



INFANT HEALTH CARE; PRACTICES IN PAKISTAN: A SYSTEMATIC REVIEW

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ABSTRACT: In Pakistan 1 in every 14 infants die before reaching one year of age. Infant mortality highly depends upon the health care practices by the caretakers. **Objective:** To investigate the infant risky health care practices and their impact on infants' health in Pakistan. **Study Design:** Descriptive systematic literature review. **Setting and Period:** All the research articles that was published in between 2000 to 2015. **Methods:** Focusing on newborn health care practices with special reference to mothers utilization of antenatal and postnatal care, pre-lacteal feedings, colostrum, breastfeeding, cord care practices and complementary feeding. A systematic search of national and international literature especially from developing countries was undertaken from peer-reviewed indexed journals and news articles from 2000-2015 to access the infant health care practices. **Results:** sixty five articles were included in this review article. All the studies focused on the determinants of infant health care practices. It was found that mother's prenatal and postnatal care utilization service was poor. It was further investigated that colostrum is not preferred first feed of the mothers and family members to their infants. Mostly mothers gave the pre-lacteal feeding to their children irrespective to their education and social status and it cause the delayed in initiating the breastfeeding to the neonates. Only a small proportion of the mothers initiate the breastfeeding with in the first hour of birth and mothers are unaware about the importance of breastfeeding. Furthermore, the mothers are also unaware about cord care and use conventional methods for cord care. **Conclusion:** It was investigated that infant health care practices is highly influenced by the culture and religious beliefs of the caretakers. Due to the lack of proper health care of infants, Pakistan is facing high infant mortality rate and substandard infant health indicators. It is suggested that government and policy makers should arrange the trainings/ workshops for the mothers and adolescents for the purpose to discourage the risky health care practices.

Key words: Infant health, Risky health care practices, Pre-lacteal feeding, Colostrum, Cord care and Breastfeeding

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INTRODUCTION

Infant mortality rate (74 deaths/1000 live births) means 1 in every 14 infants in Pakistan die before reaching one year of age. The annual health report of the Pakistan Medical Association (PMA) for the year 2011, that indicate one child dies every minute from communicable diseases. The report also reveals that every year about 400,000 infants die in the first year of their life.¹

Pakistan has highest infant mortality rate and stillbirths 40.7/1000 around the globe accompanied by Nigeria (32.7), Sierra Leone (30.8), Somalia (29.7), Guinea-Bissau (29.4) and Afghanistan (29.0)². There has been a

minute decline in newborn mortality, from 56 in 1990 to 42 currently. Antenatal and postnatal care services are the strong predictor of good newborn health care.³ Newborn deaths largely occur due to delays in receiving appropriate care from a skilled medical professional.⁴ In Pakistan, fewer than half of women have the facility of a skilled health worker during delivery. Neonatal tetanus (NT) remains a public health problem in many developing countries including Pakistan, where it is one of the major causes of neonatal and infant mortality. In Pakistan, NT accounts for 18-38% and 17-22% of all neonatal and infant deaths respectively.⁵ In Pakistan Cultural and religious beliefs are important sources of feeding

ritual.⁶ Any food provided to a newborn before the initiation of mother's breastfeeding is considered to be a pre-lacteal feed. The type of pre-lacteal feeds depends on the culture. All pre-lacteal feeds are provided for non-nutritional reasons such as clearing the throat/bowel; or thinking that mother's milk is insufficient or the colostrum is too heavy for the newborn to digest⁶. WHO recommends that mothers must initiate breastfeeding within one hour of birth.⁷ Ali⁸ said that Pakistan is culturally a breast feeding nation but only 27% of women in Pakistan initiate breast feeding in the first hour of life. Introduction of pre-lacteal feeds is a known barrier to continuation of exclusive breastfeeding. Despite being the only country in South Asia to have a National Breastfeeding Policy, Pakistan has the lowest exclusive breastfeeding rate at 37.7 per cent and the highest bottle feeding rate at 41 per cent.⁹ The objective of the present research is to highlight the current situation of health care practices of infants and synthesis of the data on prevailing situation of the infant health.

OBJECTIVES

The specific objectives of this systematic review are to:

- Collect the relevant and potential information on infant health care practices in Pakistan
- Identify the risky health care practices and their impact on infants' health
- Based on the finding an analytical summary of current evidence and suggest recommendations for the improving the health status of infants.

METHODS

This was a descriptive systematic literature review that focusing on newborn health care practices with special reference to mothers utilization of antenatal and postnatal care, pre-lacteal feedings, colostrums, breastfeeding, cord care practices and complementary feeding. For the purpose of writing this review article, the researchers reviewed the 545 articles and after the careful review the 65 relevant articles are included in this research. In this research there is no any secondary data analysis (meta-analysis and other statistical analysis) was undertaken. The research

design is followed by previous used methodology for child and infant health domain researches Methew¹⁰ and Hirani.¹¹

Inclusion Criteria

Type of Publication: A systematic search of national and international literature especially from developing countries was undertaken from peer-reviewed indexed journals and news articles from 2000–2015, including PubMed, NCBI, CINAHL and MEDLINE. The most current and recent data was used for accessing the prevailing situation. The search was augmented by reviewing the literature from WHO and UNICEF websites, books, local newspapers, and reference lists of articles thought to be relevant.

Type of Participants: Publication were entertained if they have literature regarding to the infant health care practices, antenatal and postnatal care infant mortality, breastfeeding, pre-lacteal feeding, colostrums, cord care practices, child immunization and complementary feeding. The relevant and current literatures published in between 2000-2015 are included in this review article. The unpublished literature and reports are not the part of this study. The reference list of the published documents was also reviewed to find out the additional data. At the first stage all the publications were selected to review the potential titles of the articles. At the second stage screening the abstracts of the selected titles and in third stage the decision was made either to include or exclude to review the whole article.

Types of Outcome Measures

The researchers only measured the quality and trend of infant health care practices through published literature especially in Pakistan and support the data from some low income nations. In this paper the researchers try to analyze the literature and assessed the prevailing infant health care practices in Pakistan.

Maternal Outcome

- Trend of Antenatal care
- Postnatal care
- Place of delivery

Infant's Outcome

- Mothers practices towards pre-lacteal feeding
- Mother attitude about the colostrums milk
- Initiation of breastfeeding to neonate
- Breastfeeding and exclusive breastfeeding
- Cord cutting and cord care practices
- Accessed the Immunization status of children (completed immunized partial and non-immunized)
- Complementary feeding

A contextual and program related literature and information, the researchers evaluated the available information related to infant health care practices linkage the infant health related issues for the purpose of improved the infant health care practices.

Search Method for Potential Literature

The below mentioned sources of information were employed to search relevant literature for review:

- All accessible electronic libraries of indexed medical journals
- Electronic reference libraries of indexed medical Journals
- Official and non-officials research documents and reports

World Health Organization (WHO), United Nations Children's Fund (UNICEF), Pakistan Demographic and Health Survey (PDHS), National Nutrition Survey NNS, Pakistan Social and Living Standard Measurement Survey (PSLM), Ministry of Health, research reports of NGOs and INGOs were searched through Google and Google Scholar through different key words between 02 and 31 January, 2015. The following basic data research strategies were adopted for the various search engine and database. [("newborn and infant health care in Pak. *" OR "pre-lacteal feeding*" OR "maternal and newborn health" OR "child immunization*" OR "pattern of breastfeeding*" OR "cord care practices in Pak. OR complementary feeding*")]

DISCUSSION

Antenatal and Postnatal Care Utilization

Antenatal and postnatal care services are an

important tool to decrease maternal and neonatal mortality and morbidity. Maternal health care services are important for the health and safety of both mother and infant during pregnancy, delivery and the postnatal period.^{12,13} WHO recommends at least four antenatal check-ups in pregnancy in normal situation, according to WHO statistics, only 53% of pregnant women around the globe got the four recommended antenatal visits; in low income countries, the statistics was a poor 36%.¹⁴ Antenatal and postnatal care visits are an important indicator of infant as well as mother's health. Memon³ stated that antenatal care services were identified as a strong predictor of good newborn health care. Postnatal care visits provide an ideal opportunity to educate a new mother on how to care for herself and her newborn baby. According to PDHS¹⁷ in Pakistan 52 percent of totals births take place at home. Traditional birth attendants assist 41% of all deliveries, while friends and relatives assist with 6% of deliveries. Due to the lack of proper antenatal and postnatal care checkups Pakistan is facing the highest infant and neonatal mortality around the globe. Hazir¹⁵ said that Pakistan has the third highest neonatal deaths in the world. Memon¹⁶ pointed out that neonatal mortality at 55 deaths per 1000 live births has remained unchanged for the last 20 years in Pakistan.

According to PDHS¹⁷ in Pakistan only 37% pregnant women make four Antenatal care (ANC) visits. Furthermore, 60 percent of women received postnatal care within the first two days of delivery and 38% mothers had not postnatal visit. Ayaz and Saleem¹⁸ found 70% of women in Karachi mentioned receiving antenatal care by a skilled provider; only 54.5% had four or more visits. Tetanus toxoid was received by 79% of women while only 56% delivered at a health care facility by a skilled attendant. Batool¹⁹ said that in Faisalabad 74% pregnant women have at least one prenatal visit. According to PSLM²⁰ survey 64% of the pregnant women got the antenatal services in pregnancy and the trend is more common in metropolitan than in rural areas. A small proportion of mothers reported to have post-natal check-up within six weeks after delivery.

The proportion is higher in urban areas 37% as compared to rural areas 22%. Aksari²¹ stated that only mothers received professional postnatal care within 24 hours. Ali and Ather²² found that in Karachi 75.4 % women received ante-natal care and 52% mothers took advice from skilled health professionals and only 24.2% women had postnatal checkup. NIPS²³ stated that one in every eighty nine Pakistani women has a threat of dying due to a maternal and reproductive linked cause. Khadduri²⁴ found that in Haripur, Pakistan, the pregnant women only make the ANC visits if she is feeling unwell. Otherwise, she to Dai for advice, diagnose of pregnancy and massage. Kaphle²⁵ in Nepal found only 65.54% have completed ANC visit at least 4 times and 29.05% have received counseling on newborn care during pregnancy. The above situation of the reproductive health care and ANC visits indicate that maternal and newborn health care risk in Pakistan.

Pre-lacteal Feeding

Any food provided to a newborn before the initiation of mother's breastfeeding is considered to be a pre-lacteal feed. The type of pre-lacteal feeds depends on the culture. It may include ghee (refined butter), honey, sugar, and sugar juice, unboiled cow/goat milk.⁶ McKenna and Rani²⁶ stated that the practice of pre-lacteal feeds in Muslim community is performed soon after the birth of baby before initiation of lactation. A softened date or honey is rubbed into the infant's upper palate by a respected member of the family in hopes that attributes of this individual will transfer to the child among Muslims. Shaikh and Ahmad²⁷ stated that in some Bengali Muslim communities, sweets have special cultural importance and are given to newborns to confer good luck and "so that the baby speaks sweetly". In Pakistan and other low income countries pre-lacteal feeds are very common and an important factor in delaying the initiation of lactation. Common feeds given on the first day of life are honey, water and sugar water. Different studies show the pre-lacteal feeding practices are widely performed in Pakistan. Asim²⁸ found that 72.5% respondents in Faisalabad were agreed that pre-lacteal is necessary practice for child after birth

and 51% respondents were in the opinion that Pre-lacteal is necessary to transfer the characteristics of the feeders in child. Gul²⁹ pointed out that in Karachi almost two third of mothers 73% gave pre-lacteal feeds to their neonates. Another study from Gilgat Khan³⁰ found that 27% of mothers gave pre-lacteals; from which prominent feeds included salt water 44% and cow's milk 26%. Fikree³¹ stated that in Karachi mostly 98.6% mothers preferred breastfeed to neonates; however, pre-lacteal feeding is also practices i.e. honey 28.7%, ghutti 27.8% and water 11.8% were also given in order for to reduce colic. Another study from Pakistan Iqbal³² stated that among the pre-lacteals given, 15.6% neonates were given honey, followed by formula milk, ghutti, Araq, sugar, animal milk and other feed like Desi ghee, fruit juices. In another study Memon³³ asserted that pre-lacteal feeding of honey, Gutti, water and tea are considered important pre-lacteal food for new born babies in Hyderabad, Sindh. In district Nowshera Nawaz³⁴ found that 41% mothers gave pre-lacteal feeding to their children. Mothers gave pre-lacteal feedings in the form of honey, Ghutti, glucose saline, glucose water and Arq-e-Gulab as pre-lacteal feeding. Another eye breaking research from district Haripur Khadduri³⁵ found that mostly mothers delay breastfeeding from 2 hour to 3 days during which an elderly pious person gives the baby Ghutti, often sucked from his/her finger. Animal milk, water, desi ghee and tea with herbs are sometimes fed to the newborn during the first 3 days. In many Islamic and low income countries the pre-lacteal feeding is widely performed to the neonates.

Gilany and Doaa³⁶ found in Egypt that About 58% of newborns received pre-lacteal feeds. The common pre-lacteal feeds glucose water 39.6%. The most frequent reasons for giving pre-lacteal feeds were tradition 61.0% and mother in law's advice 58.3%. Bang³⁷ revealed that babies are often not breastfed during the first 3 days and are often given sweetened water as first feed. Ibadin³⁸ found that prevalence of pre-lacteal feeding was 11.7% In Nigeria. The reasons for pre-lacteal feeding included perceived delayed lactation and the need to keep the body warm and mouth

moist. The younger mothers, C-section deliveries were significantly associated with pre-lacteal feeding. Bhandari³⁹ pointed out that in Haryana, India traditional families gave the pre-lacteal of sugar water or some instance juice was given instead of breast-feeding. Furthermore, 75% of newborns were given pre-lacteal feeds of honey, tea and diluted milk. Raina⁴⁰ stated that in Jammu and Kashmir, India 88% of mothers feeding their children with pre-lacteal feeds. It is also found that lower income groups showing lower preference for giving pre-lacteal feeds to the neonates. Khanal⁴¹ in Nepal 26.5% mothers reported of providing pre-lacteal feeds to their newborn infants. The commonly practiced of the pre-lacteal was plain water, infant formula, sugar/glucose milk other than breast milk, gripe water, sugar/salt solution, fruit juice tea were some of the types of pre-lacteal feeds reported. They found that illiterate mothers, house wives, belong to middle income, not attended antenatal visits, and first time mothers were more likely to provide pre-lacteal feeds. Nguyen⁴² pointed out that during the first three days after birth in Vietnam, 73.3% of the newborns were fed pre-lacteals, 53.5% were fed infants formula, and 44.1% were fed water. In Ethiopia Koru⁴³ reported that 12.4% mothers feeding their newborns food or liquid other than breast milk in the first two days. Among those newborns that were given other foods, the most commonly reported were plain water, sugar water, fresh butter, and animal milk. In Uganda Waiswa⁴⁴ pointed out that 35% of babies in the neonatal period were given cow's milk, plain water, sugar or glucose water, gripe water and tea. Till the third day instead of breast-feeding, neonate is given "Gadthuti" (a form of pre-lacteal feed) of sugar water or in some instance even sugarcane juice was given. If the mother has feeding problems then goat's milk is preferred for top feeding rather than cow's milk.⁴⁵

Colostrum

Colostrum provides all the nutrients and fluid that newborn needs in the early days, as well as many substances to protect neonates against infections.⁴⁶ According to some orthodox and traditional families, colostrum should be

discarded because of having the beliefs that due to thickness and viscosity of colostrums, because of difficult to swallow and digest. Moreover, there are beliefs that the initial milk is "old or stale" and may cause a number of diseases. Therefore, colostrum should be discarded until normal milk comes.⁴⁷ Memon³³ found that orthodox Pakistani mothers have the opinion that colostrums should be discarded for 2 to 3 days because of thickness and staleness and 71% mothers in Hyderabad discarded colostrums to their newborns. Fikree³¹ found that only 41.7% Pakistani mothers gave colostrums milk to their neonates. Another study from Pakistan Iqbal⁴⁸ found that 41.8% neonates were given colostrum as first feed. Gul²⁹ also found that Colostrum was discarded by 43% mothers in Karachi. Ali⁴⁹ also found that 85% Pakistani mothers fed clostrum to their infants as first feed and 35% mothers gave pre-lacteal feeds. Likewise, Pakistan the other low income countries colostrums is not preferred as first feed to the neonates. In Nepal, Masvie⁵⁰ examined that it was customarily assumed that mother's breast milk would come on the third day so sugar, water and honey was given to the newborn baby before starting breastfeeding. Shah and Dwivedi⁴⁵ stated that 63% of the Indian mothers irrespective of place of delivery discarded colostrum, because most of the mothers were in the opinion that it is difficult to digest by neonates. From another study Koru⁴³ added that 44.5% of mothers squeezed out the colostrum before breastfeeding to the neonates in Ethiopia.

Breast Feeding Pattern

World Health Organization (WHO) recommends initiation of breastfeeding should started within half an hour and after immediate of birth and EB should be provided for the first six months of life. Pakistan is facing a high infant mortality rate. Lack of optimum breastfeeding practices is a major contributory factor to the high mortality rate. Traditional and cultural beliefs and values strongly influence breastfeeding practice.⁶ Here is categorized breastfeeding into two parts Early Initiating breastfeeding and Breastfeeding and Exclusive Breastfeeding.

Early Initiating Breast Feeding

Provision of mother's breast milk to infants within one hour of birth is referred to as "early initiation of breastfeeding" and ensures that the infant receives the colostrum, or "first milk", which is rich in protective factors. WHO recommends that mothers initiate breastfeeding within one hour of birth.⁷ In many parts of the world, the rates of early initiation of breastfeeding are extremely low: 17% in Eastern Europe and Central Asian countries, and 33% in Asia-Pacific. The highest rates about 50% are in Latin America, the Caribbean, East and North Africa. However, for many countries no data are available. Ali⁸ said that initiating breastfeeding within the first hour of birth prevent 22% of neonatal (under one month) deaths, while 16 per cent of neonatal deaths could be avoided if all infants under one year were breastfed from day one. WHO¹⁴ in South Asia, 24%–26% of babies born in Bangladesh, India and Pakistan are breastfed within the first hour of birth, whereas the corresponding rate for Sri Lanka is 75%. The effect of these breastfeeding patterns is reflected in the neonatal mortality rates for these countries: 40-50 per 1000 live births for Bangladesh, India and Pakistan, while in Sri Lanka the rate is as low as 11 per 1000 live births.

Ali⁸ said that Pakistan is culturally a breast feeding nation but only 27% of women in Pakistan initiate breast feeding in the first hour of life. NNS⁵¹ data showed that only 40.5% of mothers had initiated breastfeeding within one hour of birth. The percentage was greater in rural areas 41.4% than in urban areas 38.4%. Initiation of breastfeeding within 1 hour after birth was 71%, while 29% reported to breastfeed their newborn within 24 hours Khan.¹³ Another Scholar Baker⁵² stated that 22 percent of newborn deaths could be prevented if breastfeeding was initiated within the first hour of birth and 16 percent of newborn deaths could be prevented if initiated within the first 24 hours of birth. Ali⁸ said that it has been proven by medical research that there is a 2.6 fold increased risk of infection if initiation of breast feeding is delayed till day two and 3.6 fold increased risk of infections if delayed till day three. Beser⁵³ pointed out that in Turkey; Babies are not breastfed until the azan

is heard three times. It is attributed to the belief that babies would be patient when they grow up. Shah and Dwivedi⁴⁵ stated that breast-feeding of the neonate was started only on the 3rd day after birth even if it is a Low birth weight neonate. Koru⁴³ stated that in Ethiopia, only 52.1% of mothers reported that their newborns were breastfed within the first hour after delivery.

Breastfeeding and Exclusive Breastfeeding

UNICEF, 2011 Breastfeeding is directly linked to reducing the numbers of infants who die before their first birthday. In Pakistan, 78 infants out of 1,000 live births die every year while under-five mortality is 94 deaths per 1,000 live births. According to UNICEF World's Children Report⁵⁴ only 32.6% children were exclusively breastfed in the first six months. The situation is not different for Pakistan where the exclusive breastfeeding rate is 36 per cent in 2007. According to PDHS⁵⁵ Pakistan has the lowest exclusive breastfeeding rate at 37.7% and the highest bottle feeding rate at 41% in South Asia. Exclusive breastfeeding rates are lowest among literate mothers belonging to high income families and bottle-feeding rates are highest among higher income families, working women, urban residents and women undergoing medical treatment. Ali⁴⁹ found that 68% mothers breastfeed optimal time a day which are more than or equal to eight to their infants. Shoaib⁵⁶ pointed out that 46.7% mothers did not complete the recommended period of breastfeeding in district Gujarat, Pakistan.

Similar finding presented by Ali⁴⁹ found that 54% Pakistani mothers exclusive breastfeed to their children. Khan¹³ found that the EB is lower in Gilgat only 37% mothers EB to their children and in Karachi Gul²⁹ exclusive breast feeding rate was 26%. A study by Engebretsen⁵⁷ found that only 7% of infants were exclusively breastfed by age three months in Uganda. Kakute⁵⁸ stated that some traditional elders in Africa believed that breastfeeding is not able to fulfill the nutritional status of children; breast milk would not increase the infant's weight. So it is important for the child growth to give pre-lacteal foods for their nourishment. Bottle fed babies are seventeen

times more likely to develop diarrhea as compared to breast fed babies. Edmond⁵⁹ found that if all infants had exclusive breastfeeding for six months and continued breastfeeding for one year under five mortality would reduce by about 14%. Hanif⁶⁰ found that substantial majority of mothers; paramedics & doctors agreed that breast milk is better than any formula milk.

Cord Care Practices

Unsafe conventions, such as cutting the birth cord with unsterilized instruments, and the application of substances such as ash, Surma (lead-based concoctions), oil and even cow dung are practiced in many rural areas of Pakistan, and often associated with an increased risk of cord infection and death.⁶¹ Clean cord care is very important in preventing early neonatal infections especially tetanus.⁶² Mothers apply substance to the cord for several reasons, including to “help the cord heal fast” so that they can go back to their domestic chores.⁶³ Ayaz and Saleem¹⁸ found that in Karachi 58% mothers applied the substances on umbilical cord of neonates.

Khan¹³ pointed out that the paste of crashed apricot seed is a very common practice for newborn cord care in Gilgit, Pakistan. In Karachi 74% mothers reported applying various substances like coconut oil, mustard oil, purified butter and turmeric to the cord stump.²⁹ In home deliveries Gujarat, India primary birth attendants usually use shaving blades, household knives and special equipment for cord cutting. A rough cloth is used for cord clamping.⁴⁵ A study from Karachi Raza⁶⁴ pointed that the subsequent applications of substances like mustard oil, Surma and ghee on the umbilical cord. Khadduri³⁵ found that few families provided a new blade to Dai; most provide a used blade, knife or scissors. Some care takers apply fried onions or mustard oil, on the cord stump with the help of chicken feather. A new thread was used to tie the cord for 45.8% of births. In home births the cord was most commonly cut with a new razor or blade 88.3% or a previously used razor 6.2%. In Ethiopia⁴³ 21.0% mothers reported that butter was applied on the cord stump. In Uganda⁴⁴ cord cutting was mostly performed with razorblade of

which 10% were reused, and only 28% reported to have used cord scissors. About half of the mothers put substances on the cord such as powder, surgical spirit, salty water, or lizard droppings. Grover and Chhabra⁶⁵ found that in Delhi 86% of neonates' mothers practiced the application of different thing on the cord stump. This traditional practice was not associated with the mothers' education and income.

Immunization Status

Child immunization is a disease prevention activity aiming at reducing illness, disability and mortality from childhood diseases preventable by immunization. The expanded program on immunization (EPI) was launched in Pakistan in 1978. The aim of this project was to protect the children from life threatening disease i.e. poliomyelitis, diphtheria pertussis, measles and tuberculosis. The purpose of the EPI to reduce the mortality results from the seven EPI target disease by immunizing children less than one year of age.⁶⁶ But unfortunately after tumble of more than 36 years we are facing high infant and child mortality that are averted by immunization. According to the PDHS¹⁷ overall, 54% of children age 12-23 months had been fully immunized, 85% of children had received the BCG immunization and 61% had been immunized against measles. According to the NNS⁵¹ on the mother's recall the BCG vaccination coverage was 88%, measles 64.4%, OPV 95% and Pentavalent 76% in Pakistan. According to another national survey PSLMS⁶⁷. It was found that 82% children were fully immunized. In urban areas the coverage of fully immunized children is 87% as compared to 80% in rural areas. PIDAT⁶⁶ found that only 47% of children in Pakistan had received all the recommended antigens age between 12-23 months. More than 80% children received BCG and three doses of OPV, and 6% children did not received any type of recommended vaccine. Boys are more likely to vaccinate as compare to girls (50 vs 44). Rehman⁶⁸ found that in Peshawar overall vaccination coverage was 57.6% with a female to male ratio of 49.6% and 50.4% and respectively. Ahmad⁶⁹ added that considerable 14.3% children were unvaccinated and 5.7%

were partially vaccinated.

Complementary Feeding

The World Health Organization recommends that infants must be exclusively breastfed for the first six months, followed by breastfeeding along with complementary foods for up to two years of age. Exclusive breast feeding (EBF) up to the completion of sixth month of life is the national feeding recommendation. Breast milk is no doubt the ideal food for infants because it provides all the basic needs for growing infants up to 6 months, but is insufficient to cover all the needs beyond that period Memon.⁷⁰ In developing countries the initiating the complementary foods are either too early or too late. There is very little documented information on complementary foods and practices of the infants and in Pakistan. In PDHS¹⁷. It is found that 5% of breastfeeding children have received some kind of solid or semisolid food by age 2-3 months, and this proportion increases to 22 percent by age 4-5 months. Knowledge attitude and practices of mothers regarding complementary feeding is poor in terms of quantity and quality. Commonest age of introduction of complementary feeding was before 6 months with readymade items as their first choice.⁷¹ It is also found that 34.8% parents who introduced complementary foods to their infants at six months age belonged to educated class. It is concluded that mother's education play a vital role in increasing receptivity to nutritional requirements of their infants and improved complementary feeding practices.

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REFERENCES

1. The Dawn. **Child health in Pakistan.** 17/4/2012. Accessed on 25/01/2015. <http://www.dawn.com/news/711129/child-health-in-pakistan>.
2. **Save the children. Ending newborn deaths.** 2014. <http://www.savethechildren.org/atf/cf/%7B9def2ebe10ae-432c-9bd0>. Accessed 12-2-15df91d2eba74a%7D/ENDING-NEWBORN-DEATHS.PDF.
3. Memon ZA, Khan MI, Soofi S, Muhammad S, Bhutta ZA. **A cross sectional survey of newborn care practices in rural Sindh, Pakistan: implications for research and policy.** J Neonatal Perinatal Med. 2013; 6(2):137-44.
4. Gabrysch S, Cousens S, Cox J, Campbell OMR. **The Influence of Distance and Level of Care on Delivery Place in Rural Zambia: A Study of Linked National Data in a Geographic Information System.** PLoS Med. 2011. 8(1).
5. Fikree FF, Azam SI, Berendes HW. **Time to focus child survival programmes on the newborn: assessment of levels and causes of infant mortality in rural Pakistan.** Bull World Health Organ. 2002; 80: 271-6.
6. Laroia N, Sharma D: **The religious and cultural bases for breastfeeding practices among the Hindus.** *Breastfeed Med* 2006; (1):94-98.
7. **World health organization (WHO). Early initiation of breastfeeding.** 2015. Accessed on 02-03-15. http://www.who.int/elena/titles/early_breastfeeding/en/.
8. Ali M. **Saving lives of newborns by early initiation of breastfeeding & exclusive breastfeeding. Pulse Pakistan.** 2013. <http://www.pulsepakistan.com/index.php/main-news-feb-15-13/219-saving-lives-of-newborns-by-early-initiation-of-breastfeeding-exclusive-breastfeeding>. Accessed 10-1-15.
9. Wasif, S. **Seminar: Breastfeeding can save babies' lives, doctors say. The Express Tribune.** 2013. <http://tribune.com.pk/story/597656/seminar-breastfeeding-can-save-babies-lives-doctors-say/> Accessed 12-2-15.
10. Mathew, J.L. **Inequity in childhood immunization in India: a systematic review.** *Indian Pediatric.* 2012; 49(3):203-23.
11. Hirani SAA. **Malnutrition in Young Pakistani Children.** J Ayub Med Coll Abbottabad 2012;24(2).
12. Frost JJ. **Public or private providers? U.S. women's use of reproductive health services.** *Family Planning Perspectives.*2011; 33(1):4-12.
13. Khan, N., Khan, S., Khan, N., and Khan, S. **Factors affecting utilization of maternal and child health services: District Swat KPK.** *Pak Inter J Innov Res and Dev.* 2013; 2(8):217-227.
14. **World Health Organization (WHO). Provision of effective antenatal care: standards for maternal and neonatal care.** Geneva, Switzerland. 2006.
15. Hazir, T. **Tracking Neonatal Mortality Trends in Pakistan: The Challenges and Way Forward.** *J SOGP.* 2014; 4(2):61-64.
16. Memon, M. **Survey shows high infant and child mortality in Pakistan.** *The Hindu.* February 23, 2014. <http://www.thehindu.com/news/international/south-asia/survey-shows-high-infant-and-child-mortality->

- in- pakistan/article5719435.ece.
17. **Pakistan Demographic and Health Survey (PDHS).** National Institute of Population Studies Islamabad, Pakistan. 2013.
 18. Ayaz A, Saleem S. Neonatal **Mortality and Prevalence of Practices for Newborn Care in a Squatter Settlement of Karachi, Pakistan: A Cross-Sectional Study.** PLoS ONE. 2010; 5(11): e13783. doi:10.1371/journal.pone.0013783.
 19. Batool, Z. **Socio-Cultural Factors Affecting Anemia and its Effects on Mother, Child Health in the Rural Areas of District Faisalabad, Punjab, Pakistan.** PhD Published thesis, Department of Rural Sociology, University of Agriculture, Faisalabad. 2010.
 20. **Pakistan Social and Living Standards Measurement Survey (PSLM).** Government of Pakistan. Statistics Division, Federal Bureau of Statistics, Islamabad. 2011.
 21. Aksari, S. J. **298,000 neonatal deaths annually occur in Pak.** The Nation. 5, June 2012. <http://nation.com.pk/karachi/05-Jun-2012/298-000-neonatal-deaths-annually-occur-in-pak>.
 22. Ali TS, Ather F. Prevalence of **perceived heavy postpartum hemorrhage and its associated factors among married mothers in squatter settlements of Karachi.** Khyber Med Univ J 2013; 5(1): 3-8
 23. National institute of population Science NIPS. **Reproductive health issues in Pakistan.** Islamabad, Pakistan.2010.
 24. Khadduri R, Marsh DR, Rasmussen B, Bari A, Nazir R and Darmstadt GL. **Household knowledge and practices of newborn and maternal health in Haripur district, Pakistan.** Journal of Perinatology.2008; 28:182–187.
 25. Kaphle HR, Yadav DK, Neupane N, Sharma B, Yadav DK, Poudel SK. **Newborn Care Practices in Rural Communities of Nawalparasi District, Nepal.** JHAS, 2013;3(1):35-39.
 26. McKenna KM, and Shankar RT. **The Practice of Prolactal Feeding to Newborns Among Hindu and Muslim Families.** J Midwifery Women Health. 2009; 54(1):78-81.
 27. Shaikh U, Ahmed O. **Islam and infant feeding.** Breastfeed Med. 2006; 1:164-167.
 28. Asim M, Malik N, Tabassum A, Haider M and Anwar HN. **Perception and Practices of Mothers about Feeding Practices of Newborn Babies in Faisalabad, Pakistan.** Med J of Soc Sci. 2014; 5(4):663-68.
 29. Gul S, Khalil R, Yousafzai MT, Shoukat F. **Newborn care knowledge and practices among mothers attending pediatric outpatient clinic of a hospital in Karachi, Pakistan.** Int J Health Sci. 2014;8(2):167-75.
 30. Khan GN, Memon ZA, Bhutta ZA. 2013a. **A cross sectional study of newborn care practices in Gilgit, Pakistan.** J Neonatal Perinatal Med. 2013; 6(1):69-76.
 31. Fikree FF, Ali TS, Durocher JM, Rahbar MH. **Newborn care practices in low socioeconomic settlements of Karachi, Pakistan.** Soc Sci Med. 2005 Mar; 60(5):911-21.
 32. Iqbal SMJ, Afzal MF, Azhar IH, Sultan MS. **First Feed in Newborn: are We Following Who Recommendations.** ANNALS. 2010:(16) 4.
 33. Memon Y, Sheikh S, Memon A, and Naheed, M. **Feeding beliefs and practices of mothers and caregivers for their infants.** Liaquat University of Medical and Health Sciences. 2006; 8-13.
 34. Nawaz R, Rehman S, Nawaz S, Mohammad T. **Factors Causing Non-Breastfeeding in Children Under Six Months of Age in District Nowshera, Pakistan.** J Ayub Med Coll Abbottabad 2009;21(4): 93-95.
 35. Khadduri R, Marsh DR, Rasmussen B, Bari A, Nazir R and Darmstadt GL. **Household knowledge and practices of newborn and maternal health in Haripur district, Pakistan.** Journal of Perinatology. 2007 ;(28):182-187.
 36. Abdel-Hady El-Gilany and Doaa M. Abdel-Hady. **Newborn First Feed and Prolactal Feeds in Mansoura, Egypt.** BioMed Res Inter. 2014. 258470, 7 pages.
 37. Bang AT, Bang RA, Reddy HM, Deshmukh MD, Baitule SB. **Reduced incidence of neonatal morbidities: effect of home-based neonatal care in rural Gadchiroli, India.** J Perinatal 2005; 25: S51–S61.
 38. Ibadin OM, Ofili NA, Monday P and Nwajei CJ. **Prolactal feeding practices among lactating mothers in Benin City, Nigeria.** Niger J Paed 2013; 40 (2): 139 –144.
 39. Bhandari N, Bahl R, Mazumdar S, Martines J, Black R, Bhan M. **Effect of community based promotion of exclusive breastfeeding on diarrhoeal illness and growth: a cluster randomized controlled trial.** Lancet 2003; 361(9367): 1418–1423.
 40. Raina SK, Mengi V, and Singh G. **Determinants of Prolactal Feeding Among Infants of RS Pura Block of Jammu and Kashmir, India.** J Family Med Prim Care. 2012 Jun; 1(1): 27–29.

41. Khanal V, Adhikari M, Sauer K and Zhao Y. Factors associated with the introduction of prelacteal feeds in Nepal: findings from the Nepal Demographic and Health Survey 2011. *Inter Breastf J* 2013, 8:9.
42. Nguyen NG, Keithly SC, Nguyen NT, Nguyen TT, Tran LM and Hajeebhoy N. **Prelacteal feeding practices in Vietnam: challenges and associated factors.** *BMC Public Health.* 2013, 13:932.
43. Koru JAC, Seifu A, Tholandi M, Johnson JG, Daniel E, Rawlins B, Worku B, and Baqui AH. **Newborn care practices at home and in health facilities in 4 regions of Ethiopia.** *BMC Pediatr.* 2013; 13: 198.
44. Waiswa P, Kemigisa M, Kiguli J, Naikoba S, Pariyo GW, Peterson S. 2008. **Acceptability of evidence-based neonatal care practices in rural Uganda - implications for programming.** *BMC Pregnancy Childbirth.* 2008 Jun 21; 8:21.
45. Shah DB, and Dwivedi LK. 2013. **Newborn care practices: A case study of tribal women, Gujarat.** *Science Research.* 2013;5(8A4):29-40.
46. Anonymous. **New Mother's Guide to Breastfeeding, 2nd Edition.** American Academy of Pediatrics. 2014
47. Ingram J, Johnson D, and Hamid N. **South Asian grandmothers' influence on breastfeeding in Bristol.** *Midwifery.* 2013; (19):318-327.
48. Iqbal S.M.J, Afzal M.F, Azhar I.H, Sultan M.S. **First Feed in Newborn: are We Following Who Recommendations.** *ANNALS.* 2010;(16)4.
49. Ali S, Ali S, Ima A, Ayub S, Billoo A. **Perception and practices of breastfeeding of infants 0-6 months in an urban and a semi-urban community in Pakistan: a cross-sectional study.** *J Pak Med Assoc.* 2011; 61(1):99-104.
50. Masvie H. **The role of Tamang mothers-in-law in promoting breastfeeding in Makwanpur District, Nepal.** *Midwifery.* 2006; 22:23-31.
51. **National Nutrition Survey NNS.** Planning Commission, Planning and Development Division. Government of Pakistan. 2011.
52. Baker EJ, Sanei LC and Franklin N. **Early Initiation of and Exclusive Breastfeeding in Large-scale Community-based Programmes in Bolivia and Madagascar.** *J Health Popul Nutr.* 2006 Dec; 24(4): 530-539.
53. Beser A, Topcu S, Coskun A, Erdem N, Gelisken R, Ozer D. **Traditional Child Care Practices among Mothers with Infants Less Than 1 Year Old.** DEUHYO ED. 2010;3(3), 137-145.
54. WHO and UNICEF: **Twenty-two per cent of newborn deaths could be prevented by exclusive breastfeeding.** 2011. http://www.unicef.org/pakistan/media_7180.htm
55. **Pakistan Demographic and Health Survey (PDHS).** National Institute of Population Studies Islamabad, Pakistan. 2007.
56. Shoaib M, Munir A, Masood M, Ali Q and Sher F. **Education as a Source of Child Health Care Practices: A Case of Mothers in Tehsil Kharian, Gujrat-Pakistan.** *World Applied Sci J.* 2012; 19 (5): 754- 761.
57. Engebretsen IM, Wamani H, Karamagi C, Semiyaga N, Tumwine J, Tylleskar T. **Low adherence to exclusive breastfeeding in Eastern Uganda: a community-based cross-sectional study comparing dietary recall since birth with 24-hour recall.** *BMC Pediatr.* 2007;1(7):10.
58. Kakute PN, Ngum J, Mitchell P, Kroll AK, Forgwé, GW, Ngwang, LK, et al. **Cultural barriers to exclusive breastfeeding by mothers in a rural area of Cameroon, Africa.** *J Mid and Women's Health.* 2005; (50):324-328.
59. Edmond KM, Zandoh C, Quigley MA, Amenga-Etego S, Owusu-Agyei S, Kirkwood BR. **Delayed breastfeeding initiation increases risk of neonatal mortality.** *Pediatrics* 2006; 117:380-386.
60. Hanif R, Khalil E, Sheikh A, Harji A, Haris S, Rasheed MW, Ahmed S, Aziz KA, Shaheen E, Younus A, Mansoor M, Hameed F, Touseef M, Yaseen T. **Knowledge about breastfeeding in accordance with the national policy among doctors, paramedics and mothers in baby-friendly hospitals.** *J Pak Med Assoc.* 2010; 60:881.
61. Guriro, A. **Umbilical cord antiseptic care can save newborns' lives.** 2012. [http://www.pakistantoday.com.pk/2012/02/09/city/karachi/umbilical-cord-antiseptic-care-can-save-newborns%E2%80%99-lives/Accessed 08-12-2014.](http://www.pakistantoday.com.pk/2012/02/09/city/karachi/umbilical-cord-antiseptic-care-can-save-newborns%E2%80%99-lives/Accessed%2008-12-2014)
62. Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L. **Evidence-based, cost-effective interventions: how many newborn babies can we save?** *Lancet.* 2005; 365(9463):977-988.
63. Waiswa P, Kemigisa M, Kiguli J, Naikoba S, Pariyo GW, Peterson S. **Acceptability of evidence-based neonatal care practices in rural Uganda - implications for programming.** *BMC Pregnancy Childbirth.* 2008 Jun 21; 8:21.

64. Raza SA, Akhtar S, Avan BI, Hamza H, Rahbar MH. **A matched case control study of risk factors for neonatal tetanus in Karachi, Pakistan.** J Postgrad Med 2004; 50: 247–251.
65. Grover P and Chhabra P. **Neonatal Care Practices in Urban Villages.** Indian Medical Gazette. 2012;32-38
66. Pakistan institute of legislative development and transparency (PILDAT). **Immunization in Pakistan.** Islamabad, Pakistan. 2010.
67. **Pakistan Social and Living Standards Measurement Survey.** Government of Pakistan Statistics Division Pakistan Bureau of Statistics Islamabad. 2013.
68. Rehman H, Mahesar AL, Khalid SN and Ishaq M. **Assessment of Measles Immunization in Children 1-2 Year Age in District Peshawar, Khyber Pakhtunkhwa Pakistan.** Medical Forum. 2014;25(10):50-51.
69. Ahmad S, Zahid SB, Jan AZ. **The impact of parental education and socioeconomic status on routine childhood vaccination: An observational study.** J Postgrad Med Inst. 2013; 27(3):280-4.
70. Memon S, Salma S, Tasneem K, Memon R Y. **Assessment of infant feeding practices at a tertiary care hospital.** J Pak Med Assoc. 2010;60(10):10-15.
71. Mohsin SS, Shaikh AS, Shaikh R, Haider N, Parkash A. **Knowledge attitude and practice of mothers regarding complementary feeding.** J Dow Uni Health Sci 2014; 8(1): 21-25.



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