focus more on routine services as compared to massive immunisation and breastfeeding campaigns. Involvement of community members in awareness programmes can significantly increase the success of these programmes. There is a need to start training programmes and workshops on how to deal with common breastfeeding and immunization.

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