THE ROLE OF PSYCHOSOCIAL FACTORS IN DETERMINING THE INITIAL FEEDING PATTERN AND DURATION OF BREASTFEEDING

Thesis Submitted for the Degree of Doctor of Philosophy, in the Faculty of Life Sciences, University of the Punjab, Lahore – Pakistan

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ABSTRACT

A community based follow-up study in four socioeconomically different groups in Lahore, Pakistan was conducted consisting of a rural area, a peri-urban slum, an urban slum and an upper middle class group. A total sample of 150 expectant mothers from three areas was selected. Scheduled interviews were conducted at 4 points in time; from eighth month of pregnancy up to the complete end of breastfeeding whenever it occurred during the infant’s first two years of life. All mothers were breastfeeding at the time of interview within one month after childbirth. Majority of the upper middle class mothers breastfed their infants partially and terminated breastfeeding within six months which is significantly different from the other groups. For prolonged breastfeeding significant contributing psychological factors were maternal own personal experience of breastfeeding right from the beginning as a pleasant, natural and enjoyable process even when initial infant feeding method and housing standard were taken into account. A significant positive relationship was found between maternal temperament dimensions (traits) “Accepting” and “Responsible” with initial feeding pattern for longer duration. The results of the study also suggested that not only the demographic variables and psychological factors but some maternal temperament dimensions also play an important role in the process of decision making regarding the initial feeding pattern and its sustenance for longer duration as well. The role and attitude of health care service provider is also very important in decision making about the initiation of breastfeeding and its longer duration. A cross sectional study was conducted on 30 women who delivered a normal healthy child in the Gynecological ward of a government hospital which caters 30% of general population and more than 80% of the Government Servants in the area. Information about the mode of infant feeding and about the reinforcement provided by experts for a particular mode of feeding to the mothers was obtained through a structured interview from women. 30 Medical Doctors including Gynecologists and Pediatricians of the same hospital were also interviewed to find out their years of practical experience their knowledge about importance of breastfeeding and their perspective and type of technical support provided to pregnant women at the time of antenatal, natal and post-natal visits. Results of the study supported and complemented the findings of the longitudinal study. Gynecologists and Pediatricians perspective indicated that mothers from low socio economic
groups, have family support and tradition of breastfeeding within their families and are comparatively more religious, or/and were aware about benefits of breastfeeding were the ones who breastfeed their babies. At the time of interview 80% of the mothers in our sample were breastfeeding either exclusively or mixed feeding (Breast and formula milk) and 20% were feeding formula milk through bottle. Reasons given by mothers for adopting a particular mode for feeding their babies indicated that several maternal and social factors including health service provider’s responses dictate mother’s feeding choice. In establishment of initial feeding pattern all the factors related significantly are poor living conditions, low socioeconomic status, maternal breastfeeding satisfaction, her previous positive breastfeeding experience, a positive family support, with temperamental traits like responsible, reflective, accepting, impulsive irritable & withdrawing temperament, act as a stimulant in this regard. Mothers who adopted almost exclusive breastfeeding pattern right from the beginning, lived in poor housing conditions with poor socioeconomic status but had a good previous breastfeeding experience, had breastfeeding satisfaction and enjoyed a good family support in this regard, possessed Casual but Critical temperament, breastfed for a longer duration. The results also suggest that there is a need for formal and informal education of expectant mothers and health service providers in this regard. Breastfeeding and its management can be encouraged through “Behavior Change Communication” and follow up support of health care system.
INTRODUCTION

Breastfeeding in its simplest form is an extremely ancient physiological function, probably dating back some 200 million years (Jelliffe 1968). The many thousand species that have evolved over the centuries in the mammalian class indicates clearly the functional value and adaptability of breastfeeding (Fildes 1986).

Successful breastfeeding is a practical art. It is a dyadic process between mother and her offspring with effect on both. In most mammals, it is largely the result of instinct and reflex action. In higher animals, notably primates and men it is not entirely instinctive, but is based on learned behaviour. It depends upon instinctive, reflex behaviour on the part of the young combined with maternal behavior initiated by instinct, encouraged by social-support, and guided by knowledge and information. The interplay of temperamental as well of situational factors therefore becomes important in the human situation.


- Current breastfeeding patterns are still far from the recommended levels. Only about one-third (37%) of all infants born in the developing world are exclusively breastfed for the first six months of life, and only about half receive complementary foods in a timely manner (51%). Although global levels of continued breastfeeding are relatively high at one year of age (73%), only around half of infants are still breastfeeding at two years of age (46%).

- Considerable variation exists across region in the developing world in the rates of exclusive breastfeeding for the first six months of life. The highest rates are found in East Asia and the Pacific (49%), while the lowest are found in CEE/CIS (22%). Eastern and Southern Africa 30% and West and Central Africa (24%).
Exclusive breastfeeding rates (2 years of life), 2007-2012
Only about one-third of infants aged 0-5 months are exclusively breastfed

### 2007 - 2012 UNICEF - State of the World Children
% of children who are exclusively breastfed

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** excludes China
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Progress in exclusive breastfeeding rates has been made since the early 1990s, although rates continue to be too low across the developing world. Between 1990 and 2010, the rate of exclusive breastfeeding for the first six months of life increased from 34% to 49% across the developing world (based on 74 countries with trend data available, covering 60% of the developing world's population). Significant improvements were made in Sub-Saharan Africa, where rates were more than doubled from 15% to 32% during this same time period. Exclusive breastfeeding rates in South Asia and the Middle East/North Africa also increased from 43% to 45% and from 30% to 34% between 1990 and 2010, respectively. Rates remained roughly constant in East Asia and the Pacific during this time.

While overall rates in Sub-Saharan Africa remain low, significant improvements were made during the 1990s. Exclusive breastfeeding rates were more than doubled between 1990 and 2010 in Sub-Saharan Africa - rising from 15% to 32%. Western and Central Africa, in particular, experienced significant improvements with rates rising from 4% to 24% during this same time period. Eastern and Southern Africa also showed improvements with exclusive breastfeeding rates increasing from 34% to 49% between 1990 and 2010.
HISTORICAL BACKGROUND OF BREASTFEEDING

The information available about infant feeding practice in pre-industrial societies (before 1800 A.D.) indicates that the advantages of breastfeeding have been known to human beings since millions of years, as the infants have been breastfed by their mothers all through evolution (information available only by word of mouth; Jelliffe 1968). From 3000 B.C. onwards there is sufficient evidence - written material, pictorial and epigraphic - to show how infants were fed and cared for (Fildes 1986).

In pre- ptolismaic Egypt prolonged breastfeeding upto the age of three years seems to have been universally practiced. No feeding bottles have been found during excavation as evidence of artificial feeding (Jelliffe 1968). In the 16th century (B.C.) Egypt, human milk was highly valued and was used in various medicines (Fildes 1986). In case of maternal death in childbirth or if the mother was unable to breastfeed due to physiological reasons, a wet-nurse breastfed the newborn.

During the early stages of the Greek civilization and later at the height of the Hellenic culture breastfeeding seems to have been carried out largely by the infant's mother. Babies of well-to-do families, however, were wet-nursed for about six months (Fildes 1986). As a result of Greek influence during Roman times, the popularity of wet-nursing and artificial feeding (direct suckling from cow or goat or use of a feeding vessel) continued, particularly among the wealthy. In ancient Babylon, the importance and vital significance of breastfeeding was appreciated, as indicated by the fact that mother goddess, "ISHAR" was depicted as suckling a baby (Jelliffe 1968).

In the subcontinent including India, Pakistan, Bangladesh, Burma, Bhutan, Tibet etc, the value of human milk in infant feeding has been appreciated for thousands of years, as is emphasized by "Carak Samhita", an encyclopedic collection of Ayurvedic beliefs antedating Buddha (Jelliffe 1968; Wicks 1953).
Religious books like The Talmud and The Bible contain scattered references to infant feeding. Wicks (1953) remarks that breastfeeding was universal among the Hebrews, with no reference to artificial feeding method found in The Talmud.

The Holy Quran gave us a piece of advice about infant feeding. The breastfeeding should be prolonged for two years "And mothers shall suckle their children for two whole years, and him who desire to complete the time of suckling. And their maintenance and their clothing must be borne by the father according to usage. No soul shall be burdened beyond its capacity. Neither shall a mother be made to suffer harm on account of her child, nor a father on account of his child, nor a similar duty (devolved) on the (father) hire. But if both desire to wean the child by mutual consent and counsel there is no blame on them. And if you wish to engage a wet-nurse for your children, there is no (harm) blame on you, so long as you pay what you promised according to usage. And keep your duty to Allah and know that Allah is seer for what you do" (Al-Quran; Surah Al-Bakara:verse 233). The practice of wet-nursing was popular in the Muslim world as the prophet Muhammad (peace be upon him) was breastfed by a wet-nurse.

In the Roman, Greek and Medieval European cultures wet-nursing was a well accepted practice. Infant feeding by wet-nurses was especially popular among the women of upper strata. During the 17th and 18th centuries A.D., the wealthy European women were discouraged by their husbands about breastfeeding as they thought that breastfeeding would spoil women's health, beauty and figure. Although there was an increasing concern, from the early 17th century, that this custom of the wealthy would spread to women of lower status, no evidence has been found that wet-nursing flourished in all classes of society (Fildes 1986).

Before 1500 A.D., an era which is less satisfactory in terms of information regarding details about infant feeding, only the wealthy aristocratic class is portrayed. In many societies between the 16th century and the 18th century, wet-nursing became something of a status symbol for wealthier families. It was probably the case that many women used wet-nurses simply because it was the custom or fashion, without thinking very deeply about it. But in the late 18th and early 19th century, more knowledge about breastfeeding became available due to the advancement in medical science, progress in printing books written by physicians and
furtherence in other industries as well (e.g. the mass production of feeding bottles at the Stanfordshire Pottery; Fildes 1986). A change came about in the trend from wet-nursing to breastfeeding or dryfeeding and women of well-to-do families started to make more decisions about infant breastfeeding themselves, where previously it had been fathers who made decisions in this regard (Fildes 1986; Lawrence 1986). In the beginning of the current century with the development of infant formula milk, the interest in breastfeeding declined (Lawrence 1986).

CURRENT STATUS OF BREASTFEEDING IN INDUSTRIALISED COUNTRIES

According to sociologists the decline in breastfeeding seen in the last few decades is due to two major factors: urbanization and industrialization. These factors have changed the social life style of the modern man; family pattern, medical approach and nutrition technology have changed throughout the world (Guttman & Zimmerman 2000; Lawrence 1989; Lindenberg et al., 1990). It is possible that the tendency not to breastfeed or to terminate breastfeeding early is related to this developmental trend in which many women are participating in the workforce and infant formulas are available to supplement breastfeeding. But if recent statistics are reviewed, encouraging trends toward increased breastfeeding are found. Researchers in some industrialized countries have found that more than 88% mothers initiate breastfeeding soon after child birth but they start shifting to mixed feeding within one month of child age (Scott, Landers, Hughes & Binns 2001; Papinczak & Turner 2000; Vestermark, Hogdall, Plenov, Michael & Toftager-Larsen, 1991; Ferris, McCabe, Allen & Pelto, 1987; Mogan 1986).
CURRENT SITUATION OF BREASTFEEDING IN DEVELOPING COUNTRIES

A number of studies from developing countries have shown that 90% to 97% of the mothers initiate breastfeeding immediately after child birth but it is soon supplemented with other nutritive and non-nutritive fluids and foods (Papinezak & Turner, 2000; Nazir, Hagekull & Hassan 1993; Ashraf et al., 1993; Bredan, Bshiwhah, & Kumar, 1988; Forman, 1984; Hull, Thapa, & Wiknjosastro, 1989; Lindenberg, Artola, & Estrada, 1990; Winikoff & Laukaran 1989). A global review showed that for 3-month-old infants in the developing countries, the prevalence of breastfeeding in different areas was 2% to 98% in North Africa, 20% to 69% in East Africa, 3% to 86% in Guatemala, 20% to 28% in Brazil and 20% to 75% in India (WHO 1982). In many traditional cultures in the developing world, industrialization and urbanization have changed the standards and life style and many women are participating in the workforce because of these changing trends (Lindenberg et al., 1990). Therefore it is possible that women from these countries start practicing breastfeeding supplementation.

In Pakistan, studies indicate that 87% to 98% of the infants initiate breastfeeding after birth but start declining rapidly with age about 9% in one month (Nazir, Hagekull and Hassan 1993; Ashraf et al., 1993) and mothers start supplementation with the growing age of the child. Eighty two to 100% of the mothers were using feeding bottles to feed supplements and human milk substitutes.

The results of a community based follow up study identified the factors predicting breastfeeding decisions in terms of demographic variables, family situation and psychological factors. Results of the study conclude that mother's own initial personal experience of breastfeeding as a pleasant experience, natural and enjoyable process was a significant contributor to prolonged breastfeeding even when initial infant feeding method, fussiness of siblings and housing standard were taken into account (Nazir et al., 1993).
BENEFITS OF BREASTFEEDING

Breastfeeding is beneficial not only for the infant but also for the mother and the family. The infant receives human milk which is a perfectly balanced food for the nutritional requirements and physiological demands of the infant (Oddy, 2002; Moore et al., 1985). In addition to fulfilling the biological needs of the child, breastfeeding is also a means for establishing a healthy relationship between mother and child (Lawrence 1989). The nursing mother benefits as breastfeeding is convenient and it prevents breast problems like breast engorgement, cracked nipples and breast abscesses etc. Some studies indicate that in communities where breastfeeding is prevalent the incidence of breast carcinoma is comparatively low (Calle & Wood 2002; McTiernan and Thomas 1986). Breastfeeding has a natural birth spacing effect for the mother (Thapa 1988; Kondel 1977). The data collected for the World Fertility Survey in 1975 indicated that breastfeeding prevents more births in developing countries than all other forms of contraceptives put together (Kennedy et al. 1992; Thapa et al., 1988; Rosa 1975). Furthermore, breastfeeding reduces the expenditures of the family as well as those of the nation for import of breastmilk substitute, for hospital treatment of diseases common in non-breastfed infants and for family planning services for mothers who are not breastfeeding.

Studies in developed and developing countries of the world, provide strong evidence that human milk feeding decreases the incidence and/or severity of a wide range of infectious diseases including bacterial meningitis, diarrhea, respiratory tract infection, otitis media, urinary tract infection, and late-onset sepsis in preterm infants (American Academy of Pediatrics, 1997).

Some studies suggest decrease in rates of sudden infant death syndrome (SID) in the first year of life (Ford, Taylor and Mitchell 1993), insulin dependent diabetes mellitus (Mayer, Hamman & Gay 1988), ulcerative colitis (Rigas, Rigas & Glassman 1993), lymphoma (Shu, Clements & Zeheng 1995), allergic diseases (Halken, Host & Hansen 1992) and other chronic digestive diseases (Sveger 1985).

Breastfeeding has also been related to possible enhancement of cognitive development (Morrow-Talucak, Haude & Ernhart 1988).

Human milk-fed premature infants receive significant benefits with respect to host protection and improved developmental outcomes compared with formula-fed premature infants.
Breastfed infants also exhibited fewer abnormal reflexes, sign of depression and withdrawal. These data provide compelling evidence that breastfeeding is advantageous to neonates’ neurobehavioral organization (Hart, et. al. 2003; Neustaedtor, R.. 2011).

Health professionals have always being the strong advocates of breastfeeding but somehow feeding practices during hospital stay do not complement initiation of exclusive breastfeeding in early post partum period and formula supplementation during the hospital stay influence maternal decision regarding duration of breastfeeding as compared to the influence of demographic characteristics, maternal knowledge of infant feeding or psychosocial factors (Alikasifogula M. et.al., 2001; Hornell, Hofvander & Kylberg, 2001; Elsie, 2003; Kronborg. 2004; Dhandapany, Bethou, Arunagarinathan & Ananthakrishnan 2008 Newstaedtor, 2011).

There are also numbers of studies that indicate possible health benefits for mothers. It has long been acknowledged that breastfeeding increases levels of oxytocin, resulting in less postpartum bleeding and more rapid uterine involution (Chua, Arulkumaran & Lim 1994). Lactation amenorrhea causes less menstrual blood loss over the months after delivery. Recent research demonstrates that lactating women have an early return to prepregnant weight (Dewey, Heinig & Nommsen 1993), delayed resumption of ovulation with increased child spacing (Kennedy & Visness 1992) and reduce risk of ovarian cancers (Rosenblatt & Thomas 1993) and premenopausal breast cancer (Newcomb, Storer, & Longnecker 1994).

In addition to individual health benefits, breastfeeding provides significant social and economic benefits to nation, including reduction in health care cost and reduced employee absenteeism for care attribute to child illness. Significantly lower incidence of illness in the breastfed infants allowed the parents more time for attention to siblings and other family duties and reduces parental absence from work and lost income. While breastfeeding the cost of caloric intake of mother is about half in price as compared to the cost of purchase of formula or other milk supplement (American Academy of Pediatrics 1997).
FACTORS RELATED TO BREASTFEEDING

Various studies from industrialized countries have found demographic characteristics, such as maternal education and socioeconomic status, to be related to the choice of infant feeding practices (Tanja, Houweling & Anton Kunst 2009; Papinczak & Turner 2000; Grossman, Fitzsimmons, Larsen- Alexander, Sachs, & Harter, 1990; While, 1989; Jones, 1987; Sjolin, Hofvander, & Hillersvik, 1977; Bentovim, 1976). In these countries, prolonged breastfeeding is associated with higher maternal education and socioeconomic status. In contrast to the low and middle income countries where socioeconomic inequalities in society leads to the high childhood mortality. The probability of dying in childhood is strongly related to the socioeconomic position of the parents and household the child is born.

A few studies from industrialized countries have examined the process of reaching the decision to breastfeed. The most frequent reasons given for this practice were beliefs such as 'it is better for the baby' and 'it is natural' (Jones, 1987). According to Bentovim (1976), "Breastfeeding is a systemic product of many interacting factors rather than a product of individual behaviour only", suggesting that a range of physical, psychological and social factors are involved.

In different studies, psychological factors including maternal intentions, attitudinal beliefs, maternal experiences, stress, social support etc. have been found to have an association with maternal decisions, regarding infant breastfeeding pattern and its duration (Loughlin, Clapp-Channing, Gehlbach, Pollard & McCutche 1985; Manstead, Proffit, Smart, 1983; Baranowiski, Rassin, Richardson, Brown, & Bee, 1986; Bentovim, 1976; Sjolin et al., 1977; Bryant, 1982; Ekow, Dusdieker, Booth, & Seals, 1984).

Anxiety over the sufficiency of milk supply was the most serious problem, which often resulted in cessation of breastfeeding (Colin & Scott, 2002). Baby’s unsettledness, a behavior often interpreted by mothers as indicating an insufficient milk supply and her perception regarding the benefits of breastfeeding shortened the duration of breastfeeding (Scott 2001).
Initiation and longer duration of breastfeeding, in the analysis of personal and social factors, was found associated with increased breastfeeding self-confidence, lower levels of anxiety and depression, increased self-esteem, coping capacity and stronger social health (Papinczak & Turner 2000). Longer duration of breastfeeding was also associated with the preparedness of mother before childbirth, previous experience of breastfeeding. Therefore improvements in prenatal education about breastfeeding and management of breastfeeding problems are likely to increase breastfeeding duration (Mcleod, Pullon & Cookson 2002). Implications for educational interventions are to amplify prenatal infant feeding consultations and address ways to overcome logistical and apprehension barriers. (Guttman & Zimmerman 2000).

As regards developing countries, little is known about maternal factors such as intentions, experiences of satisfaction, stress and social support, that may act as motivators for breastfeeding. These findings, often based on retrospective urban hospital data do not provide detailed information regarding the actual situation of the decision making process in socioeconomically different groups of mothers.
THE PHYSIOLOGY OF BREASTFEEDING

It is generally realized that for successful breastfeeding a mother needs a well balanced diet and an adequate physical as well as psychological restful environment. It must be ensured that she is relaxed and comfortable during feeding as tension, anxiety and other stressful psychological factors are liable to effect the supply of milk and release of milk from the breast (the “let down” reflex), (Newton 1950).

Infant suckling produces a number of effects. It may decrease the level of prolactin inhibiting factor, and thus increase prolactin production by the pituitary. Prolactin is believed to be of primary importance in establishing breastfeeding, but less involved in maintaining it.

The amount of suckling controls the amount of milk production. The new born’s need for prolonged suckling therefore ensures the initial development and maintenance of an adequate milk supply. It has also been postulated that suckling decreases the amount of luteinizing hormone-releasing factor, and thus thwarts the midcycle dither of LH, providing a measure of contraception. The ovulation in women which usually occurs in mid menstrual cycle but because of breastfeeding may or may not ovulate and menstrual cycle vary unexpectedly even in women whose menstrual cycle was regular previously.

Another action of infant suckling is to signal posterior pituitary to release oxytocin. This is mediated via the afferent fibers in the nipple and areola, through the spinothalamic tracts to the hypothalamus. Within a few minutes, the mother may feel a tingling sensation in her breast, which indicates that milk-let-down, or drought has occurred. Oxytocin causes the myoepithelial cells to contract, squeezing the milk out of the alveoli and into the duct system.

Let-down is an essential aspect of nursing, for without it, the infant will receive only the small amount of milk that has been collected in the ducts and drained towards the nipple. Because oxytocin release is controlled by the hypothalamus, let down may occur with stimuli other than suckling, such as seeing or thinking about the baby, or hearing the infant’s cry. In
addition, the letdown reflex is very much adversely influenced by tension, fatigue, stress or emotional upset.

PSYCHOLOGICAL SIGNIFICANCE OF BREAST FEEDING

In addition to fulfilling the biological needs of the child, breastfeeding is also a means for establishing a healthy relationship between mother and child. Because a child is psychologically very near to the mother, breastfeeding provides an opportunity for further close association. If this psychological need of the child is not met with, it could possibly have long lasting effects on the personality as well as behaviour of the child towards not only the mother but towards others as well.

Czerny (1968) suggests:

“Between the person who nurses (the baby) and the child those relationships develop which are most highly valued when they exist between parent and child. For the child fed by a wet-nurse, the mother remains a stranger despite the blood relationship---The mother who does not feed the child herself creates, already in the first year of life, a barrier between herself and the child which is never completely removed” (pp. 28).

Stone and Bakwin (1968), summarize the breastfeeding attitudes when they say:

“It is not our viewpoint that all babies who are breast fed will grow up to be happy adults or vice-versa. We do feel, however that it is one step, and an important one, in establishing proper inter-relationships between mother and child, and in providing suitable outlets for the young baby’s budding emotional needs. In addition, under proper circumstances, it supplies a satisfying experience for the mother”.

If a mother does not breastfeed her child, she could have less mother-child bondage opportunities as compared to the breastfeeding mother. It is a natural opportunity for mother-
child bonding. It is an essential element in the mother-child relationship, and might even be necessary for physical as well as psychological development of the infant.

The mothers who do not breastfeed, for whatever reason may possibly have less impact on the child’s personality.

There is considerable uncertainty about why, for the past fifty years mothers have no longer wanted or no longer have been able to breastfeed their child. The same phenomenon seems to occur in most developing communities. As the life becomes easier with the advances of civilization, man becomes physically weaken and therefore less attached to his natural functions.

A child psychiatrist Micheal Rutter (1975), studied the maternal deprivation syndrome in over 400 cases. He chose to exclude non-social factors which might led to unsatisfactory. Child’s effective status appears to depend mainly on the person it is most often in contact with. The decisive factors are the poor relationship between parents and their lack of interest in the children.

Derbolowsky (1982), believes that the human infant reacts not only according to his “internal state” but also in response to external stimulation.

A number of researchers propose that the human new born and his mother form an integrative system in which one part is incomplete without the other, because only together they can function best (Als 1979).

Human breast milk is of such composition and consistency that it meets exactly the needs of new born who is growing rapidly and who is in the critical period of fast growth and development of the central nervous system (Benschanl 1962, Bernal 1972).

The newborn’s sensory capabilities fit perfectly with their mother’s cues and stimuli which she provides i.e. new born will listen more intently to a female voice (Eisenberg 1969). They can taste the sweetness of the milk and smell the mother’s skin (Mac Farlance 1975), they
can differentiate between the touch of skin and of lifeless objects, and they feel and seek out milk warmth as for instance coming from the maternal body (Stirnimann 1940). In general their capacity has been greatly underestimated in the past.

As soon as the new born opens his eyes the mother shows a behaviour pattern of increased head movements closing on the baby’s face, changing expression and tone of voice. It might happen in response to the infant looking at the mother (Grossman 1978).

The evidence so far suggests that the infant and mother should not be separated after birth, but given much more opportunity to communicate with each other in a rather quiet, pleasant, helpful surrounding. Breastfeeding is a natural source of communication between mother and child.

ROLE OF THE MOTHER

The mother is the chief figure concerned in transmitting certain unchanging processes of life which must be learnt by (individual) infant. The infant’s emotional status depends mainly on the mother-child relationship and the fulfillment of his needs.

A detailed study of the case histories taken by Sjolin, Hofvander and Helervik (1977) revealed that many mothers had a tendency to exaggerate the importance of minor illnesses in themselves or in their child. Anxiety was often due to rather trivial or seemingly irrelevant incidents. In some cases even minor deviations from ordinary habits of life caused an interruption of breastfeeding. Other factors including maternal responsibilities like attending the needs of other family members, maternal physical problems as illness and fatigue, lack of social support from husband and others, maternal unpleasant feelings regarding breastfeeding leads towards early end of breastfeeding. They also reported that during this investigation each individual mother seemed to react in her own sensitive way and needed much more support while others seemed able to cope with severe family strains without much ado.

Niles Newton (1980) compared breastfeeding mothers with bottle feeding mothers. Results showed that breastfeeding mothers were likely to be more motherly and were more
satisfied with their role as a mother, radiate more warmth, have fewer accepting disturbances and more natural and accepting in their way of life as compared to the bottle feeding mothers.

Uddenburg (1977) studied child’s perception of the mothers by using projective techniques. The relationships between mother and child were studied not only from the mother’s point of view but from the child’s point of view as well. In this study four and a half year old children of the mothers suffering from post partum poor mental health were included. These children described their mothers to be more strict and lacking in warmth as compared to the children of mothers who had adapted to motherhood with more ease.

The manner (style) in which an individual communicates with others or society is a very important factor. The mother’s attitude is very much dependent upon the social and cultural milieu in which she has been brought up. The mother’s desire to feed the infant is aroused if there is a close physical contact with the baby. Infants who are nursed alongside the mother are fed very frequently; than if they were kept in a separate nursery. The response of the baby is equally important. A lethargic baby sucks very little and thus does not stimulate milk production. If in the society there is undue modesty and embarrassment at the thought of breastfeeding, the letdown reflex is likely to be inhibited. Similarly in cultures, which do not attach any stigma to breastfeeding, the amount of suckling allowed is unrestricted and on demand, which is known to help milk production. Thus infants on an unrestricted feeding schedule are known to gain weight and grow faster than those on a rigid schedule. Similarly, those fed at short intervals grow better than those fed at regular intervals, demonstrating thereby that the frequency and duration of suckling are important in determining milk yield (Ebrahim 1978).

The mother’s own temperament (personality) and life experiences are also important in this regard. Mothers who react to their babies with joy and delight and having positive attitude are more successful in breastfeeding. A confident and cheerful approach from those who attend the mother in a friendly and sympathetic environment will go a long way in creating the emotional environment in which the physical process of lactation can be initiated and developed (Ebrahim 1978).
The place of temperament in personality research has been broadly discussed taking into account different understanding of both concepts - temperament and personality. The study of personality was based initially on the commonly observable, more or less stable differences among people’s behaviours. Therefore since antiquity, the notion of temperament has been ascribed to those relatively stable differences in human behaviour which might be explained in terms of biological mechanisms (Strelau 1987).

**The Holy Quran gave us a piece of advice about infant feeding.**

The breastfeeding should be prolonged for two years.

"And mothers shall suckle their children for two whole years, and him who desire to complete the time of suckling. And their maintenance and their clothing must be borne by the father according to usage. No soul shall be burdened beyond its capacity. Neither shall a mother be made to suffer harm on account of her child, nor a father on account of his child, nor a similar duty (devolved) on the (father) hire. But if both desire to wean the child by mutual consent and counsel there is no blame on them. And if you wish to engage a wet-nurse for your children, there is no (harm) blame on you, so long as you pay what you promised according to usage. And keep your duty to Allah and know that Allah is seer for what you do”.

(Al-Quran; Surah Al-Bakara:Verse 233)
HISTORICAL BACKGROUND OF TEMPERAMENT

Temperament has a long history and a short scientific past. For centuries, most scholars believed in the humoral theory of temperament.

Galen (1870) categorizes the people in four types: the melancholic (depressed), the choleric (anger bile), the phlegmatic (cold, moist), and the sanguine (confident, ruddy). He claims that a person can be one of the other of these, never a continuation of the two, three or four of these categories. He linked these four classical temperaments with the “humours” or secretions of the body. Although this part of his theory was unscientific but in fact related, if not to the humours of the body but at least to the secretion of endocrine glands.

William Wundt (1911) gave a rather different point of view. According to him, the melancholies and the choleric are alike in showing very strong emotional reactions, whereas the phlegmatic and the sanguine are alike in showing rather weak emotional reactions. Consequently he portrayed the existence of a dimension, or continuum of strong as opposed to weak emotionality. Similarly he thought that choleric and sanguine tended to have emotions which are rather changeable whereas melancholic and phlegmatic tended to have emotions which are rather firm and stable. Consequently, he posited the existence of another dimension or axis at right angle to the first and independent of it, which he called changeable and unchangeable. A person might be assigned any position from one extreme through the center to the other extreme on either of these two dimensions, and it was the continuation of position on these two dimensions, which produce his “temperament”. If he was extremely strong in his emotion and also extremely changeable, then he might be called choleric, if he was rather weak and stable, he would be phlegmatic, and so forth. All possible combinations can occur and there is no question of fixed unchanging categories.

Jung (1929) gave the terms of extroversion and introversion, the orientation of a person towards the external, objective world i.e. the external attitude refers to extroversion. The orientation of a person towards the inner, subjective world i.e. the introversion attitude refer to introversion. Both opposing attitudes are present in each individual at the same time but usually
one of them is dominant and conscious, the other sub-dominant and unconscious. If a person is predominantly introverted in his relation with the outer world, his conscious attitudes will be one of that introversion. In addition to these attitudes, there are four fundamental psychological functions - thinking, feeling, intuition, sensation- and what is actually given. Thinking enables us to recognize meanings, feelings tells us its values and finally intuition points to the possibilities of the whence and whither that lie within the immediate world as completely as when we locate a place geographically by latitude and longitude. Thinking and feelings he calls “Rational functions”, sensation and intuition he considers “Irrational functions”, while all four functions are usually present in a person, one of them is usually more highly differentiated than the others and plays a predominate role. This is called the superior function. The least differentiated of the four functions is called the inferior function. The latter is repressed into the unconscious and is expressed in dreams and fantasies. These various systems, functions and attitudes interact with each other in a variety of different ways. One system may compensate for the weaknesses of another system. One system may oppose another, or all systems may unite, to form a synthesis. By that Jung has proposed a very complex system of personality disposition.

Allport (1961) says that “The temperament refers to the characteristic phenomena of an individual’s nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood, these being phenomena regarded as dependent on constitutional make up and therefore largely hereditary in origin.

Allport (1961) properly includes a hereditary component, which is necessary to distinguish temperament from other personality dispositions. Each organism is born with a set of “blue prints” (genes), and both anatomical and behavioural traits are “constructed” with the available “materials”(environment). Without genes there are no new organisms; and the organism can exist only in an environment. Thus heredity and environment are also closely intertwined in any individual that they cannot be separated.

The concept of temperament has accumulated excess baggage through its use by the ancient Greeks (Galen 1870), investigators of psychomorphological relations, (Sheldon 1942;
Krestschmer 1944), personality theorists (Allport 1938; Cattell 1957; Eysenck 1969; Guilford 1976), and early developmental psychologists (Goldsmith et. al.1987).

Temperament research receives input from diverse disciplines, like developmental psychology, personality theory, psychophysiology and psychosomatic medicine, clinical psychiatry, behavioural genetics, and education research (Campos, Barrett, Lamb, Goldsmith, & Stenberg, 1983). With varying explanatory goals, each discipline has used the concept for its own purposes. Much of the structural and taxonomic thinking comes from adult personality research. The functional thinking that applies to internal regulatory roles of temperament tends to derive from psychophysiology, the Pavlovian tradition, and the work of Eysenck (1981) and of Gray (1982).

Temperamental dimensions reflect behavioural tendency directly onto discrete behavioural acts. It refers to the issue of individual differences rather than species-general characteristics (McCall 1986).

Buss and Finn (1987) defined temperament as a set of inherited personality traits that appear early in life. Thus there are two defining characteristics. First, that traits are genetic in origin like intelligence. Second, the traits appear in infancy - during the first year of life - which distinguishes temperament from other groups of personality traits, both inherited and acquired. Those personality traits are excluded that originate solely in environmental events.

Thomas and Chess include the considerations like that temperament is an independent psychological attribute, not to be subsumed as secondary to or derivative of other attributes, such as cognition, arousal, motivation, or emotionality, whether in the infant, older child, adolescent, or adult. Temperament must at all times be differentiated from motivation, abilities, and personality. Temperament is always expressed as a response to an external stimulus, opportunity, expectation, or demand. It can be considered as a dynamic factor that mediates and shapes the influence of the environment on the individual’s psychological structure. Thus, temperament is an attribute of the child that mediates the influence of the environment on the individual’s psychological structures. Therefore, a similar stimulus may evoke different behaviour in
different individuals, and different environmental stimuli may evoke similar behaviour. It follows that temperament should be primarily rated in terms of the social context within which it occurs. The influence of temperament is bi-directional; that is, the effect of a particular environmental influence will be influenced by the child’s temperament. At the same time, the child’s temperament will affect the judgements, attitudes, and behaviour of the significant individuals (e.g. mother) in the environment (Thomas & Chess 1982).

Rothbart (1981) defined temperament as relatively stable, primarily biologically based individual differences in reactivity and self-regulation (Rothbart & Ahadi 1994; Rothbart 1984; Rothbart & Derryberry 1981). By reactivity, they mean the excitability or arousability of behavioural, endocrine, autonomic, and central nervous system response, as assessed through response parameters of threshold, latency, intensity, rise time and recovery time. By self-regulation, they mean processes such as attention, approach, avoidance, and inhibition; that serve to either enhance or inhibit reactivity. Behaviourally, temperament can be observed at all ages as individual differences in patterns of emotionality, activity, and attention. Phenomenologically, it is experienced as feelings of energy, interest, and affect.

Temperament and personality are seen as broadly overlapping domains of study, with temperament providing the primary biological basis for developing personality.

Goldsmith and Campos (1986) choose to explicate the behavioural nature of temperament because it is most meaningful in social context, and it facilitates immediate empirical investigation. They said that temperament is emotional in nature, that it pertains to individual differences, that it refers to behavioural tendencies rather than actual occurrence of emotional behaviour (and thus is relatively stable), and that it is indexed by the expressive aspect of emotion. It does not include cognitive or perceptual factors and that it extends beyond transitory states (Goldsmith, & Campos 1986; Allport 1937). Employing a functionalist strategy Campos et al. (1986) defines emotions in terms of the conjunction of four criterial characteristics, 1) emotions regulate internal psychological processes; 2) emotions crucially regulate social and interpersonal behaviours; 3) basic emotions can be specified by unique
patterns of facial, vocal, or gesture expressions; and 4) basic emotions utilize a non-codified communication process that has an innate basis.

Traditionally, temperament has referred to the stylistic aspect of behaviour rather than content and abilities or causes of behaviours. That is the “how” rather than the “what” or the “why” of behaviour (Buss, & Plomin 1975). This concept of temperament has much in common with the formulations of Cattell (1950) and Guilford (1959).

Content refers to what the response is: affection, aggression, problem solving etc. Style refers “how” the response is made: fast or slow, mild or intense, spare and unelaborated or adorned and elaborated etc.

To illustrate the contrast between content and style, we can examine the role of a mother. The “content” of the role is somewhat fixed and permits little variation from one mother to the next. A mother feeds the baby, nurses the baby, trains the baby, gives company to the baby, gives the feelings of security to the baby. The manner (style) in which these requirements are carried out varies considerably from one mother to the next (Thayer, 1985).

These two aspects of roles - content and style - are the focus of two desperate approaches to personality. The social cultural approach emphasized man’s place in society and the content of his behaviour in social context. Role prescription and expectations are considered to be permanent here, and little attention is paid to the manner in which the role is played. The individual differences approach, in contrast, emphasizes the personal contribution of the individual playing the role; what does she bring to the role that is different from the next person. This is not to equate a focus on individual difference with an emphasis on style, but to indicate that some of the most important individual differences are stylistic in nature.

Temperament may be regarded as (a) one of the elements of personality, (b) as a synonym of personality, and (c) as a phenomenon with its own specificity, not belonging to the structure of personality (Strelau 1987).
Jan Strelau (1987) in his review “The concept of temperament in personality research” discussed five aspects in which temperament and personality differ:

**Biological versus social factors.** The fact that the biological factors play a crucial role in determining temperament has been exposed in most temperament theories, starting from the ancient typology which appealed to the proportion of ‘humours’ in order to explain individual differences in behaviour. In Pavlov’s typology the nervous system properties—strength, mobility and equilibrium have been regarded as the physiological basis of temperament. In many theories arousal, whether caused by the autonomic nervous system or by the reticular-cortical loop, plays the crucial role in determining temperamental features. Much evidence has been collected which shows that heritability of temperament traits is rather high.

Personality theories, especially those based on social learning (Bandura and Walters, 1963; Rutter, 1975), regard the social environment as the only or the most important factor determining the development of personality. This line of thinking has been present almost in antiquity. The monograph *Characters* written by Theophrastus may serve as an example. Summing up, one can say after Leontev (1978) that whereas temperament is a result of biological evolution, personality is a product of the social environment.

**Childhood versus later developmental stages.** In many studies, especially those conducted by Thomas and Chess (1977) as well as by their students, much evidence has been collected which shows that temperamental features may be identified from early childhood. The fact that temperament is present in the first period of life became a definition criterion in Buss and Plomin’s (1984) understanding of temperament.

Since personality is mainly a product of learning and socialization it becomes clear that a born child does not yet has a personality. The structure and mechanisms of personality develop in ontogenesis and the stage at which one may speak about shaped personality, however differently qualified, falls anywhere in later periods of development.
Man and animal versus humans only. The personality concept by itself suggests that it refers to humans only (Lat. Persona - actor’s face, mask, character, person). It comprises psychological phenomena which are moulded under the human-specific environment. Thus it would be rather strange to speak about personality in animals. When we apply the notion of personality in order to characterize animal behavior we tend to use it parenthetically.

This is not so with temperament, a concept applied to characterize both human and animal populations. The first experimental studies on temperament in animals were conducted by Pavlov and his students. All the research in dogs, rats, mice, and other animal species aimed at studying individual differences in anxiety (Gray, 1982), extroversion-introversion (Broadhurst, 1975; Garau and Garcia Sevilla, 1985), stimulation seeking (Matysiak, 1980), etc., should be classified as belonging to the sphere of temperament.

Formal characteristics of behavior versus contents of behavior. The successors of the ancient Greek’s typology underlined the importance of formal characteristics of behavior in defining temperament. For instance, Kant (1943) described temperament, understood as the energy of life (Lebenskraft), in terms of excitation and drowsiness. For Wundt (1911) intensity and changeability of emotions composed the main dimensions of temperament. There is among Soviet psychologists e.g. Merlin, (1973); Teplov, (1985) a strong tendency, begun by Pavlov, to regard temperament in terms of energetic and temporal characteristics of behavior. In our regulative theory of temperament (Strelau, 1974, 1983) where reactivity, and mobility of behavior are considered as the main temperament dimensions, the formal aspect of behavior, but not its contents, constitute a definitional component of temperament. Also the term ‘style’ as used by many temperament researchers stresses the formal aspect of behavior, because the question ‘how’, essential for the stylistic approach (Thomas and Chess, 1977, 1985), may be asked for any kind of behavior, whatever its contents or direction.

On the other hand, personality, independent of the specific theory to which it refers, comprises the contents of behavior which reflects the specificity of reactions, the relation of humans to themselves, to each other and toward the world, their motivations, desires, and other psychological phenomena. The content of behavior is a product of human activity.
It is highly probable that there exist some characteristics of behaviour having elementary contents which still belong to the sphere of temperament because of their biological determination. Individual differences in primary emotions, such as anxiety, may be mentioned here. There exists evidence that anxiety, which reflects a given relation of an individual towards the external world, is determined, at least primarily, by biological factors. Gray (1982) studies on the *behavioural inhibition system* (BIS) provide an example.

**Expression and modification of behaviour versus integration of behaviour.** Temperament and personality play a different role in human behaviour. Personality psychologists, inspite of their differences regarding the development, structure, and mechanisms of personality, mostly agree with the assumption that the concept under discussion refers to integrative functions of human behaviour, to mechanisms which ensure the consistency of goal-directed activity and/or which play the role of a central regulatory system. Such concepts like ego, self, superego, cognitive maps, operating systems, system of values, program-oriented schemata, etc., used in different schools and theories, reflect this point of view.

According to the David Keirsey (1998), there are two sides to personality, one of which is temperament and the other character. Temperament is a configuration of inclinations, while character is a configuration of habits. Character is disposition, temperament pre-disposition. Thus, for example, foxes are predisposed -- born -- to raid hen houses, beavers to dam up streams, dolphins to affiliate in close-knit schools, and owls to hunt alone in the dark. Each type of creature, unless arrested in its maturation by an unfavorable environment, develops the habit appropriate to its temperament: stealing chickens, building dams, nurturing companions, or hunting at night.

In a way, our brain is a sort of computer which has temperament for its hardware and character for its software. The hardware is the physical base from which character emerges, placing an identifiable fingerprint on each individual's attitudes and actions. This underlying consistency can be observed from a very early age -- some features earlier than others -- long before individual experience or social context (one's particular software) has had time or
occasion to imprint the person. Thus temperament is the inborn form of human nature; character, the emergent form, which develops through the interaction of temperament and environment.

Keirsey (1998), also emphasizes that temperament, character, and personality are configured, which means that, not only are we predisposed to develop certain attitudes and not others, certain actions and not others, but that these actions and attitudes are unified -- they hang together.

Jerome Kagan (1994) talked about the Malleability of temperament which refers to the extent to which temperament can be reshaped by later life events. Temperament and environment both influence development.

As opposed to personality temperament refers mainly to traits or mechanisms which play a role in modifying behaviour or in the way behaviour expresses itself. It follows from the regulative theory of temperament that one of the main functions it plays in human behaviour consists in regulating the stimulative value of the surroundings and the individual’s own activity.

A number of studies from developing countries indicate that 90% to 97% of the mothers initiate breastfeeding after birth but soon it is supplemented or replaced with other nutritive and non nutritive fluids and foods often given in a bottle (Forman, 1984; Bredan, Bshiwa & Kumar, 1988; Ashraf 1993). Brown, Raynor, Benton and Michelle Lee (2009). European Journal of Public Health (2010)20(2):231-235.

In developing countries the role of breastfeeding is important for the optimal growth and development of the infant which has been well documented in the past few decades (cf. Harfouche, 1980; Ashrif, 1993; Hart, et. al. 2003; UNICEF, 2006).

In the traditional culture of Pakistan under the Islamic influence irrespective of the socioeconomic status more than 80% mothers initiate breastfeeding either exclusively or in combination with bottle feeding but soon most of them start shifting to the bottle feeding especially mothers belonging to high socioeconomic group who are usually well educated. The
majority of mothers of low socioeconomic status and with illiteracy and poor living conditions breastfeed almost exclusively and for longer duration as most women confine themselves to the home and assume the traditional responsibilities of child care and household activities (Nazir Hagekull, & Hassan 1993).

According to the State of the World’s Children 2006 in Pakistan only 16% infants were exclusively breastfed till the age of 3 months. Between the ages of 6 to 9 months 31% infants were breastfed with complementary foods and 56% children were still breastfeeding till the ages of 20 to 23 months. Maternal own breastfeeding information and experience in concurrence with the information received from health providers during antenatal visits or at the time of child birth presumably effect/influence maternal decision regarding start and continuation of breastfeeding (Dhandapany, Bethou, Arunagirinathan & Ananthakrishnan, 2008). The present study aims to identify the factors acting as a stimulant in modifying maternal breastfeeding behavior as an outcome product of all the factors individually or in combination whether demographic, social, psychological and individual maternal temperamental traits.
RATIONALE OF THE STUDY

In developing countries breastfeeding has been a crucial determinant of infant growth and survival (Harfouche, 1980).

In Pakistan, under the influence of Islamic beliefs, many mothers breastfeed their infants up to the age of two years. However, this breastfeeding period in practice is not of the same duration for all women (Nazir, Hagekull, & Hassan, 1993). It is universally acknowledged that breastfeeding is beneficial for the health of the infant and the mother. It also has a positive and economic impact on the family and the country in general. It is therefore imperative that physical, social and psychological factors liable to influence breastfeeding practices be evaluated.

In the present context the functioning of the mother in relation to the child is seen as largely determined by the family situation and environmental factors in which mother and newborn is going to live (Dasen & Super 1988). The societal or social situation is a demographic situations, family conditions are social factors including health service provider’s attitude being the health professionals and mother’s own temperament presumably are psychological factors related to maternal behaviour. These factors in turn are assumed to influence two maternal decisions; the establishment of mode of initial infant breastfeeding immediately after childbirth and the decision about the duration of breastfeeding.

The main purpose of the present study was to describe social, psychological or individual factors, which influence maternal decisions regarding initial infant feeding pattern and its duration. As regards developing countries like Pakistan little is known about the influence of health care service providers and professionals in the hospital setting on maternal decision regarding the initial mode of breast feeding right after child birth and its continuation for longer duration.

This study has a thematic base of the Ajzen’s Theory of Planned Behaviour (TPB, 2006) which is a modified form of Ajzen and Fishbein (1980) theory of Reasoned Action (Dukett et al., 1998). Theory of planned behaviour is based on the construct that most behaviours of social relevance are under volitional control like behavioural intentions or intention to perform...
behaviour. According to the theory, behavioral intention is a direct function of attitude towards performing behaviour and perceived behavioral control (Heining et al., 2006).

**Theory of planned behavior**

In psychology, the **theory of planned behavior** is a theory about the link between attitudes and behavior. The concept was proposed by Icek Ajzen to improve on the predictive power of the **theory of reasoned action** by including perceived behavioural control (Ajzen, 1985). It is one of the most predictive persuasion theories. It has been applied to studies of the relations among beliefs, attitudes, behavioral intentions and behaviors in various fields such as advertising, public relations, advertising campaigns and healthcare.

The theory states that attitude toward behavior, subjective norms, and perceived behavioral control, together shape an individual's behavioral intentions and behaviors.

**Extension from the theory of reasoned action**

The theory of planned behavior was proposed by Icek Ajzen in 1985 through his article "From intentions to actions: A theory of planned behavior." The theory was developed from the **theory of reasoned action**, which was proposed by Martin Fishbein together with Icek Ajzen in 1975. The theory of reasoned action was in turn grounded in various theories of attitude such as learning theories, expectancy-value theories, consistency theories, (Ajzen, 1991) and attribution theory (Armitage & Conner, 2001). According to the theory of reasoned action, if people evaluate the suggested behavior as positive (attitude), and if they think their significant others want them to perform the behavior (subjective norm), this results in a higher intention (motivation) and they are more likely to do so. A high correlation of attitudes and subjective norms to behavioral intention, and subsequently to behavior, has been confirmed in many studies (Ajzen & Fishbein, 2005).

A counter-argument against the high relationship between behavioral intention and actual behavior has also been proposed, as the results of some studies show that, because of circumstantial limitations, behavioral intention does not always lead to actual behavior. Namely, since behavioral intention cannot be the exclusive determinant of behavior where an individual's control over the behavior is incomplete, Ajzen introduced the theory of planned behavior by adding a new component, "perceived behavioral control." By this, he extended the theory of
reasoned action to cover non-volitional behaviors for predicting behavioral intention and actual behavior.

**Extension of self-efficacy**

In addition to attitudes and subjective norms (which make the theory of reasoned action), the theory of planned behavior adds the concept of *perceived behavioral control*, which originates from *self-efficacy* theory (SET). Self-efficacy was proposed by Bandura in 1977, which came from *social cognitive theory*. According to Bandura, expectations such as motivation, performance, and feelings of frustration associated with repeated failures determine effect and behavioral reactions. Bandura (1986) separated expectations into two distinct types: self-efficacy and outcome expectancy. He defined self-efficacy as the conviction that one can successfully execute the behavior required to produce the outcomes. The *outcome expectancy* refers to a person's estimation that a given behavior will lead to certain outcomes. He states that self-efficacy is the most important precondition for behavioral change, since it determines the initiation of coping behavior.

Previous investigations have shown that peoples' behavior is strongly influenced by their confidence in their ability to perform that behavior (Bandura, Adams, Hardy, & Howells, 1980). As the self-efficacy theory contributes to explaining various relationships between beliefs, attitudes, intentions, and behavior, the SET has been widely applied to health-related fields such as physical activity and mental health in preadolescents (Annesi 2005), and exercise (Gyurcsik & Brawley, 2000; Rogers & Brawley, 1996; Stanley & Maddux, 1986).

**Concepts of key variables**

Behavioral beliefs and attitude toward behavioral's belief about consequences of particular behavior. The concept is based on the subjective probability that the behavior will produce a given outcome.

- **Attitude toward behavior**: an individual's positive or negative evaluation of self-performance of the particular behavior. The concept is the degree to which performance of the behavior is positively or negatively valued. It is determined by the total set of accessible behavioral beliefs linking the behavior to various outcomes and other attributes.
Normative beliefs and subjective norms

- **Normative belief**: an individual's perception about the particular behavior, which is influenced by the judgment of significant others e.g., parents, spouse, friends, teachers. (Amjad, & Wood, 2009).

- **Subjective norm**: an individual's perception of social normative pressures, or relevant others' beliefs that he or she should or should not perform such behavior.

Control beliefs and perceived behavioral control

- **Perceived behavioral control**: an individual's perceived ease or difficulty of performing the particular behavior (Ajzen, 1988). It is assumed that perceived behavioral control is determined by the total set of accessible control beliefs.

- **Control beliefs**: an individual's beliefs about the presence of factors that may facilitate or impede performance of the behavior (Ajzen, 2001). The concept of perceived behavioral control is conceptually related to self-efficacy.

Behavioral intention and behavior

- **Behavioral intention**: an indication of an individual's readiness to perform a given behavior. It is assumed to be an immediate antecedent of behavior (Ajzen, 2002b). It is based on attitude toward the behavior, subjective norm, and perceived behavioral control, with each predictor weighted for its importance in relation to the behavior and population of interest.

- **Behavior**: an individual's observable response in a given situation with respect to a given target. Ajzen said a behavior is a function of compatible intentions and perceptions of behavioral control in that perceived behavioral control is expected to moderate the effect of intention on behavior, such that a favorable intention produces the behavior only when perceived behavioral control is strong.
Conceptual / operational comparison

Perceived behavioral control vs. self-efficacy

As Ajzen (1991) stated in the theory of planned behavior, knowledge of the role of perceived behavioral control came from Bandura's concept of self-efficacy. Recently, Fishbein and Cappella (2006) stated that self-efficacy is the same as perceived behavioral control in his integrative model, which is also measured by items of self-efficacy in a previous study (Ajzen, 2002).

In previous studies, the construction and the number of item inventory of perceived behavioral control have depended on each particular health topic. For example, for smoking topics, it is usually measured by items such as "I don't think I am addicted because I can really just not smoke and not crave for it," and "It would be really easy for me to quit."

The concept of self-efficacy is rooted in Bandura's social cognitive theory (Bandura, 1997). It refers to the conviction that one can successfully execute the behavior required to produce the outcome. The concept of self-efficacy is used as perceived behavioral control, which means the perception of the ease or difficulty of the particular behavior. It is linked to control beliefs, which refers to beliefs about the presence of factors that may facilitate or impede performance of the behavior.

It is usually measured with items which begins with the stem, "I am sure I can ... (e.g., exercise, quit smoking, etc.)" through a self-report instrument in their questionnaires. Namely, it tries to measure the confidence toward the probability, feasibility, or likelihood of executing given behavior.

Attitude toward behavior vs. outcome expectancy

The theory of planned behavior specifies the nature of relationships between beliefs and attitudes. According to these models, people's evaluations of, or attitudes toward behavior are determined by their accessible beliefs about the behavior, where a belief is defined as the subjective probability that the behavior will produce a certain outcome. Specifically, the evaluation of each outcome contributes to the attitude in direct proportion to the person's subjective possibility that the behavior produces the outcome in question (Fishbein & Ajzen, 1975).
Outcome expectancy was originated from the expectancy-value model. It is a variable-linking belief, attitude and expectation. The theory of planned behavior's positive evaluation of self-performance of the particular behavior is similar to the concept to perceived benefits, which refers to beliefs regarding the effectiveness of the proposed preventive behavior in reducing the vulnerability to the negative outcomes, whereas their negative evaluation of self-performance is similar to perceived barriers, which refers to evaluation of potential negative consequences that might result from the enactment of the espoused health behavior.

**Social influence**

The concept of social influence has been assessed by social norm and normative belief in both the theory of reasoned action and theory of planned behavior. Individuals' elaborate thoughts on subjective norms are perceptions on whether they are expected by their friends, family and the society to perform the recommended behavior. Social influence is measured by evaluation of various social groups. For example, for smoking issue, (1) subjective norms from peer group include thoughts such as, "Most of my friends smoke," or "I feel ashamed of smoking in front of a group of friends who don't smoke"; (2) subjective norms from family include thoughts such as, "All my family smoke, and it seems natural to start smoking," or "My parents were really mad at me when I started smoking"; and (3) subjective norms from society or culture include thoughts such as, "Everyone is against smoking," and "We just assume everyone is a nonsmoker"

While most models are conceptualized within individual cognitive space, the theory of planned behavior considers social influence such as social norm and normative belief, based on collectivistic culture-related variables. Given that an individual's behavior (e.g., health-related decision-making such as diet, condom use, quitting smoking and drinking, etc.) might very well be located in and dependent on the social networks and organization (e.g., peer group, family, school and workplace), social influence has been a welcomed addition.

**Model**

Human behavior is guided by three kinds of consideration, "behavioral beliefs," "normative beliefs," and "control beliefs." In their respective aggregates, "behavioral beliefs" produce a favorable or unfavorable "attitude toward the behavior"; "normative beliefs" result in "subjective norm"; and "control beliefs" gives rise to "perceived behavioral control."
In combination, "attitude toward the behavior," "subjective norm," and "perceived behavioral control" lead to the formation of a "behavioral intention" (Ajzen, 2002b). In particular, "perceived behavioral control" is presumed to not only affect actual behavior directly, but also affect it indirectly through behavioral intention (Zimmerman et al., 2005).

As a general rule, the more favorable the attitude toward behavior and subjective norm, and the greater the perceived behavioral control, the stronger the person's intention to perform the behavior in question should be. Finally, given a sufficient degree of actual control over the behavior, people are expected to carry out their intentions when the opportunity arises (Ajzen, 2002b).

**Formula**

In its simplest form, the theory of planned behavior can be expressed as the following mathematical function:

\[ BI = (W_{1})AB[(b) + (e)] + (W_{2})SN[(n) + (m)] + (W_{3})PBC[(c) + (p)] \]

- **BI**: Behavioral intention
- **AB**: Attitude toward behavior
- **(b)**: the strength of each belief
- **(e)**: the evaluation of the outcome or attribute
- **SN**: Subjective norms
- **(n)**: the strength of each normative belief
- **(m)**: the motivation to comply with the referent
- **PBC**: Perceived Behavioral Control
- **(c)**: the strength of each control belief
- **(p)**: the perceived power of the control factor
- **W'**: empirically derived weight/coefficient

The extent that it is an accurate reflection of actual behavioral control, perceived behavioral control can, together with intention, be used to predict behavior.
Evaluation of the theory

Strength

At first, the theory of planned behavior can cover people's non-volitional behavior which cannot be explained by the theory of reasoned action.

An individual's behavioral intention cannot be the exclusive determinant of behavior where an individual's control over the behavior is incomplete. By adding "perceived behavioral control," the theory of planned behavior can explain the relationship between behavioral intention and actual behavior.

Several studies found that the TPB would help better predict health-related behavioral intention than the theory of reasoned action (Ajzen, 1988). The TPB has improved the predictability of intention in various health-related fields such as condom use, leisure, exercise, diet, etc.

In addition, the theory of planned behavior as well as the theory of reasoned action can explain the individual's social behavior by considering "social norm" as an important variable.

Limitations

The theory of planned behavior is based on cognitive processing and level of behavior change. Compared to affective processing models, the theory of planned behavior overlooks emotional variables such as threat, fear, mood and negative or positive feeling and assessed them in a limited fashion.

In particular in the health-related behavior situation, given that most individuals' health behaviors are influenced by their personal emotion and affect-laden nature, this is a decisive drawback for predicting health-related behaviors (Dutta-Bergman, 2005). Poor predictability for health-related behavior in previous health research may be attributed to the exclusion of this variable. Most of the research is correlational, and evidence based on experimental studies is less convincing (Sniehotta, 2009).
Applications of the theory

So far, the theory of planned behavior has more than 1200 research bibliographies in academic databases such as Communication & Mass Media Complete, Academic Search Premier, PsycARTICLES, Business Source Premier, PsycINFO, and PsycCRITIQUES.

In particular, recently, several studies found that the TPB would better help to predict health-related behavioral intention than the TRA (Ajzen, 1988) given that the TPB has improved the predictability of intention in various health-related fields such as condom use (Albarracin, Fishbein, Johnson, & Muellerieile, 2001; Sheeran & Taylor, 1999), leisure (Ajzen & Driver, 1992; Nguyen, Potvin, & Otis, 1997) and diet (Conner, Kirk, Cade, & Barrett, 2003).

Another application of the theory of planned behavior is in the field of environmental psychology. Generally speaking, actions that are environmentally friendly carry a positive normative belief. That is to say, sustainable behaviors are widely promoted as positive behaviors. However, although there may be a behavioral intention to practice such behaviors, perceived behavioral control can be hindered by constraints such as a belief that one's behavior will not have any impact (Koger, Susan & Deborah Du Nann, Winter 2010; Stern, P.C. 2005). For example, if one intends to behave in an environmentally responsible way but there is a lack of accessible recycling infrastructure, perceived behavioral control is low, and constraints are high, so the behavior may not occur. Applying the theory of planned behavior in these situations helps explain contradictions between sustainable attitudes and unsustainable behavior.

The theory of planned behavior model is thus a very powerful and predictive model for explaining human behavior. That is why the health and nutrition fields have been using this model often in their research studies. In one study, utilizing the theory of planned behavior, the researchers determine obesity factors in overweight Chinese Americans (Liou, 2007). Intention to prevent becoming overweight was the key construct in the research process. It is important that nutrition educators provide the proper public policies in order to provide good tasting, low-cost, healthful food.

Brief Description of the Theory of Planned Behavior

According to the theory, human behavior is guided by three kinds of considerations: beliefs about the likely consequences of the behavior (behavioral beliefs), beliefs about the normative expectations of others (normative beliefs), and beliefs about the presence of factors that may
facilitate or impede performance of the behavior (control beliefs). In their respective aggregates, behavioral beliefs produce a favorable or unfavorable attitude toward the behavior; normative beliefs result in perceived social pressure or subjective norm; and control beliefs give rise to perceived behavioral control. In combination, attitude toward the behavior, subjective norm, and perception of behavioral control lead to the formation of a behavioral intention. As a general rule, the more favorable the attitude and subjective norm, and the greater the perceived control, the stronger should be the person’s intention to perform the behavior in question. Finally, given a sufficient degree of actual control over the behavior, people are expected to carry out their intentions when the opportunity arises. Intention is thus assumed to be the immediate antecedent of behavior. However, because many behaviors pose difficulties of execution that may limit volitional control, it is useful to consider perceived behavioral control in addition to intention. To the extent that perceived behavioral control is veridical, it can serve as a proxy for actual control and contribute to the prediction of the behavior in question. The following figure is a schematic representation of the theory.

**TPB Diagram (Hypothetical)**
In the light of review of literature following research objectives were formed.

1) Does maternal SES (demographic factors) play an important role in maternal decision making regarding breastfeeding as initial infant feeding pattern and its duration.

2) Does maternal psychological factor plays an important role in maternal decisions regarding initial infant feeding pattern and its duration.

3) Does maternal temperament factors/dimensions have an important role in maternal decisions about infant’s initial feeding pattern and its duration.

4) Does maternal SES (demographic), psychological and maternal temperamental factors in combination have a role in maternal decisions regarding initial infant feeding pattern and its duration.
OBJECTIVES

The present prospective study sought to answer questions about breastfeeding decisions of mothers. The specific objectives of the study:

1. To explore the impact of SES (demographic) on two maternal decisions i.e initiation of breastfeeding (infant feeding pattern) and its duration.
2. To see the influence of psychological variables/factors on maternal decisions regarding the establishment of breastfeeding as initial infant feeding pattern and its duration.
3. To find out the relationship between maternal temperamental dimensions and maternal decisions about initial infant feeding pattern and duration of breastfeeding.
4. To see the impact of demographic, psychological/social and maternal temperamental factors as potential influences on maternal decisions regarding initial infant feeding pattern and its duration.
5. To seek answer to the questions about the role and influence of health service providers on mothers of new born babies about the decision regarding the initiation of breastfeeding within 24 hours post partum and to find out the source and type of information Health Care System provide during the antenatal and in early postpartum period that contribute to successful initiation of breastfeeding and its continuation for longer duration, in a teaching hospital situation of Lahore, Pakistan.

Hypotheses:

a; Mothers having low socio-economic status and living in poor housing conditions breastfeed almost exclusively and for longer duration.
b; Mothers having high socio-economic status and living in better housing conditions breastfeed less and for shorter duration.
c; Mothers who have positive previous breastfeeding experience, breastfeed almost exclusively and for longer duration.
d; Mothers who have satisfaction from breastfeeding will breastfeed almost exclusively and for longer duration.
e; Mothers who have social support/less stress will breastfeed almost exclusively and for longer duration.
f; Mothers who have a Responsible attitude will breastfeed almost exclusively.
g; Mothers who have Accepting attitude will breastfeed almost exclusively and for longer duration.
h; Mothers who are Practical in life will breastfeed almost exclusively and for longer duration.
i; Mothers who are Impulsive will breastfeed almost exclusively and for longer duration.
j; Mothers who are Irritable & withdrawing will breastfeed almost exclusively.
k; Mothers who have a casual attitude will breastfeed for longer duration.
l; Mothers who are Placid will breastfeed for longer duration.
m; Mothers who are Ascending will breastfeed for longer duration.

Mothers who are Active will breastfeed for longer duration.
o; The role and influence of health service providers on mothers of new born babies about the decision regarding the initiation of breastfeeding within 24 hours post partum and to find out the source and type of information Health Care System provide during the antenatal and in early postpartum period that contribute to successful initiation of breastfeeding and its continuation for longer duration, in a teaching hospital situation of Lahore, Pakistan.
METHOD

Study1-Longitudinal Study

POPULATION

To prepare a baseline record to conduct a longitudinal study, a cross-sectional house-to-house survey was carried out i.e. the rural area, the periurban slum and the urban slum each with a population of approximately 5000 inhabitants. To record the actual mode of infant feeding and its duration in case of breastfeeding, expectant mothers were identified in the survey in all three areas. These expectant mothers were followed longitudinally from the 5th month of pregnancy until delivery, and newborns were followed from birth till the age of 2 years in these three areas. A fourth group was selected from the upper middle class, residing in different areas in the city. The contacts with the families in the upper middle group were established through their gynecologists during the second trimester of pregnancy. Taken together, these areas of living and populations represent different stages of urbanization in and around the city of Lahore. The detail of these study areas is given below.

STUDY AREAS

Rural Population: The first group was selected from a Rural area about 40 km from Lahore city, not much influenced by city life. Agriculture was the main occupation among the Rural area consisted of petty landlords, farmers and farm workers. The Rural area population belonged to 22 different groups of families of common descent. The majority of men and women had received no formal education.

Periurban slum: This area was selected from a 20 km stretch of mud dwellings along the railway track, at the periphery of Lahore city. The people in the periurban slum had a nomadic existence with no common social or ancestral links. During the harvesting months, most of the families moved back to their original Rural areas for 2-3 months. The population consisted mainly of semi-skilled laborers, working on daily wages. Illiteracy was common among the people living in this area.

Urban slum: Inhabitants from a section in the middle of Lahore city which is densely populated constituted the urban slum population. Male occupations were mainly in small scale businesses
or low-grade government service. Education up to the primary level (at least 5 years of formal schooling) was common among the people belonging to this area.

**Upper middle class:** The upper middle class group was scattered throughout the well-developed city suburbs. The sample was selected from two private maternity clinics according to the following preset criteria: an income above Rs 15000/month, at least 10 years of schooling for both parents, a maximum of three children and owning a house with at least three bedrooms.

**SAMPLE**  
**Study 1- Longitudinal Study**

From the longitudinal sample fifty mothers each from the rural area, the urban slum and the upper middle class were identified making a total number of 150 expectant mothers. The periurban slum was not included because of the uncertainty for the availability of the mothers for the interviews. The detailed description of the study sample is given in Fig:1, under the description of the study sample including left the study cases and sex of new born child.

**Study sample including left study and sex of new born.**

Fig. 1
DEMOGRAPHIC VARIABLES

The total monthly income (Table 2) in the majority of the households was found to be between Rs. 5000 and Rs. 12000 in all areas except Upper Middle class where the average income was more than Rs. 15000. (Average income: Rs. 20848).

Table 2: Family income

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Rural area</th>
<th>Urban Slum</th>
<th>Upper Class</th>
<th>Middle</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly income of the family</td>
<td>n=44</td>
<td>n=46</td>
<td>n=33</td>
<td>n=123</td>
<td></td>
</tr>
<tr>
<td>Rs. &lt; 5000</td>
<td>14</td>
<td>5</td>
<td>0</td>
<td>19</td>
<td>15.5</td>
</tr>
<tr>
<td>5000-12000</td>
<td>30</td>
<td>40</td>
<td>0</td>
<td>70</td>
<td>6.9</td>
</tr>
<tr>
<td>&gt;12000</td>
<td>0</td>
<td>1</td>
<td>33</td>
<td>34</td>
<td>27.6</td>
</tr>
</tbody>
</table>

The educational background of the mothers and Fathers is shown in Table 3. The functional literacy (i.e. at least 5 years of education) was low. The large majority of the mothers in the Rural area were illiterate (>95 %). Maternal literacy was high in the Urban Slum compared to the Rural area mothers; however more than 56% of the mothers even in this group was illiterate. As a consequence of inclusion criteria wherein the minimum educational level was at least 10 years of schooling for mothers in the Upper Middle class, this group of mothers were found to be 100% educated.

Table 3: Mother’s & Father’s education

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Rural area</th>
<th>Urban Slum</th>
<th>Upper Class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s Education</td>
<td>n=44</td>
<td>n=46</td>
<td>n=33</td>
<td>n=123</td>
</tr>
<tr>
<td>Illiterate</td>
<td>42</td>
<td>26</td>
<td>0</td>
<td>68</td>
</tr>
<tr>
<td>Primary</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>&gt; Primary</td>
<td>2</td>
<td>16</td>
<td>33</td>
<td>51</td>
</tr>
</tbody>
</table>

Father’s Education
The fathers in the study were found generally more educated than the mothers (Table 3). The majority of the Rural area fathers (70%) and a substantive percentage of the Urban Slum fathers (45.7%) were illiterate.

As regards occupation, all the mothers in the Rural area, Urban slum and 88% in the Upper Middle class were housewives. Only 12% of the mothers belonging to the Upper Middle class were employed (Table 4).

### Table 4: Mother’s & father’s occupation

<table>
<thead>
<tr>
<th></th>
<th>Study Areas</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural area</td>
<td>Urban Slum</td>
<td>Upper Middle Class</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n=44</td>
<td>n=46</td>
<td>n=33</td>
<td>n=123</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Mother’s Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewife/ Low Level</td>
<td>44</td>
<td>100.0</td>
<td>46</td>
<td>100.0</td>
<td>29</td>
<td>88.0</td>
<td>119</td>
<td>96.7</td>
<td></td>
</tr>
<tr>
<td>Mid Level</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>High Level/ Teachers</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>4</td>
<td>12.0</td>
<td>4</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>Father’s Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Level</td>
<td>33</td>
<td>75.0</td>
<td>28</td>
<td>60.9</td>
<td>0</td>
<td>0.0</td>
<td>61</td>
<td>49.6</td>
<td></td>
</tr>
<tr>
<td>Mid Level</td>
<td>9</td>
<td>20.5</td>
<td>16</td>
<td>34.8</td>
<td>1</td>
<td>3.1</td>
<td>26</td>
<td>21.1</td>
<td></td>
</tr>
<tr>
<td>High Level</td>
<td>2</td>
<td>4.5</td>
<td>2</td>
<td>4.3</td>
<td>32</td>
<td>96.9</td>
<td>36</td>
<td>29.3</td>
<td></td>
</tr>
</tbody>
</table>

For fathers, the main occupations were farming in the Rural area (low level), carpentry and masonry (midlevel), and small scale businesses like shopkeepers in Urban Slum. In the Upper Middle class, majority of the fathers were landowners, businessmen, teachers, lawyers etc. (Table 4).

The mean maternal age in the different study groups is shown in Table 5. The Rural area mothers were found older than Urban Slum and Upper Middle class mothers.
The average family size was between 7.5 to 8.3 persons in the Rural area and Urban Slum whereas in the Upper Middle class the average family size was considerably smaller and so was the average number of children below the age of 15.

Table 5: Family composition

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Rural area</th>
<th>Urban Slum</th>
<th>Upper Middle Class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=44</td>
<td>n=46</td>
<td>n=33</td>
<td>n=123</td>
</tr>
<tr>
<td>Family Composition</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Maternal Age (Years)</td>
<td>30.1</td>
<td>25.8</td>
<td>26.4</td>
<td>26.4</td>
</tr>
<tr>
<td>Average family size (No. of Persons)</td>
<td>8.3</td>
<td>7.5</td>
<td>5.5</td>
<td>7.1</td>
</tr>
<tr>
<td>No. of Children</td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>First born Child</td>
<td>6</td>
<td>13.6</td>
<td>4</td>
<td>8.7</td>
</tr>
<tr>
<td>1-4 Children</td>
<td>22</td>
<td>50.0</td>
<td>34</td>
<td>3.9</td>
</tr>
<tr>
<td>&gt;4 Children</td>
<td>16</td>
<td>36.4</td>
<td>8</td>
<td>17.4</td>
</tr>
</tbody>
</table>

Table 6 shows data about Housing Standard and Sanitary Conditions respectively. In the Rural area some of the houses were made of mud (36.4%) and the rest were made of bricks. Where as in all other areas houses were made of bricks.

Table 6: Housing standard

<table>
<thead>
<tr>
<th>Housing Standard</th>
<th>Rural area</th>
<th>Urban Slum</th>
<th>Upper Middle Class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=44</td>
<td>n=46</td>
<td>n=33</td>
<td>N=123</td>
</tr>
<tr>
<td>Types of Houses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bricks</td>
<td>28</td>
<td>63.6</td>
<td>46</td>
<td>100.0</td>
</tr>
<tr>
<td>Mud</td>
<td>16</td>
<td>36.4</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Room/House (Mean)</td>
<td>1.8</td>
<td>2.2</td>
<td>5.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Person/Room (Mean)</td>
<td>5.8</td>
<td>4.2</td>
<td>1.2</td>
<td>3.4</td>
</tr>
</tbody>
</table>

In the Rural area, the main sources of water supply were wells and manually operated pumps, where as in Urban Slum tap water was available. The source of water was either owned by an individual family or by a small community as a whole. More than 97% of the families had access to water supply in the two poor areas (Table 7). Sharing of the water source with other
families was common both in the Rural area (1-5 families) and in the Urban Slum (1-30 families). Baths were available to 47.3% of the families in the Rural area, 93.5% of the Urban Slum families and to all the families of Upper Middle class. Lavatories were not found to be common in the Rural area (2.3%) but more than 97% had such facilities in the urban slum. Less than 48% of the houses in the Rural area had proper ventilation (at least one fresh air inlet in addition to the door). In the urban slum more than 80% of the houses had proper ventilation. All the Upper Middle class families were living in brick houses and had access to all hygienic and civic facilities (Table 7).

Table 7: Sanitary condition

<table>
<thead>
<tr>
<th>Sanitary Conditions</th>
<th>Rural area</th>
<th>Urban Slum</th>
<th>Upper Middle Class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>f</td>
<td>%</td>
<td>f</td>
<td>%</td>
</tr>
<tr>
<td>Type of Water Supply</td>
<td>43</td>
<td>97.7</td>
<td>45</td>
<td>97.8</td>
</tr>
<tr>
<td>Bath</td>
<td>21</td>
<td>47.3</td>
<td>43</td>
<td>93.5</td>
</tr>
<tr>
<td>Lavatory</td>
<td>1</td>
<td>2.3</td>
<td>45</td>
<td>97.8</td>
</tr>
<tr>
<td>Ventilation</td>
<td>21</td>
<td>47.7</td>
<td>37</td>
<td>80.4</td>
</tr>
</tbody>
</table>

INDICES FOR SOCIOECONOMIC STANDARD AND HOUSING CONDITIONS

For further analysis two indices were made (Table 8), one for the family socioeconomic standard and the other for the housing & sanitary conditions. (Hagekull, Nazir, Jalil, & Karlberg 1993)

The demographic variables were as follows:

**Socioeconomic Index:**
- Monthly Income
- Maternal Education
- Father’s Education
- Father’s Occupation

**Housing Standard Index:**
- Type of House
- Crowding (Persons/ room)
- Type of Water supply
- Facility of Bath available
- Facility of lavatory available
- Ventilation

Data where then collected from the study areas and analyzed according to the objectives of the study.

These variables described the socioeconomic standard (monthly income), parent's educational level (illiterate, 5 years of formal schooling, >5 years of formal schooling), occupational status (low, midlevel, high) and housing conditions (house type, person/room, water supply, bath, lavatory, ventilation). For details about scale steps, see table 10 &11.

Based on the total data the homogeneity coefficient for the socioeconomic index was 0.87 and for the housing conditions index the coefficient was 0.80. Excluding the upper middle class the correlation coefficient between the two indices was 0.51.

**Table 8: Socioeconomic and housing standard indices**

<table>
<thead>
<tr>
<th>Study Areas</th>
<th>Socioeconomic Index</th>
<th>Housing Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Rural n=44</td>
<td>0.92 1.10</td>
<td>3.95 2.10</td>
</tr>
<tr>
<td>Urban Slum n=46</td>
<td>3.70 2.40</td>
<td>7.80 1.80</td>
</tr>
<tr>
<td>Upper middle class n=33</td>
<td>7.80 0.40</td>
<td>11.00 0.00</td>
</tr>
</tbody>
</table>

Descriptive data for the two indices are shown in Table 8. Concerning the socioeconomic standard visual comparison between the study areas suggested a large variability. It also showed that the housing, sanitary and socioeconomic standards were much lower in the Rural area as compared to the Urban Slum.

Regarding the demographic variables, the overall comparison between Rural area and Urban Slums suggested that the Urban Slum families had somewhat better economic conditions as compared to the Rural area families. The parental educational level in the Urban Slum was
higher than in the Rural area parents. More fathers had midlevel and high-level occupations in the Urban Slum as compared to the Rural area families.

**PROCEDURE**

**Study 1: Longitudinal Study:**

Mothers of the longitudinal study were interviewed according to structured questionnaires at four points in time. All interviews were carried out by the same person (R.N.) to maximize maternal cooperation.

<table>
<thead>
<tr>
<th>Table:12 Time Schedule For Interviews/ Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before birth 8th month of pregnancy</td>
</tr>
</tbody>
</table>

**At 8 months of pregnancy,** information about demographic variables (education, occupation, income, housing and sanitary conditions) and certain psychological variables (maternal intention and family opinion about breastfeeding and the mother's previous experience of breastfeeding) and maternal temperament (traits) dimensions was recorded.

**Within one month after childbirth,** the mothers were interviewed about their temperamental dimensions, feeding behaviour, their experiences of satisfaction with breastfeeding, about stress producing factors and social support (from husband and other family members). In this second interview, 123 mothers were involved as six mothers from the Rural area, four from the urban slum and 17 from the upper middle class left the study due to different reasons (Table 1). The babies born during the study are shown in Table 1 according to their sex.

**When the child was 9 month old,** mothers were interviewed for maternal temperament dimensions irrespective of the fact that whether the child was breastfed or not.

**Finally,** the mothers were interviewed at the time of termination of breastfeeding, whenever it occurred, during the follow-up period which lasted until the infant was 24 months of age. The researchers obtained knowledge about mode of feeding from the records of the monthly visits
paid to all families. At this interview, information was recorded about duration of breastfeeding and the reasons for terminating breastfeeding.
MEASURES

Study-I

During the house to house survey expectant mothers were interviewed individually before child birth to obtain the demographic information as well as information about their time of delivery.

Regarding the longitudinal study for demographic variables, information was collected to form two indices; socioeconomic index and housing standard index for further analysis as follows:

For homogeneity analysis of the index items alpha coefficients were calculated. These indices have already been successfully tested on Pakistani population (Hagekull et al, 1993).

DEMOGRAPHIC VARIABLES:

Socioeconomic Index: sum of the demographic variables, family monthly income, maternal education and parental occupation (all 3 step-scales: $\alpha=0.87$).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Monthly Income/Capita Rs.</td>
<td></td>
</tr>
<tr>
<td>&gt;12000</td>
<td>2</td>
</tr>
<tr>
<td>5000-12000</td>
<td>1</td>
</tr>
<tr>
<td>&lt;5000</td>
<td>0</td>
</tr>
<tr>
<td>2.Maternal Education</td>
<td></td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>2</td>
</tr>
<tr>
<td>=5 years</td>
<td>1</td>
</tr>
<tr>
<td>&lt;5 years</td>
<td>0</td>
</tr>
<tr>
<td>3.Paternal Education</td>
<td></td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>2</td>
</tr>
<tr>
<td>=5 years</td>
<td>1</td>
</tr>
<tr>
<td>&lt;5 years</td>
<td>0</td>
</tr>
<tr>
<td>4.Paternal Occupation</td>
<td></td>
</tr>
<tr>
<td>high status</td>
<td>2</td>
</tr>
<tr>
<td>middle status</td>
<td>1</td>
</tr>
<tr>
<td>low status</td>
<td>0</td>
</tr>
<tr>
<td>Highest Socioeconomic Status</td>
<td>8</td>
</tr>
</tbody>
</table>

Housing standard Index: sum of the following demographic variables ($\alpha=0.80$) crowding (person/room), house type, water supply, bath and lavatory facilities (all 3-step scales), and ventilation (2-step scale).
Table 11: Scoring system for housing standard index

<table>
<thead>
<tr>
<th>Variable</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. House Type</td>
<td></td>
</tr>
<tr>
<td>Brick</td>
<td>2</td>
</tr>
<tr>
<td>Mud</td>
<td>1</td>
</tr>
<tr>
<td>tent/straw</td>
<td>0</td>
</tr>
<tr>
<td>2. Crowding (Person/Room)</td>
<td></td>
</tr>
<tr>
<td>&lt;3 p/r</td>
<td>2</td>
</tr>
<tr>
<td>3-4 p/r</td>
<td>1</td>
</tr>
<tr>
<td>&gt;4 p/r</td>
<td>0</td>
</tr>
<tr>
<td>3. Water Supply</td>
<td></td>
</tr>
<tr>
<td>not shared</td>
<td>2</td>
</tr>
<tr>
<td>Shared</td>
<td>1</td>
</tr>
<tr>
<td>no supply</td>
<td>0</td>
</tr>
<tr>
<td>4. Bath</td>
<td></td>
</tr>
<tr>
<td>not shared</td>
<td>2</td>
</tr>
<tr>
<td>Shared</td>
<td>1</td>
</tr>
<tr>
<td>no access</td>
<td>0</td>
</tr>
<tr>
<td>5. Lavatory</td>
<td></td>
</tr>
<tr>
<td>not shared</td>
<td>2</td>
</tr>
<tr>
<td>Shared</td>
<td>1</td>
</tr>
<tr>
<td>no access</td>
<td>0</td>
</tr>
<tr>
<td>6. Ventilation</td>
<td></td>
</tr>
<tr>
<td>Windows</td>
<td>1</td>
</tr>
<tr>
<td>no windows</td>
<td>0</td>
</tr>
<tr>
<td>Highest Housing Standard</td>
<td>11</td>
</tr>
</tbody>
</table>
PSYCHOLOGICAL VARIABLES

Study-I

Psychological variables were measured using scales for family opinion, infant feeding pattern, maternal intentions, previous feeding experience, initial infant feeding pattern, breastfeeding satisfaction, social support, stress producing variables and duration of breastfeeding. All the following scales had already being successfully used for Pakistani population (Nazir, Hag ekull & Hassan 1993). Regarding scale homogeneity analyses, alpha coefficients of each scale was calculated and is mentioned with each respective scale.

**Family opinion scale:** mean scores; what is the opinion of your husband about breastfeeding, what is the opinion of your family females about breastfeeding (both 3-step scale; 1=against, 2=no opinion, 3=favor; α=0.70).

**Maternal intention regarding feeding pattern:** the mother’s preference about feeding pattern (1=bottle feeding, 2=partial breastfeeding, 3=almost exclusive breastfeeding).

**Maternal previous experience scale:** duration of breastfeeding (in months) of the previous born child.

**Initial feeding pattern:** 1=partial breastfeeding (breast milk +fresh milk or commercial formula), 2=almost exclusive breastfeeding (breastfeeding +non nutritive supplement).

**Breastfeeding satisfaction scale:** mean score of the following five items (all 4-step scales): feelings of satisfaction, boredom, embarrassment, discomfort while breastfeeding and a wish to stop breastfeeding (α =0.63). Low values indicated low satisfaction with breastfeeding.

**Social support scale:** mean of two items asking about the quality of relationships with husband and other family members (both with 4-step scales: 1=bad, 2=bad to some extent, 3=good to some extent, 4=good: α=0.96).

**Stress scale:** homogeneity analyses indicated that three scales for measuring stress could be constructed. Two single items were also used yielding altogether five measures of potential stressors. They were **family discord** (mean of two items covering domestic and other family members problems; 1=no problem, 2=some problem, 3=many problems, 4=lot of problems: α =0.70), **sibling behaviour** (mean of two items measuring sibling’s fussiness and teasing because of newborn; 1=none, 2=some, 3=much, 4=lot of fussiness/teasing; α=0.93), **increased workload** (mean of three items asking for increase in household responsibilities, work related to the newborn and feeling of tiredness; 1=no, 2=to some extent, 3=yes to some extent, 4=yes a lot;
α=0.61), the single item **worries about the newborn’s health**; 1=none, 2=some, 3=much, 4=lot of), and **possibility for day time rest**; (1=yes, 2=to some extent, 3=very little, 4=none).

**Breastfeeding duration:** To register the actual duration of breastfeed mother child pair was followed for two years and information was recorded.

**BREASTFEEDING PATTERN**

Regarding breastfeed pattern, for further analysis mothers were divided into following two groups according to their mode of infant feeding.

**Almost exclusive breastfeeding:** mothers who were giving breast (human) milk only or plain water in addition to breast milk.

**Partial breastfeeding:** mothers who were giving breast (human) milk and other foods – supplementary feed of animal milk or commercial formula with or without semisolids, sugar/glucose water etc..
THORNDIKE DIMENSIONS OF TEMPERAMENT (TDOT)

The actual TDOT scale is in English, it was not possible to administer the test as such as majority of our study population is not conversant in English and in the field situation to translate it in local dialect and also keep the standard of language and concept. Therefore, to overcome this problem following steps were taken to make it possible to administer the test in a standardized state. The TDOT test was then translated into easily understandable Urdu language and was tested through back translation. Validation was done in the following manner.

1. Original TDOT test was translated into the Urdu language. Care was taken to keep the original essence of the items in the translation.

2. 20 individuals were selected knowing both English and Urdu languages. 10 out of these 20 were first given the Urdu version, while the remaining 10 were given the English version first. The answers were scored according to the standard method given in the TDOT test manual.

3. After the interval of one week, a change over of the two groups of individuals was done, i.e. the 10 individuals who received the Urdu version first were given the English version and the remaining 10 individuals who received the English version first were given the Urdu version. Re-scoring was done to find out the differences, if any among the scores of the same individuals.

4. Chi-square test was applied to find out the significant difference between the scores of the two versions. No significant difference had been found between the scores of the original English TDOT test and in the scores of the translated Urdu version of the test.

The TDOT test had two hundred items representing ten dimensions of temperament and required more than three hours for self administration. Therefore, it was not possible to interview the study sample according to the test.

The problem of the TDOT administration in the field situation especially with illiterates and house wives who were not able to spare that much time for interview was put in front of the
experts. Keeping in view the responses of the translation test sample, the experts strongly felt to keep all the temperament dimensions but decided to reduces the number of items in each dimension and selected those items from each temperament dimension (10 in number) with maximum responses considering both English and Urdu version. As a result, 48 items representing all the ten dimensions were selected to constitute a scheduled questionnaire for the assessment of maternal temperament dimensions (copy of both English and Urdu version attached as appendices).

Homogeneity analyses of each temperament dimension scale indicated that these items representing 10 dimensions could be used as scales for further statistical analysis as maternal temperament dimensions scale. Detail of the Maternal Temperament Dimension scales is given below indicating positive and negative end.

Traits Scale is as follows:-

Table 12: Thorndike Dimensions of Temperament (TDOT)

<table>
<thead>
<tr>
<th>Positive End</th>
<th>Negative End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sociable</td>
<td>Solitary</td>
</tr>
<tr>
<td>Ascendant</td>
<td>Withdrawing</td>
</tr>
<tr>
<td>Cheerful, Objective</td>
<td>Gloomy, Sensitive</td>
</tr>
<tr>
<td>Placid</td>
<td>Irritable</td>
</tr>
<tr>
<td>接受ing</td>
<td>Critical</td>
</tr>
<tr>
<td>Reflective</td>
<td>Practical</td>
</tr>
<tr>
<td>Impulsive</td>
<td>Planful</td>
</tr>
<tr>
<td>Active</td>
<td>Lethargic</td>
</tr>
<tr>
<td>Responsible</td>
<td>Casual</td>
</tr>
<tr>
<td>Tough-Minded</td>
<td>Tender-Minded</td>
</tr>
</tbody>
</table>

Regarding the following ten sub scales, two scales; sociable/solitary and cheerful/Gloomy consists of five item each, other eight scales consists of four items in each scale. Each item has 4 step scale representing the rating level in ascending (yes=1,2,3,4=no) or descending order (yes=4,3,2,1=no). Low score low value, high score high value which can be positive or negative. Homogeneity alpha coefficient of each scale is given with respective scale.

**Sociable/Solitary scale:** consists of the following five items with 4 steps scale of each item ($\alpha=0.98$). You make friends easily, You hate to eat alone (both item 1=no, 2, 3, 4=yes), You
rarely care to be alone, You hesitate to ask strangers for direction or information, You sometimes feel depression for no good reason (all three items 1=yes, 2, 3, 4=no).

**Cheerful (objective)/Gloomy (sensitive) scale:** consist of the following **five** items with 4 steps scale for each \((\alpha=0.59)\). You are cheerful most of the time, You usually feel you have done the right thing, It takes a lot to let you down, You often take things seriously (all four items 1= No, 2,3, 4=yes), Many of your problems have no good solution, (1= yes, 2,3,4=no)

**Following scales consist of four items each with 4 steps in each item.**

**Ascendant/Withdrawing scale:** The following **four** items are included in the scale \((\alpha=0.54)\). You usually argue a point when you are right, You express your opinion even if you disagree with most of the group (both items 1= No, 2,3, 4=yes), You are no good at trying to bargain with someone, You often feel uncomfortable talking to an important person (both items 1=yes, 2,3,4=No),

**Placid/Irritable scale:** The following **four** items are included in the scale \((\alpha=0.56)\). You are considered an even tempered person, You almost never get into a dispute (both items 1= No, 2,3, 4=yes), From time to time you blowup, You are rather likely to take out your annoyance on others (both items 1=yes, 2,3 , 4=No),

**Accepting/Critical scale:** The following **four** items are included in the scale \((\alpha=0.81)\). You believe that most people mean well, You have found that you can trust people, You believe (that) people are basically honest, If you lost your wallet you would expect the finder to return (all item 1= No, 2,3, 4=yes)

**Reflective/Practical scale:** The following **four** items are included in the scale \((\alpha=0.62)\). You are always on the lookout to improve mind, You are always looking for the motive behind people’s mind, You like listening classical music (all three items 1= No, 2,3, 4=yes), You are more interested in what people do than why they do it (1=yes, 2,3,4=No).

**Impulsive/Plan full scale:** The following **four** items are included in the scale \((\alpha=0.48)\). You like to do things on spur of the moment, You seldom do anything without thinking it out ahead of
time (both items 1= No, 2, 3, 4=yes), You follow a plan for saving money regularly, You plan carefully anything that you are going to speak (both items 1=yes, 2,3, 4=No).

**Active/Lethargic scale:** The following **four** items are included in the scale (α=0.55). You like to keep busy when you have leisure time, You naturally do things at a rapid rate (both items 1= No, 2,3, 4=yes), You like to take your time (on a job) at anything you do, You sometime just like to sit and do nothing (both items 1=yes, 2,3, 4=No).

**Responsible/Casual scale:** The following **four** items are included in the scale (α=0.66). You can always be relied upon fully, You rarely forget to do anything you are supposed to do (both items 1= No, 2, 3, 4=yes), You can’t stand to let your work to pileup, You finish your job that you started (both items 1=yes, 2,3,4=No),

**Statistical Analysis/Methods:**

Percentages, frequencies, cumulative frequencies, means, standard deviations, Pearson product moment correlations were used to describe the initial results.

To study relations with initial feeding patterns, independent t-tests were executed between mothers who breastfed partially and mothers who breastfed almost exclusively.

Bivariate correlations were calculated between the predictors and breastfeeding duration & stepwise multiple regression analysis was carried out to explore the independent contribution of the different significant predictors to the explanation of the variance in the breastfeeding duration.

Differences between mothers from different social strata were studied in one-way analysis of variance (ANOVA) for unbalanced designs with Tukey’s HSD as the a posteriori test.

The highest significance level accepted for the overall F-values and the chi-square test was p<0.01. The level for the Tukey’s tests was set to p<0.05. The p values for the overall F-tests will be reported in the tables.
Method: Study-II

Interviews of mothers to see the Influence and support of health service providers on mothers of new born babies about the initiation of breastfeeding decision (cross sectional study):

Study population:

A cross sectional study was conducted at a teaching Government Hospital which caters to 30% of general population and more than 80% of the government servants in the area.

Sample:

30 women who delivered a normal healthy child of >37 weeks of gestation in the Gynecological ward, where mothers and infants were together constituted the study sample. Interviews were conducted during their hospital stay.

Mothers of infants with congenital defects, with conditions where breastfeeding was not encouraged or with clinical problems during first 24 hours where admission to neonatal unit were recommended were excluded from study.

Measures:

Two structured questionnaire were constructed based on the objectives of the study; one for mothers and the other for the breastfeeding perspectives of Gynecologists and Pediatricians of the hospital. During face to face interview with mothers, following information was collected.

Information collected from mothers:

Demographic information, Mode of previous and present infant feeding, Planned Duration for breastfeeding of the present child, Reasons for breastfeeding, Reasons for bottle feeding, Family trend regarding Breastfeeding, Social/family support of family females regarding breastfeeding.
Regarding the demographic information (Table 13), the mean age of the mothers was 27.5 years with the range between 20 to 25 years, parity ranges between 0 to 4 children and all study participants were housewives of government servants. The maximum education of the mothers was 10 years of schooling whereas father’s education ranges between 10 to 14 years of schooling. The monthly income of the family ranges between Rs. 5000/- to Rs.12000/-. 

Mode of Feeding at the time of interview indicates that 50% mothers were exclusively Breastfeeding within 24 hours of postpartum whereas 30% of mothers were giving mixed feeding (Breastfeeding + supplement). Only 20% mothers were completely Bottle-feeding at the time of interview (Table 14).

Considering the previous feeding experience of the same group of mothers in comparison to the present breastfeeding situation (Table 14), 60% of the mothers expressed to have the previous experience of exclusive breastfeeding as compared to the present 50% of the mothers who were exclusively breastfeeding.
Method: Study-III:-

Interviews of Health care providers

Sample:
30 medical doctors including Gynecologists and Pediatricians of the same hospital were also interviewed to find out their perspective and type of technical support provided to pregnant women at the time of antenatal, natal and postnatal visits.

Measures:
Structured interview questionnaire was used to collect the information.

Procedure:

Information collected from Gynecologists/Pediatricians:
Background Information, Views of Gynecologists/Pediatricians about Importance of breastfeeding, Gynecologists/Pediatricians opinion about the preferences of their clients about breastfeeding, Gynecologists/Pediatricians recommendation for Bottle feeding, Prepare Clients for breastfeeding, Opinion about Type of mothers who usually Breastfeed, Your Belief on Exclusive Breastfeeding as a natural way of birth spacing.

Background Information:
All the Gynecologists & Pediatricians interviewed had practical working experience of 3 to 30 years. It includes senior and junior medical practitioners of the Gynecology ward. All the medical practitioners were married and having number of children among 1 to 4.

Table 15: Background information of Gynecologists/Pediatricians:

<table>
<thead>
<tr>
<th>All were female medical practitioners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work experience:</td>
</tr>
<tr>
<td>No. of children:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mode of feeding of their own children:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breastfeeding</td>
</tr>
<tr>
<td>Bottle feeding</td>
</tr>
</tbody>
</table>
As given in Table 15, 80% of the medical practitioners expressed that they were partially breastfeeding their children, mostly mixed feeding and only 20% expressed that they totally bottle feed their children because of the breast problems like engorgement, infection, pain etc.
RESULTS

Study 1

The results of the study have been presented in the form of descriptive statistics regarding initial feeding pattern and actual duration of breastfeeding. Relationships between demographic variables, psychological variables and maternal temperament dimensions with initial feeding pattern and duration of breastfeeding have been presented in the form of correlations along with level of significance according to the individual study areas and in combination as well.

INITIAL FEEDING PATTERN

Regarding initial feeding pattern of the longitudinal study, it was found that irrespective of the area, more than 64.3% (79 infants) of the mothers were breastfeeding almost exclusively (breast milk with or without plain water) at the time of the first interview after child birth 35.7% (44 infants) were breast feeding partially i.e. breast milk along with nutrient supplements like sugar/glucose water, other milk, honey etc. (Fig 2).

Fig 2: Breast feeding pattern at one month of infant age (number of children)

Table 16: Breast feeding pattern at one month of infant age according sex of child
More than 42% of Upper Middle class mothers were almost exclusively breastfeeding at the time of the first interview within one month after birth of the child, while 86% of the mothers in the rural area and about 59% of the mothers in the Urban Slum were almost exclusively breastfeeding.

No significant difference has been found between the mothers of Urban Slum and Upper Middle class regarding the initial feeding pattern but a significant difference was found between the Rural area mothers and the mothers of the both the other two areas $\chi^2(2,120)=47.72, p<0.001$, regarding initial feeding pattern (Table 16).
DURATION OF BREASTFEEDING

The duration of breastfeeding in the different groups is shown in Table 17. In the Rural area almost exclusive breastfeeding (except for one mother) for at least the first six months was seen. About 60% of the rural area mothers were almost exclusively breastfeeding even at 18 months of child age, while in the Urban Slum and Upper Middle class more than 65% had terminated breastfeeding when the child was 18 months of age.

Table 17: Pattern of Duration of breastfeeding in three areas

No significant difference was found between the mothers of Urban Slum and Upper Middle class regarding the duration of breastfeeding but a statistically significant difference was found between the Rural area mothers and the mothers of both the other two areas $\chi^2 (2,120)=116.44$, $p<0.001$ in this regard (Table 17).
Visual comparison suggested that majority of the Rural area mothers breastfed their infants almost exclusively $F(2,120)=8.64$, $p<0.001$, and for longer duration $F(2,120)=5.54$, $p<0.01$, as compared to the urban slum mothers and majority of the upper middle class mothers who breastfed their infants partially and for shorter duration (Table 18). Maternal accepting, practical, rather placid withdrawing responsible cheerful sensitive attitude also complement her attitude towards breastfeeding for longer duration.

**Table 18:** One-Way Analysis of Variance (ANOVA) for difference in areas regarding feeding pattern, duration of breastfeeding (BF), maternal temperament and stress factors.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Rural area</th>
<th>Urban Slum</th>
<th>Upper Middle Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=44</td>
<td>n=46</td>
<td>n=33</td>
</tr>
<tr>
<td></td>
<td>M  SD</td>
<td>M  SD</td>
<td>M  SD</td>
</tr>
<tr>
<td>Feeding Pattern</td>
<td>2.86 0.35</td>
<td>2.58 0.50</td>
<td>2.44 0.50</td>
</tr>
<tr>
<td>Duration of Breast Feeding</td>
<td>4.67 1.35</td>
<td>3.79 0.74</td>
<td>3.63 1.83</td>
</tr>
<tr>
<td>Maternal Temperament Factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accepting/Critical</td>
<td>2.26 0.57</td>
<td>1.82 0.67</td>
<td>2.74 0.74</td>
</tr>
<tr>
<td>Reflective/Practical</td>
<td>2.71 0.56</td>
<td>2.87 0.65</td>
<td>3.28 0.68</td>
</tr>
<tr>
<td>Placid/Irritable</td>
<td>2.57 0.93</td>
<td>2.81 0.50</td>
<td>3.07 0.81</td>
</tr>
<tr>
<td>Ascendant/Withdrawing</td>
<td>3.15 0.54</td>
<td>3.26 0.45</td>
<td>2.87 0.52</td>
</tr>
<tr>
<td>Responsible/Casual</td>
<td>3.02 0.57</td>
<td>3.26 0.52</td>
<td>3.45 0.45</td>
</tr>
<tr>
<td>Cheerful/Objective</td>
<td>3.27 0.48</td>
<td>3.58 0.39</td>
<td>3.53 0.48</td>
</tr>
<tr>
<td>Stress Factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health of child</td>
<td>1.39 0.42</td>
<td>1.62 0.64</td>
<td>1.36 0.45</td>
</tr>
<tr>
<td>Fears regarding child</td>
<td>2.79 0.54</td>
<td>2.75 0.57</td>
<td>2.44 0.87</td>
</tr>
</tbody>
</table>

+ positive statistical tendency, *$p<0.05$, **$p<0.01$, ***$p<0.001$, n=123
SOCIOECONOMIC STATUS AND HOUSING CONDITIONS INDICES

Regarding establishment of the initial feeding pattern and duration of breastfeeding, significant negative correlations have been found between the two indices and initial feeding pattern based on pooled data. Mothers having lower socioeconomic status and living in poor housing conditions, breastfed almost exclusively to a greater extent and for a longer period of time than mothers with higher socioeconomic status and better housing conditions (Tables 19).

Table 19: Correlation between Demographic indices related to establishment of the initial feeding pattern and duration of breastfeeding

<table>
<thead>
<tr>
<th>Demographic Index</th>
<th>Initial Feeding Pattern</th>
<th>Duration of Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socioeconomic Status</strong></td>
<td>-0.35***</td>
<td>-0.24**</td>
</tr>
<tr>
<td><strong>Housing and Sanitary Conditions</strong></td>
<td>-0.38***</td>
<td>-0.32***</td>
</tr>
</tbody>
</table>

**p<0.01, *** p<0.001, N=123

PSYCHOLOGICAL FACTORS

A trend of positive relations were found between psychological variables of maternal positive previous breastfeeding experience, breastfeeding satisfaction during the first month, social support in the form of positive attitude of the family towards breastfeeding and initial feeding pattern (Table 20).

Table 20: Psychological factors related to the establishment of initial feeding pattern and duration of breastfeeding

<table>
<thead>
<tr>
<th>Psychological Factors</th>
<th>Initial Feeding Patterns</th>
<th>Duration of Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maternal Previous Breast Feeding Experience</strong></td>
<td>0.19</td>
<td>0.34***</td>
</tr>
<tr>
<td><strong>Maternal Breast Feeding Satisfaction</strong></td>
<td>0.22</td>
<td>0.22*</td>
</tr>
<tr>
<td><strong>Stress Factors/Social Support</strong></td>
<td>0.16</td>
<td>0.24**</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.01, *** p<0.001      N=123
A significant positive relationship had been found between the psychological factors including maternal Previous Breastfeeding Experience, Maternal Breast Feeding Satisfaction and Social Support with the duration of breastfeeding (Table 20).

Analysis of the Stress Scale consisting of five items indicate no significant relationship between stress scales variables and establishment of initial feeding pattern/area as shown in Table 21. In the Rural area increased work load and sibling behaviour had an inverse relation with initial feeding pattern whereas in upper middle class family opinion and sibling behaviour along with family disputations has an inverse relation with the initial feeding pattern.

Table 21: Relationship between stress scales, establishment of the initial feeding pattern and duration of breastfeeding by area of living

<table>
<thead>
<tr>
<th>Stress Scales</th>
<th>Rural area</th>
<th>Urban Slum</th>
<th>Upper Middle Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$n=44$</td>
<td>$n=46$</td>
<td>$n=33$</td>
</tr>
<tr>
<td></td>
<td>$r$</td>
<td>$r$</td>
<td>$r$</td>
</tr>
<tr>
<td>Initial feeding pattern</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worries about the newborn’s health</td>
<td>0.15</td>
<td>0.04</td>
<td>0.08</td>
</tr>
<tr>
<td>Increased workload</td>
<td>-0.21</td>
<td>0.23</td>
<td>0.05</td>
</tr>
<tr>
<td>Sibling behavior</td>
<td>-0.06</td>
<td>0.15</td>
<td>-0.12</td>
</tr>
<tr>
<td>Family opinion</td>
<td>0.22</td>
<td>0.12</td>
<td>-0.18</td>
</tr>
<tr>
<td>Family discord</td>
<td>0.00</td>
<td>0.20</td>
<td>-0.04</td>
</tr>
<tr>
<td>Duration of Breastfeeding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worries about the newborn’s health</td>
<td>0.13</td>
<td>-0.21</td>
<td>-0.08</td>
</tr>
<tr>
<td>Increased workload</td>
<td>0.27</td>
<td>-0.06</td>
<td>-0.001</td>
</tr>
<tr>
<td>Sibling behavior</td>
<td>-0.22</td>
<td>0.08</td>
<td>-0.07</td>
</tr>
<tr>
<td>Family opinion</td>
<td>0.28+</td>
<td>-0.01</td>
<td>-0.30</td>
</tr>
<tr>
<td>Family discord</td>
<td>0.00</td>
<td>0.24+</td>
<td>0.18</td>
</tr>
</tbody>
</table>

+ positive statistical tendency

The relationship between stress producing factors and duration of breastfeeding is shown in Table 21. In the Urban Slum a positive statistical tendency was found between the stress producing factor family discord and duration of breastfeeding; greater the stress produced by family disputes, longer will be the period of breastfeeding.
In the Rural area a positive tendency for significant correlation is seen between family support and duration of breastfeeding (Table 21). On the other hand a negative tendency for the significant relationship in the Upper Middle class suggests a decrease in duration of breastfeeding with the increased family support in this regard.

No other significant correlation was found between the stress scales and duration of breastfeeding while comparing study areas in this regard.

MATERINAL TEMPERAMENT DIMENSIONS

Concerning the establishment of the initial feeding pattern significant positive correlation with maternal temperament dimensions suggests that if mother possesses the temperament trait RES (responsible); is reliable, certain to complete tasks on time, even a little compulsive and ACC (accepts); tends to think best of people, accepts them at face value, and to accept altruism to prevail, then it is likely that she will choose to breastfeed almost exclusively (Table 22).

Table 22: Relation between maternal temperament dimensions establishment of initial feeding pattern and duration of breastfeeding

<table>
<thead>
<tr>
<th>Maternal Temperaments</th>
<th>Initial Feeding Pattern</th>
<th>Duration of Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible-Casual (RES)</td>
<td>0.32***</td>
<td>-0.22*</td>
</tr>
<tr>
<td>Accepting-Critical (ACC)</td>
<td>0.24**</td>
<td>-0.18</td>
</tr>
<tr>
<td>Reflective-Practical (REF)</td>
<td>0.17</td>
<td>-0.05</td>
</tr>
<tr>
<td>Impulsive-Planful (IMP)</td>
<td>0.15</td>
<td>-0.13</td>
</tr>
<tr>
<td>Placid-Irritable (PLA)</td>
<td>-0.17</td>
<td>-0.09</td>
</tr>
<tr>
<td>Ascendant-Withdrawing (ASC)</td>
<td>-0.17</td>
<td>0.06</td>
</tr>
</tbody>
</table>
There is also a positive trend towards significant relationship regarding establishment of initial feeding pattern with maternal temperament dimensions like REF (reflective); interested in ideas, in abstraction, in discussion and speculation, in knowing for its own sake and IMP (impulsive); carefree, happy go lucky, ready to do things at a moment’s notice etc.(Table 22).

An inverse trend (Table 22) towards significant relationship was found between initial feeding pattern and two maternal temperamental dimension which are PLA (placid/irritable); short tempered, annoyed or irked by a number of things, inclined to “blow her top” and ASC (ascendant/ withdrawing); tends to avoid personal conflict, to dislike being in the public eye, to avoid taking the initiative in relation to others, to accept being imposed upon.

No measurable significant relationship was found between the maternal temperament dimensions ‘ACT’ (active), ‘SOC’ (social), ‘CHE’ (cheerful) and T-M (tender minded-toughminded) with the establishment of initial feeding pattern as shown in Table 22.

Significant negative relationship was found between duration of breastfeeding and maternal temperamental dimension ‘RES’; greater the casual nature of the mother, longer the breastfeeding period. There was also a statistical tendency for maternal temperamental dimension ‘ACC’ to be correlated with length of breastfeeding; greater the consciousness of the need, longer the duration of breastfeeding (Table 22).

No significant relationship was found between other maternal temperamental dimensions and duration of feeding pattern.
Concluding the maternal temperamental dimensions regarding the establishment of initial feeding pattern the overall results suggested that the mothers who were responsible, accepting, reflective, impulsive but at the same time were irritable and withdrawing, breastfed almost exclusively right from the beginning. Casual (RES) and Critical (ACC) temperamental dimensions played an important role in the enhancement of the duration of breastfeeding (Table 22).

Regarding the establishment of the initial feeding pattern in the rural area, a significant negative correlation was found with the temperamental dimension ACC; that if the mother had a critical attitude she would breastfeed almost exclusively.

In the urban Slum, ‘RES’ (casual) and ‘ASC’ (ascendant) temperamental dimensions had a significant relationship with the establishment of initial feeding pattern.

In the Upper Middle class it was found that the mothers who are critical and are not very sociable breastfeed almost exclusively as there is a significant negative correlation between maternal temperament dimensions ACC & SOC and establishment of initial feeding pattern (Table 23).

Table 23: Relation between maternal temperament dimensions and establishment of initial feeding pattern by the areas of living

<table>
<thead>
<tr>
<th>Temperament Dimensions</th>
<th>Initial Feeding Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural area</td>
</tr>
<tr>
<td></td>
<td>n=44</td>
</tr>
<tr>
<td>Responsible/Casual</td>
<td>(RES)</td>
</tr>
<tr>
<td>Accepting/Critical</td>
<td>(ACC)</td>
</tr>
<tr>
<td>Reflective/Practical</td>
<td>(REF)</td>
</tr>
<tr>
<td>Impulsive/Planful</td>
<td>(IMP)</td>
</tr>
<tr>
<td>Placid/Irritable</td>
<td>(PLA)</td>
</tr>
<tr>
<td>Ascendant/Withdrawing</td>
<td>(ASC)</td>
</tr>
<tr>
<td>Active/Lethargic</td>
<td>(ACT)</td>
</tr>
</tbody>
</table>
A significant but negative correlation was found between duration of breastfeeding and ‘ACC’ maternal temperament dimension in the Rural area mothers whereas in the Urban Slum, ‘RES’ maternal temperament dimension had a significant negative relationship with the longer period of breastfeeding (Table 24).

Table 24: Correlation between maternal temperament dimensions and duration of breast feeding by area of living

<table>
<thead>
<tr>
<th>Maternal Temperament</th>
<th>Duration of Breast Feeding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural area n=44</td>
</tr>
<tr>
<td>Responsible/Casual (RES)</td>
<td>-0.13</td>
</tr>
<tr>
<td>Accepting/Critical (ACC)</td>
<td>-0.32*</td>
</tr>
<tr>
<td>Reflective/Practical (REF)</td>
<td>-0.02</td>
</tr>
<tr>
<td>Impulsive/Planful (IMP)</td>
<td>0.06</td>
</tr>
<tr>
<td>Placid/Irritable (PLA)</td>
<td>0.02</td>
</tr>
<tr>
<td>Ascendant/Withdrawing (ASC)</td>
<td>-0.08</td>
</tr>
<tr>
<td>Active/Lethargic (ACT)</td>
<td>-0.06</td>
</tr>
<tr>
<td>Sociable/solitary (SOC)</td>
<td>-0.01</td>
</tr>
<tr>
<td>Cheerful, Objective/Gloomy, Sensitive (CHE)</td>
<td>0.004</td>
</tr>
<tr>
<td>Tenderminded/Toughminded (T-D)</td>
<td>-0.07</td>
</tr>
</tbody>
</table>

*p<0.05,

No significant relationship was found between maternal temperament dimensions and duration of breastfeeding regarding the Upper Middle class mothers.
Overall results regarding the significant relationships while comparing the areas suggest that in the Rural area maternal temperament dimension ACC (Critical) played an important role in breastfeeding almost exclusively and for longer duration whereas in the Urban Slum RES (Casual) and ASC is important for almost exclusive breastfeeding and for longer period only Casual temperament dimension is significant.

Considering the establishment of initial feeding pattern all the factors related significantly, whether negatively or positively or had a statistical tendency towards a significant relationship as seen in Table 24. These factors either demographic/social, psychological or individual temperamental dimensions, indicate that for the establishment of almost exclusive breastfeeding right from the beginning, factors like poor living conditions and low socioeconomic status, maternal breastfeeding satisfaction, her previous positive breastfeeding experience, and if there is a positive family support, alongside temperamental traits like responsible, reflective, accepting, impulsive but irritable and at the same time a withdrawing temperament, act as a stimulant in this regard.

Table 25: Demographic, Social and Psychological and Maternal Temperament factors related with the establishment of the initial feeding pattern

<table>
<thead>
<tr>
<th>Factors</th>
<th>Initial Feeding Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>-0.35***</td>
</tr>
<tr>
<td>Housing Standard</td>
<td>-0.38***</td>
</tr>
<tr>
<td><strong>Psychological Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Maternal Previous Breastfeeding Experience</td>
<td>0.19</td>
</tr>
<tr>
<td>Maternal Breastfeeding Satisfaction</td>
<td>0.22</td>
</tr>
<tr>
<td>Stress Factors/Social Support</td>
<td>0.16</td>
</tr>
<tr>
<td><strong>Maternal Temperament</strong></td>
<td></td>
</tr>
<tr>
<td>Responsible/Casual</td>
<td>0.32***</td>
</tr>
<tr>
<td>Accepting/Critical</td>
<td>0.24**</td>
</tr>
<tr>
<td>Reflective/Practical</td>
<td>0.17</td>
</tr>
</tbody>
</table>
Factors such as, demographic/social, psychological, or individual maternal temperament dimensions significantly related with the length of breastfeeding, are listed in Table 26. It was seen that, mothers who adopted almost exclusive breastfeeding pattern right from the beginning, lived in poor housing conditions with poor socioeconomic status but had a good previous breastfeeding experience, had breastfeeding satisfaction and enjoyed a good family support in this regard, possessed Casual but Critical temperament, breastfed for a longer duration (Table 26).

**Table 26: Demographic, psychological and material temperamental factors significantly related with the duration of breastfeeding**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Duration of Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Breastfeeding Pattern</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Demographic Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Socioeconomic Status</td>
<td>0.34***</td>
</tr>
<tr>
<td>Housing Standard</td>
<td>-0.24 *</td>
</tr>
<tr>
<td><strong>Psychological Factors</strong></td>
<td></td>
</tr>
<tr>
<td>Maternal Previous Breastfeeding Experience</td>
<td>0.34***</td>
</tr>
<tr>
<td>Maternal Breastfeeding Satisfaction</td>
<td>0.22*</td>
</tr>
<tr>
<td>Stress Factors/Social Support</td>
<td>0.24**</td>
</tr>
<tr>
<td><strong>Maternal Temperament Dimensions</strong></td>
<td></td>
</tr>
<tr>
<td>Responsible/Casual</td>
<td>0.22*</td>
</tr>
<tr>
<td>Accepting/Critical</td>
<td>0.18*</td>
</tr>
</tbody>
</table>

*p<0.05,**p<0.01, *** p<0.001,N=123

The findings of the longitudinal study indicates that demographic factors/variable has a significant but inverse relationship, whereas psychological factors and maternal temperament dimensions have a positive significant relationship with maternal decisions regarding initial infant feeding pattern and longer duration of breastfeeding and rejects all null hypotheses.
To summarize the relationships of different variables with duration of breastfeeding, regression analysis was carried out to identify the potential predictors (Table 27). It was found that variables which provide significant contributions to the prediction of longer duration of breastfeeding were initial infant feeding pattern, socioeconomic status, housing standard, maternal previous breastfeeding experience, family support and maternal temperament dimensions, $F(13,107)=10.50$, $p<0.001$. These variables explained 40% of the variance in duration of breastfeeding which is quite fair in this regard.

### Table 27: Potential Predictors of Initial Feeding Pattern and Duration of Breastfeeding.

<table>
<thead>
<tr>
<th>Potential Predictors/variables</th>
<th>Initial Feeding pattern</th>
<th>Duration of breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\Delta R^2$</td>
<td>$B$</td>
</tr>
<tr>
<td>Living Area</td>
<td>0.30**</td>
<td></td>
</tr>
<tr>
<td><em>Feeding Pattern</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Duration of BF</em></td>
<td>0.09</td>
<td>0.15</td>
</tr>
<tr>
<td><em>Maternal positive attitude</em></td>
<td>2.19</td>
<td>0.30**</td>
</tr>
<tr>
<td><em>Maternal opinion</em></td>
<td>0.44</td>
<td>0.23*</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>-0.01</td>
<td>-0.07</td>
</tr>
<tr>
<td>Housing standard</td>
<td>-0.06</td>
<td>-0.32*</td>
</tr>
<tr>
<td>Total $\Delta R^2$</td>
<td>0.30**</td>
<td></td>
</tr>
<tr>
<td>$F=$</td>
<td>5.98***</td>
<td></td>
</tr>
</tbody>
</table>

$+$ positive statistical tendency, *$p<0.05$, **$p<0.01$, ***$p<0.001$, df=120
Regarding the Establishment of Initial feeding patterns the result of the study clearly indicates and is in accordance to the TPA theory model that maternal positive personal belief about breastfeeding, her positive accepting attitude towards breastfeeding and responsible behavior leads towards intention of breastfeeding. Normative belief like positive family support and good previous breastfeeding experience also contribute in decision making as well. Low socio-economic status and low housing standard also contribute as control belief in the establishment of breastfeeding as initial feeding pattern in this regard.

Fig 28.
Regarding the duration of breastfeeding while considering the longer duration of breastfeeding, contributing factors include almost exclusive breastfeeding as initial feeding pattern. The behavioral belief along with maternal breastfeeding satisfaction control belief like maternal previous good breastfeeding experience is a contributing factor in it. Low socio-economic status and low housing standard acts as control beliefs and provide direct observation opportunity to the new mothers to breastfeed exclusively and for longer duration. Maternal previous positive breastfeeding experience also positively contributes in this regard. Maternal positive responsible and accepting attitude leads towards longer duration of breastfeeding.

Fig.29
Results

Study-2:

Influence of health service providers on maternal decision for initiation of breastfeeding and its continuation for longer duration was studied against the following parameters.

Information collected from mothers:

Table 28: Planned duration for Breastfeeding of the Present Child

<table>
<thead>
<tr>
<th>PLANNED DURATION</th>
<th>f</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>About 2 Years</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>About 1 Year</td>
<td>3</td>
<td>10%</td>
</tr>
<tr>
<td>About 9 Months</td>
<td>9</td>
<td>30%</td>
</tr>
<tr>
<td>About 6 Months</td>
<td>15</td>
<td>50%</td>
</tr>
<tr>
<td>Don’t Know How Long</td>
<td>3</td>
<td>10%</td>
</tr>
</tbody>
</table>

In response to the planned duration of breastfeeding, 10% of the mothers said that they planned to breastfeed for one year, whereas 30% said that they plan to breastfeed for 9 months and 50% of the mothers expressed that they will breastfeed for at least 6 months. Only 10% mothers said that they don’t know for how long they are going to breastfeed and they were prime para (Table 28).

According to the Fig. 29, highly frequent reason expressed for breastfeeding stated by 56.7% of our sample mothers was that breast milk “good for baby’s health”, convenience “Easy to feed” was expressed by 20% mothers, and more than 13% of the mothers said that “develops strong mother child bonding”. Economical benefits have been expressed by 10% of the mothers. Therefore all mothers should be encouraged and supported to start and continue breastfeeding for longer duration in order to promote good health of their infants.
Fig. 29. Reasons for breastfeeding.

Regarding the benefits of bottle-feeding (Table 30), in our study more than 63.3% mothers conveyed that bottle feeding (other than breast milk) is convenient, as anyone can feed the baby if you want to go to social gatherings, than bottle feeding is good as they don’t want to breastfeed in public or if mother is working etc.. Maternal health problems are expressed by more than 36% mothers is the reason for bottle feeding or in case of “maternal death in child birth”, bottle helps in baby feeding.

Table 30: Reasons for bottle feeding:

<table>
<thead>
<tr>
<th>Reasons for Bottle Feeding</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>19</td>
<td>63.3 %</td>
</tr>
<tr>
<td>Maternal Health Problem</td>
<td>11</td>
<td>36.7 %</td>
</tr>
</tbody>
</table>

N=30
Study-3:

Information collected from Gynecologists/Pediatricians:

Regarding the importance of breastfeeding, Gynecologists & Pediatricians (Table 31) were of the views that breastfeeding is very important for child mental and physical health (7%), as it protect the child from infections byincreasing the immunity of child. Breastfeeding propagate warmth and feeling of security to child (23.3%), Ideal feeding method (6.7%) and its child’s right (6.7%).

Table 31: Gynecologists/Pediatricians views about Importance of breastfeeding:

<table>
<thead>
<tr>
<th>Importance Of Breastfeeding</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Reasons (Good For Child Health)</td>
<td>21</td>
<td>70.0%</td>
</tr>
<tr>
<td>Propagate Warmth And Feeling Of Security To Child</td>
<td>7</td>
<td>23.3%</td>
</tr>
<tr>
<td>Child’s Right</td>
<td>2</td>
<td>6.7%</td>
</tr>
<tr>
<td>Ideal Feeding Method</td>
<td>2</td>
<td>6.7%</td>
</tr>
</tbody>
</table>

N=30 (Since there was more than one view of the practitioners regarding importance of breastfeeding therefore total is more than 100%)

Gynecologists & Pediatricians expressed their opinion that 55% of their clients gave preferences to almost exclusive breastfeeding and 45% clients preferred mixed feeding (Table 31).

Table 32: Gynecologists/pediatricians opinion regarding the preferences of their clients about breastfeeding:

<table>
<thead>
<tr>
<th>Preferences of clients about breastfeeding:</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast feeding</td>
<td>17</td>
<td>57%</td>
</tr>
<tr>
<td>Mixed feeding</td>
<td>13</td>
<td>43%</td>
</tr>
</tbody>
</table>

N=30

As mentioned in Table 32, according to the Gynecologists/pediatricians 57% of there Clients preferred breastfeed as compared to the 43% of their clients who prefer mixed feeding for their children.
Regarding the circumstances in which Gynecologists & Pediatricians recommend for Bottle feeding (Table 33). They expressed that if breastfeeding is a contraindication due to maternal health problems (90.0 %), like congenital problem of breasts, mother died during childbirth, mother using drugs, having insufficient milk because they are not feeling well/healthy etc. Bottle feeding is convenient (10.0 %), if mother is working or have social responsibilities which keeps her away for long hours etc.

<table>
<thead>
<tr>
<th>Reasons for Recommendation of Bottle Feeding</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Health Problems</td>
<td>27</td>
<td>90.0%</td>
</tr>
<tr>
<td>Convenience</td>
<td>3</td>
<td>10.0%</td>
</tr>
</tbody>
</table>

N=30

In response to the question about the client’s preparation for breastfeeding during antenatal visits, 31% health providers conveyed that they talk about the “care of nipples”, 25% expressed that they “counsel their clients for breastfeeding”, 25% health providers said that “nipple stimulation training” is must during antenatal checkups and 19% said that they ask their clients for postnatal visits if they have any problem about “continuation of breastfeeding”.

The maternal characteristics which act as predictors of breastfeeding as reported by Gynecologists & Pediatricians, were the “more mothers belonging to low socioeconomic group breastfeed as compared to high socioeconomic group”. Findings of our study support this observation. It was also found that mothers having knowledge about benefits of breastfeeding also breastfeed either exclusively or partially. Social/family support was also found a strong predictor regarding successful and for longer duration of breastfeeding.

These results indicate the Gynecologists & Pediatricians overall general perspective that mothers belonging to low socioeconomic group have knowledge about benefits of breastfeeding might be because of the supporting tradition of the family about infant feeding or because of
religious influence. Family females are supporting/facilitating young new mothers in daily household chores, in initiation of breastfeeding and most probably in planning to continue breastfeeding for longer duration. They might be accepting breastfeeding as child’s right or religiously suggested mode of infant feeding or might be a birth spacing method.

When Gynecologists & Pediatricians were asked about their belief on exclusive breastfeeding as a natural way of birth spacing, all agreed that exclusive breastfeeding is a natural way of spacing between siblings if practiced day and night on demand for at least first 6 months.
Informal interviews with mothers and health service providers

During the informal interviews mothers were asked to share and express their views about their Plan regarding the Mode of infant feeding i-e breastfeeding, mixed feeding or bottle feeding, expected duration of breastfeeding and factors influencing infant feeding practices.

At the time of interview, 90% mothers expressed that they will breastfeed which can be either exclusively or mixed with supplement feeding. It was observed later on that almost 80% mothers were breastfeeding out of which 50% were breastfeeding exclusively and 30% were partially breastfeeding along with formula milk.

When mothers were questioned about the planned duration of breastfeeding continuation, 50% of them expressed that they plan to continue it for at least six months but were not sure whether it be only breastfeeding or mixed with other milk or semi solids etc.

Obstruction in breastfeeding due to medical reasons:

“I had breast abscess last time, was not able to breastfeed for more than 10 days. At that time I was not told how to manage this problem. Now this time I know how to manage breast problem. I plan to breastfeed for at least 6 months”.

Although there were 30% mothers who said that they are targeting nine months of breastfeeding, and 10% mothers expressed that they will try to continue breastfeeding for at least one year, but all of them were not sure about whether they will be able to manage the continuation of breastfeeding or not because of multiple reasons especially after introducing formula milk or semi solids.

An inverted breast nipple is another reason for not breastfeeding especially for prime gravida, if not identified and taken care during antenatal. One mother was facing the problem of inverted nipples, health providers try to manage this problem but after delivery it needs a lot of extra effort to prepare them to the extent to breastfeed. Her response in this regard was:
“I was not aware of the normal shape of nipples, how do I know its not normal, its very painful, I don’t want to breastfeed”.

**Obstruction in breastfeeding due to social reasons:**

Mothers who expressed that they will adopt the mixed feeding pattern also conveyed that bottle feeding along with breast feeding help them in batter management of their time as they have other responsibilities of household to take care off. They also said that, any other family member can feed the baby with the help of bottle while she is busy in taking care of other matters.

“Mixed feeding is easy because in the day time/morning I have other daily responsibilities to follow as I am living with my in-laws”.

“Breastfeeding is easy for me during night. I don’t have to prepare bottles during night and breastfeeding at night don’t disturb anybody. It is convenient at night, no problem”.

There were only 3 (10%) mothers who expressed that although they knew very well that breastfeeding is very beneficial for health of baby as well as mothers but it embarrasses them especially in front of others. Reason being that as they are living in a joint family system with their in laws, suddenly baby started crying no matter what they are doing or who is sitting there or you are at a shopping place, baby need feed. Feeding the baby at that time in front of those people is so embarrassing.

Although infant breastfeeding in public in rural area and urban slums is quite common and non embarrassing at all for any body but in urban well developed areas especially in shopping areas urban area women belonging to any social class avoid to breastfeed in public.

“No money to pay for breastfeeding, available all the time but you have to carry the baby with you all the time which is a problem”.

“I am not breastfeeding this child, I know, my nurse told me about the benefits of breastfeeding that how good it is for baby. My mother in law can easily feed the baby with the help of bottle while I am doing my household chores or going out for shopping etc.”.

**Obstruction in breastfeeding due to psychological reasons:**
Perceived insufficiency was another factor mentioned by mothers for mixed feeding which motivates them to start supplement feeding along with breastfeeding. These mothers expressed dissatisfaction of the baby even after having feed.

“Baby feels uncomfortable, usually go to sleep after having feed but sleep for very short time and wake up and demand for more milk. I think I don’t have enough milk and baby needs more, my breasts are empty”.

These mothers also expressed that after having top feed babies feel satisfied, comfortable and sleep for longer duration, so mothers get some time for themselves as well.

It is quite understandable that when one is breastfeeding it is not possible to measure the amount of milk baby take, can be estimated easily if fed with bottle.

Factors facilitating in breastfeeding:

Mothers of our study who were comfortable with breastfeeding were those who had a previous experience of breastfeeding have good knowledge of benefits of breastfeeding, and the ones who have a tradition of breastfeeding in their families. There families either immediate or extended provide full support to the lactating mothers in daily household’s chores and are fulfilling their other responsibilities as well. They also provide them guidance, support and facilitation regarding breastfeeding problems whether physical or procedural like breast engorgement, breast abscess, pain etc. or problem in latching on, lethargy/sleepy baby, mother not in mood of breastfeeding or tired etc.. These mothers have a chance of learning through direct observation of other family females who are/were breastfeeding and management of breast problems as well.

“My mother and other family relative’s breast fed their children. It is a tradition in our family that is why I am breastfeeding. My mother told us that breastfeeding is natural and good for child’s health, it saves them from infections, and bottles are full of infections no matter how much you disinfect them. She also said that breastfed children are loving, respectful and humble by nature. We all are breastfed”.
Another important factor is that majority of these mothers belong to relatively low socioeconomic group.

**Health service provider’s views (perspective):**

Health service providers had always being the strong promoters of breastfeeding. When gynecologists and pediatricians were asked about their perspective of the type of mother who breastfeed. Majority of them expressed that mothers who have a positive previous breastfeeding experience, having family support and have a breastfeeding tradition in the family usually breastfeed no matter exclusively or partially. They also expressed that:

“Although we motivate and prepare them during antenatal visits for breastfeeding as we do for vaccination but not all of them opt for breastfeeding. Most of them initiate breastfeeding after delivery but as soon as they face any problem they shift to either mixed feeding or bottle feeding.”

“Mothers are the ones to decide to breastfeed or not, we cannot force them, we can only facilitate them in their problem”.

“Young mothers usually came with set mind for breastfeeding or not, usually not for exclusive breastfeeding”.

Health service providers also expressed that even in rural areas where breastfeeding tradition is very strong and mothers are having full social and family support in this regard, young mothers are shifting towards mixed feeding (breastfeeding + bottle feeding).

“The number of rural area women is increasing who are now giving mix feeding to their newborns”.

Health service providers further added that it is there observation that those young mothers who themselves were breastfed and their in-laws especially mother in law and husbands are supportive towards breastfeeding usually initiate breastfeeding as soon as possible after delivery. They were also of the opinion that it is not necessary that if a mother initiate
breastfeeding earlier, will continue it for longer duration. They said continuation of breastfeeding is mostly dependent on the smoothness of the process. If breastfeeding goes on smoothly in the beginning there is a likelihood that she will continue it but if some hurdles, difficulties or uneasiness comes, mothers shift to bottle feeding or mixed feeding. They said that situation of initiation is the main deciding factor especially in young mothers or prime gravida.

Above mentioned findings of the In-depth interviews with mothers and health service providers indicate, the interplay of social, environmental, psychological and personal factors in decision making of mothers regarding initiation and continuation of breastfeeding, mixed feeding (breast milk + supplement) and bottle feeding as a convenient mode of feeding for her child taking account of all information, social and family support a mother gets from professionals, family members or through direct observation of breastfeeding.
DISCUSSION

In a developing country like Pakistan, the present study aimed at describing factors influencing maternal decisions about initial feeding pattern and breastfeeding duration. The results showed that demographic/social, psychological variables along with some maternal temperamental dimensions as potential influences on maternal initial feeding behavior and the influence of such factors and maternal initial feeding pattern on duration of breastfeeding.

One problem in longitudinal studies is the loss of cases. In the present study a total of 18% of the initial sample was lost to follow up out of which 40.7% refusals and 51.6% were moved from area. There were two infant deaths (7.4%) out of the total sample of 150.

At the time of interview within one month after child birth, all mothers comprising the longitudinal study sample were breastfeeding either almost exclusively or partially. The Rural area mothers adopted significantly different feeding pattern as compared to the other two urban areas because majority of them were breastfeeding almost exclusively i-e human milk only or plain water in addition to breast milk. In Pakistan rural communities are less influenced by modern trends of feeding the infants as they are still following the traditional child rearing practices including breastfeeding. An other reason might be that majority of them are following traditional joint family system. Observation of feeding a child through breast is a normal and common sight for the young girls/women of this community therefore these mothers belonging to Rural area have a different feeding Pattern. Studies from industrialized countries have also recognized that those women who have seen successful breastfeeding as a daily routine or part of their daily lives and perceive this phenomena as a positive experience are more likely to initiate breastfeeding themselves and knowledge gained through direct observation may be more influential as compared to the theoretical knowledge about benefits of breastfeeding for women especially for lower social class.

The mothers of low socioeconomic status and with poor living conditions breastfed almost exclusively, while the Upper Middle class mothers, who enjoyed good socioeconomic status and living conditions breastfeed partially to a greater extent i-e these mothers are
supplementing human milk with other foods- supplementary feed of animal milk or commercial formula with or without semisolids, sugar/glucose water etc. As nuclear family system is in practice in the majority of the Upper Middle class so these mothers usually have little chance of direct observation of breastfeeding phenomena as compared to the other Rural area and low socio economic group of mothers. Regarding the hospital situation at the time of interview 80% mothers were breastfeeding either exclusively or supplementing breastfeeding with animal milk, formula milk or sugar/glucose water.

As regard developing countries, the present study describes the source and type of information health care system provide during antenatal visits and in early post-partum period. Studies have indicated that women’s preparedness/willingness to establish breastfeeding prior to delivery influence her in initiation of breastfeeding and continuation for longer duration. However improvements in antenatal education about breastfeeding and management of breastfeeding problems are likely to increase duration of breastfeeding.

Studies have also indicated that breastfeeding is superior to formula feeding because it has long term consequences for early metabolism and disease later in infant life. Human milk enhance the immature immunological system of the neonate and strengthen host of defense mechanisms against infective and other foreign agents later in child’s life, through it bioactive factors such as hormones, growth factors, colony stimulating factors and specific nutrients that promote gastrointestinal mucosal maturation. Taking account of the benefits of breastfeeding, Division for Child and Adolescent Health, World Health Organization has recommended that HIV positive mothers can breastfeed their new born at least for six months.

The results also showed that although health providers during antenatal either traditional birth attendants or skilled professional inform and prepare every mother to breastfeed but there are some socio-demographic variable which influence maternal decision of initiation and continuation of breastfeeding.

Regarding our hospital data although majority of the mothers had previous breastfeeding experience, they have a positive trend towards breastfeeding in their respective
families and all mothers themselves were breastfed except one whose own mother died during child birth. All mothers were well aware of the benefits of breastfeeding and their health provider/gynecologist had provided them the required information about the benefits of breastfeeding for child and mothers as well but none of them have planned for more than 1 year of breastfeeding either exclusively or partially. There is evidence that even after termination of breastfeeding there is an ongoing protection against illness due to influences on the immune system mediated via human milk. Normal development of an infant is heavily dependant on the provision of human milk because it has far reaching effects on the infant’s immune response as it provides not only nutrients but enzymes and proteins that are not found in any other food source (Sciortino 2011; Oddy 2002; Engeler 1998). Therefore stress and encouragement should be on breastfeeding rather than on mode of feeding or duration of feeding.

Even in very traditional culture like Pakistan there is a change in social values and many women are getting employment. In our study all the mothers belonging to the Rural area and Urban Slum were labeled as housewives and their work in field during harvesting season or fruit selling in near by market place has not being recognized as work outside but part of the household chores. Few mothers belonging to the Upper Middle class were working in the educational and medical institutions, the rest were housewives. Some mothers from poor areas like Rural area and Urban Slum went out at a distance, for instance in the fields or to sell goods at the market place. These mothers were not full time workers and therefore were not staying away from home for more than a few hours. In case they are to stay longer they took their infant along with them. The children stayed near by the mothers and were fed whenever needed. Another possibility for mothers to breastfeed their infants would be during the night time because co-sleeping is a common practice in the developing countries (Imong et al 1989). These arrangements might explain the non-variability between the groups of employed and unemployed mothers regarding their initial infant feeding pattern and duration of breastfeeding. Other mothers here classified as housewives, from the poor groups, worked at home on contract or were self-employed, therefore they could breastfeed the infant and work at the same time. In this way they participated in the household’s income generation.
In addition to the importance of socioeconomic and demographic factors for breastfeeding decisions, the present study also pointed to the influences of Psychological factors. Such factors were found to be associated primarily with decisions about duration of breastfeeding. A couple of studies from developed countries and a few from developing countries have reported the importance of psychological factors, such as maternal intention to breastfeed, previous positive experience, satisfying breastfeeding experience with newborn in the beginning, for maternal decisions regarding duration of breastfeeding (Nazir et al., 1993; Louglin et al., 1985; Baranowiski et al., 1986; Sjolin et al., 1977). Our findings also reflect the fact that mothers, who had experienced a longer previous breastfeeding period, had an intention to breastfeed the newborn. They started breastfeeding their newborns almost exclusively, right from the beginning. In contrast, what we intended to be stress producing situations for the mothers and thus contributing to early termination showed no association with duration of breastfeeding. Such situations were supposedly created in households where mothers were highly responsible for the daily chores, or faced some kind of family dispute. The findings might be interpreted to mean that maternal personal experiences arousing from their own behavior in connection with breastfeeding were more important for maternal decisions regarding duration of breastfeeding than were situations which were thrust upon the mothers by their immediate environment. (Hannon et al., 2000; Shepherd et al., 2000; Corbett 2000; Wagner and Wagner, 1999).

In the cross sectional study a number of Socio cultural factors, physiological and psychological factors have been identified as barriers to breastfeeding and belief that feeding formula milk is as good as breast milk (Holmes, Thorpe & Phillips 1997). Studies have also shown that if decision to breastfeed have been made early/beginning of pregnancy it is easy for mothers to continue breastfeeding for longer duration (Ward, Sheridan, Howell, Hagarty & O’Farrell 2004).

According to WHO, Pakistan is moving away from the “traditional phase” of breastfeeding, i.e. high prevalence and longer duration and matches the “transformation phase” with falling prevalence and shortening
duration of breast-feeding. The “resurgence phase” with rising prevalence and duration seen in developed countries (WHO 1982) is not yet observed in any class in this study.

It is necessary to understand how women come to adopt ways of life, standards of evaluation and self-perception associated with a modern life style and how do women who migrate from the traditional to modern universe adjust to new situations, adopt new attitudes and patterns of behavior. Moreover it is necessary to understand the agents of change and the social passages or turning points associated with the critical attitude, the most crucial element in the process of modernization.

As it seems in the cross sectional study that present trend of modernization and nuclear family system is not favoring breastfeeding for longer duration of time. Studies have shown that the health providers/hospital practices/preferences are more predictive of duration of exclusive breastfeeding than mother’s knowledge of infant feeding or psychological factors. This health providers/hospital practices regarding breastfeeding promotion should be re-evaluated and can be strengthened by formal and informal education regarding breastfeeding (Alikasifogula, et al., 2001; Nazir et al., 1993).

There is a risk that mothers belonging to poor working class families, working in upper middle class households through direct observation, may start following the so-called modern infant feeding like supplementing breastfeeding with bottle feeding. Poor housing and sanitary conditions, low family income, high degree of illiteracy and high fertility are associated with a heavy workload for mothers and other family members. Alongwith bottle-feeding these factors by themselves and in combination, lead to high risk for neonatal and infant mortality, morbidity, malnutrition, low growth and delayed psychomotor and cognitive developments. Mothers experience emotional distress, fatigue, pain of loss and increase in workload as a result of a sick child, which becomes a burden on the household income due to the extra expenditures on medicine etc. These factors might lead to a bad inter-spouse relationship and malnutrition of the siblings.
Thus in setting strategies and action plans for the preservation, promotion and resurgence of breastfeeding, a high priority should be given to the low income areas (Kachi Abadies) and newly urbanized population groups, particularly in the poverty pockets. Prior to the implementation of general or direct interventions it is most essential to have a thorough understanding of the psycho-social matrix of young girls (mothers to be) including the cultural image, key modernizing forces and factors including the negative change. Such effort is particularly important in planning and implementing education programme (formal, informal & non-formal).

Today’s children are tomorrow’s parents; therefore there is a need to educate them about the benefits of breastfeeding. This can be accomplished by providing education at the school level. The children should be informed about the merits of breastfeeding and discouraged from the use of feeding infants with the help of a bottle. They should also be encouraged to disseminate this information to their immediate family members and people around them. Such education would be helpful and beneficial not only for the future parents but also in the long run for the physical and mental development of the infants and thus for the society as a whole.

The resurgence of breastfeeding, recently observed in some of the industrialized countries, appears to be mostly a result of improved information about the advantages of human milk and breastfeeding. Mass media and a high level of education have played a vital role in this regard. In our country, we can also utilize mass media for achieving this goal and eliminating associated misconceptions regarding breastfeeding.

The results of our study suggested that family support towards breastfeeding also had an influence on maternal decisions about initial infant feeding method. This is in line with other studies that have highlighted the importance of family support in the establishment of successful breastfeeding (Martines, 1989; Entwisle, Doering & Reilly, Ashworth & Kirkwood, 1982). Mothers living in extended families in the Rural area experienced maximum family support regarding breastfeeding in contrast to the upper middle class mothers whose families seemed to have been more influenced by the Western ideas of infant feeding. Thus, initial almost exclusive breastfeeding was negatively associated with urbanization and comparatively high education and
positively associated with the more traditional life in extended family households (Forman, 1984).

The phenomenon of letdown reflex involves a cycle of hormones controlled by the pituitary gland. It is a well known fact that tension, anxiety and other stressful psychological factors are liable to disturb the hormonal cycle which affect the supply of milk and release of milk form the breast.

Keeping in mind the physiology of breast-feeding and processing of the let down reflex the results of the study indicate that not only the social/ environmental factors but maternal temperamental characteristics/traits also play an important role in the establishment of initial feeding pattern and later to carry on the feeding pattern for required duration of time.

The study results reflect that along with certain demographic and social factors some dominating maternal temperamental traits/characteristics are very important in this regard. No such work has previously been conducted which identifies the dominating temperamental traits/characteristics contributing towards establishment of the initial feeding pattern and longer duration of breast-feeding. Therefore there is a need for reliable data-base in this regard, which will be helpful in strategy planning, promotion & resurgence of breastfeeding.

Based on these observations it was seen, that the mothers who reflect a profile of behavior in terms of being considered as responsible, dependable, reliable, certain to complete tasks in time, even a little compulsive in completing tasks etc., tends to think best of people to accept them at face value, are more successful in establishing initial feeding pattern and longer duration of breastfeeding. They also expect altruism to prevail, have an inclination towards being interested in ideas, in abstractions, in discussion & speculation, in knowing for its own sake, happy-go-lucky, and are ready to do things at a moment's notice. In contrast they are seen to be short tempered, annoyed or irked by a good many things, inclined to "blow her top" but tend to avoid personal conflict, to dislike being in the public eye and avoid taking the initiative in relation to others.
To continue breastfeeding, almost exclusively or partially the profile a mother possessed included being responsible and accepting traits or mechanism, which plays a role in modifying behaviour or in the way behaviour expresses itself. As concluded by Strelau (1987) that one of the main functions temperament plays in human behaviour consists in regulating the stimulative value of the surroundings and the individual’s own activity.

The study findings related to the breastfeeding pattern and its duration suggests that the phenomena of breastfeeding per se is an easier, more economic mode of infant feeding in a country like Pakistan where average per capita income is very low.

Breastfed children might be found more responsive in the feeding situation by the mothers as compared to the others (Berg-Cross et al., 1979), and mothers feel that they are fulfilling their roles as mother by breastfeeding and thus feeding reinforces a positive self image.

To sum up, our study provided community based information in a prospective design regarding the information of demographic variables and psychological factors in breastfeeding decisions, in contrast to other studies (Sjolin et al., 1977; Jones 1978; Bryant 1982, Baranowiski, Bee, Richardson, Brown, Guenther & Nader 1983; Ekwo et al., 1984; Martines et al.1989), which have provided information based on retrospectively and crosssectionally collected hospital or urban data only.

The two indices regarding socio-economic and housing standards proposed a summary measure in successfully predicting breastfeeding decisions. It is suggested that these indices be used in future research as population measures (demographic variables) for investigation of relationship between living conditions, socio-economic status and various other areas such as nutritional status, mother and child health related problems, growth and development (mental and cognitive), mother-child interactions, psychomotor development adjustment problems, marital adjustment problems and behaviour adjustment problems, etc.

In the Upper Middle class 34% (17) of the cases left study, out of which 35.3% refused to participate in the study because of lack of interest in general. Moved area were 64.7%, as
majority of the participants (fathers) were government officers in Urban Slum therefore they were transferred to other places during the study period. In the Urban Slum left study rate was 8% only (4 cases). There was one infant death, two couples moved area as fathers got employment to some other place, one mother refused to participate stating mainly lack of time as a reason; household chores seemed to be more important and time consuming for them. In the Rural area lost cases were 12% (6 cases), out of these lost cases there was one infant death and one mother moved to another place with her family. Refusals, 66% of the lost cases in this area gave no specific reason. These refusals might reflect that some times it is difficult to explain the objectives and motives to the mothers in these areas to participate. Because of the large number of lost cases, conclusions from the study must be drawn with some caution.

More than 21% of the mothers belonging to Upper Middle class terminated breastfeeding within one month after child birth. They stated difficulties in social activities along with physical problems such as breast engorgement, sore & cracked nipples, breast lump etc. as reasons for giving up breastfeeding. Unlike other studies in developing countries (Kocturk,1988; Martines, Ashworth & Kirkwood, 1989) reporting milk insufficiency as the most prominent cause of ending breastfeeding early. In the longitudinal study milk insufficiency was not the cause of early termination of breastfeeding.

But in the cross sectional hospital study perception of insufficient breast milk was another factor indicated by mothers who were supplementing the breastfeeding with formula milk. In-depth interview revealed that these mothers were experiencing excessive crying of their child & they felt that they might not be healthy enough to have sufficient milk supply for baby & child remain hungry after breastfeeding. During antenatal, health professional can identify those women who are at risk of abandoning breastfeeding prematurely; such women should be targeted for additional support while staying in the hospital or even at home (American Academy of Pediatrics 1997; Pakistan Reproductive Health and Family Planning Survey 2001).

Studies have also shown that although gynecologists provide information about breastfeeding benefits for babies & mothers but still very little percentage of women & mothers prepare the breast prior to the delivery which might be because of lack of awareness among

It has also been found that pediatricians, obstetricians, Gynecologists and family practitioners sometimes lack knowledge and training on breastfeeding related topics & issues (Schanler, O’Connor & Lawrence, 1999). Health providers including health educators or lactation consultant can manage early group counseling session by giving 30-45 minutes to the woman during usual prenatal or pediatric preventive visits (Freed, Clark & Sorenson, 1995).

Sometimes breastfeeding is not possible – due to maternal illness, and infections, alcohol or drug use, maternal separation or death and some women simply choose not to breastfeed (Rae, 1994; National Health and Medical Research Council Canberra, 2000). Clinicians and other health care providers may have an influential role in breastfeeding initiation and continuation (Elsie, et al., 2003) during postpartum and early post discharge period for successful breastfeeding (Lu, Lange & Slusser, 2001). A training programme of health professionals can increase the level of knowledge and comfort in dealing with breastfeeding issues, increase in observation of nurses regarding breastfeeding and its problems and increase night time breastfeeding facilitation which decreases in formula supplementation in the nursery at night in a hospital setting. An education programme adherence to protocol can increase exclusive breastfeeding as well as improve health care provider’s knowledge, comfort level and attitude about breastfeeding. This study also suggests that positive change can be made with an educational programme and protocols. Mellin, Poplawski, Gole, Mass, (2001).

In the present study, mothers who were not able to establish initial breastfeeding pattern in the beginning also expressed that they tried quite hard to breastfeed the baby but this process made the baby tired and suckling inadequate. Therefore responding to incessant crying of baby, hospital staff and other ward patients and their own relatives present at the situation, indirectly recommended supplement feeding for the baby and as a result all the required information and facilitation regarding supplement feeding was provided even in the ward (indirect promotion of supplement/formula feeding) whereas, according to “The Protection of Breastfeeding and Young Child Nutrition Ordinance 2002” no person can promote infant formula, bottle-feeding, complementary foods as replacement of breastfeeding, no promotional messages regarding such
products carried by any form of media, no manufacturer donate free of charge such products or offer gifts to health providers or their families. Ordinance also states that health workers shall encourage and support breastfeeding, health workers shall not accept or give samples of designated products to any person and violation of the provision of ordinance shall be punishable.

The development of long-term mother child engagement is not being considered by young mothers because there are other more important social matters to look after than breastfeeding a newborn where supplement feeding is easily available, and anyone can feed baby through bottle which provide support to mother in child care and easier in terms of mothers time control and less likely to tie mother down then breastfeeding. Although mothers are quite aware of health benefits of Breastfeeding they perceive that breastfeeding limits their activities. Therefore breastfeeding promotion program must address not only benefits but lifestyle issues as well (Zimmerman & Guttman, 2000).

Almost exclusive breastfeeding has always being regarded as a method of natural contraception but if practiced day and night on demand for at least 6 months. As the results indicated that exclusive breastfeeding is no more recognized as a reliable method of contraception because present trend of modernization is no more supporting joint family system and almost exclusive breastfeeding is declining because mothers are not having any kind of family support in this regard and bottle feeding is providing them opportunity to have a control on their time where as anyone can feed the baby with the help of a bottle and mother’s presence is no more required in infant feeding. Another reason might be that today about 96% mothers know about modern methods of contraception (Government of Pakistan Reproductive Health and Family Planning Survey 2001), which are more reliable for child spacing as compared to exclusive breastfeeding alone.
CONCLUSION

The results of the study conclude that demographic, social and psychological variables along with some maternal temperamental dimensions influence maternal decisions about the feeding behavior.

At the time of interview within one month after child birth, all mothers comprising the longitudinal study sample were breastfeeding either almost exclusively or partially. The Rural area mothers adopted significantly different feeding pattern as compared to the other two urban areas as majority of them were breastfeeding almost exclusively. In Pakistan rural communities are still following traditional joint family system and traditional child rearing practices which includes breastfeeding as well. Observation of feeding a child through breast is a normal and common sight for the young girls/women of this community therefore these mothers have a different feeding Pattern. Knowledge gained through direct observation may be more influential as compared to the theoretical knowledge about benefits of breastfeeding for women.

As nuclear family system is in practice in the majority of the Upper Middle class so these mothers usually have little chance of direct observation of breastfeeding phenomena as compared to the other Rural area and low socio economic group of mothers. Regarding the hospital situation at the time of interview majority of mothers were breastfeeding either exclusively or supplementing breastfeeding with animal milk, formula milk or sugar/glucose water.

Our hospital data also indicate that majority of the mothers had previous breastfeeding experience, they have a positive trend towards breastfeeding in their respective families and mothers themselves were breastfed, well aware of the benefits of breastfeeding and their health provider/gynecologist had provided them the required information about the benefits of breastfeeding for child and mothers as well but none of them have planned for more than 1 year of breastfeeding either exclusively or partially.
There is evidence that even after termination of breastfeeding there is an ongoing protection against illness due to influences on the immune system mediated via human milk. Normal development of an infant is heavily dependent on the provision of human milk because it has far reaching effects on the infant’s immune response as it provides not only nutrients but enzymes and proteins that are not found in any other food source. Therefore stress and encouragement should be on breastfeeding rather than on mode of feeding or duration of feeding.

Another possibility for mothers to breastfeed their infants would be during the night time because co-sleeping is a common practice in the developing countries. That arrangement might explain the non-variability between the groups of employed and unemployed mothers regarding their initial infant feeding pattern and duration of breastfeeding.

Psychological factors were found to be associated primarily with decisions about duration of breastfeeding. Findings also reflect that mothers with positive previous experience breastfeed for longer period.

In the cross sectional study a number of Socio cultural factors, physiological and psychological factors have been identified as barriers to breastfeeding and belief that feeding formula milk is as good as breast milk. If decision to breastfeed have been made early/beginning of pregnancy it is easy for mothers to continue breastfeeding for longer duration.

It is necessary to understand how women come to adopt ways of life, standards of evaluation and self-perception associated with a modern life style and how do women who transfer from the traditional to modern universe adjust to new situations, adopt new attitudes and patterns of behavior. Moreover it is necessary to understand the agents of change and the social passages or turning points associated with the critical attitude, the most crucial element in the process of modernization.

There is a risk that mothers belonging to poor working class families, working in upper middle class households through direct observation, may start following the so-called modern infant feeding like supplementing breastfeeding with bottle feeding. Poor housing and sanitary
conditions, low family income, high degree of illiteracy and high fertility are associated with a heavy workload for mothers and other family members. Along with bottle-feeding these factors by themselves and in combination, lead to high risk for neonatal and infant mortality, morbidity, malnutrition, low growth and delayed psychomotor and cognitive developments. Mothers experience emotional distress, fatigue, pain of loss and increase in workload as a result of a sick child, which becomes a burden on the household income due to the extra expenditures on medicine etc. These factors might lead to a bad inter-spouse relationship and malnutrition of the siblings as well.
Implications of this study for Pakistan

As the upper middle class mothers are the role models/trend setters, thus in setting strategies and action plans for the preservation, promotion and resurgence of breastfeeding, therefore high priority must be given to particularly planning and implementing educational programmes at all levels (formal, informal & non-formal).

Prior to the implementation of general or direct interventions it is most essential to have a thorough understanding of the psycho-social matrix of young girls (mothers to be) including the cultural image, key modernizing forces and factors including the negative change.

Such education would be helpful and beneficial not only for the future parents but also in the long run for the physical and mental development of the infants and thus for the society as a whole.

In our country mass media and a high school level of educational plan can play a vital role in eliminating associated misconceptions regarding breastfeeding.

The two indices regarding socio-economic and housing standards proposed a summary measure in successfully predicting breastfeeding decisions. It is suggested that these indices be used in future research as population measures (demographic variables) for investigation of relationship between living conditions, socio-economic status and various other areas such as nutritional status, mother and child health related problems, growth and development (mental and cognitive), mother-child interactions, psychomotor development adjustment problems, marital adjustment problems and behaviour adjustment problems, etc.

It is a well known fact that tension, anxiety and other stressful psychological factors are liable to disturb the hormonal cycle which affects the supply of milk and release of milk from the breast. Therefore promotion of joint family system through mass media or otherwise must be encouraged to get social/family support.
The study results reflect that along with certain demographic and social factors some dominating maternal temperamental traits/characteristics are very important for sustenance in this regard.

No such work has previously been conducted which identifies the dominating temperamental traits/characteristics contributing towards establishment of the initial feeding pattern and longer duration of breastfeeding.

Therefore there is a need for reliable data-base in this regard, which will be helpful in strategy planning, promotion & resurgence of breastfeeding.

According to WHO, Pakistan is moving away from the “traditional phase” of breastfeeding, i.e. high prevalence and longer duration and matches the “transformation phase” with falling prevalence and shortening duration of breast-feeding. The “resurgence phase” with rising prevalence and duration seen in developed countries (WHO 1982) is not yet observed in any class in this study.

It is necessary to understand how women come to adopt ways of life, standards of evaluation and self-perception associated with a modern life style and how do women who migrate from the traditional to modern universe adjust to new situations, adopt new attitudes and patterns of behaviour. Moreover it is necessary to understand the agents of change and the social passages or turning points associated with the critical attitude, the most crucial element in the process of modernization.

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malnutrition, low growth and delayed psychomotor and cognitive developments. Mothers experience emotional distress, fatigue, pain of loss and increase in workload as a result of a sick child, which becomes a burden on the household income due to the extra expenditures on medicine etc. These factors might lead to a bad inter-spouse relationship and malnutrition of the siblings.

The resurgence of breastfeeding, recently observed in some of the industrialized countries, appears to be mostly a result of improved information about the advantages of human milk and breastfeeding.

In addition to that present research also provide a base line information of our country and can be helpful to develop the strategies for the policy makers and health providers at all levels to educate the mothers and would be mothers at the time of antenatal and postnatal examination about the initiation and sustenance of breastfeeding for longer duration with emphasis on the management of breastfeeding problems. It will open new avenues for further in depth research on the psychological and behavioral issues related to breastfeeding practices in a developing country like Pakistan.
SUMMARY

The results showed that demographic, social and psychological variables along with some maternal temperamental dimensions influence maternal decisions about the feeding behavior. At the time of interview within one month after child birth, all mothers comprising the longitudinal study sample were breastfeeding either almost exclusively or partially. The Rural area mothers adopted significantly different feeding pattern as compared to the other two urban areas because majority of them were breastfeeding almost exclusively. In Pakistan rural communities are still following traditional joint family system and traditional child rearing practices which includes breastfeeding as well. Observation of feeding a child through breast is a normal and common sight for the young girls/women of this community therefore these mothers have a different feeding Pattern. Knowledge gained through direct observation may be more influential as compared to the theoretical knowledge about benefits of breastfeeding for women.

As nuclear family system is in practice in the majority of the Upper Middle class so these mothers usually have little chance of direct observation of breastfeeding phenomena as compared to the other Rural area and low socio economic group of mothers. Regarding the hospital situation at the time of interview majority of mothers were breastfeeding either exclusively or supplementing breastfeeding with animal milk, formula milk or sugar/glucose water.

Our hospital data also indicate that majority of the mothers had previous breastfeeding experience, they have a positive trend towards breastfeeding in their respective families and mothers themselves were breastfed, well aware of the benefits of breastfeeding and their health provider/gynecologist had provided them the required information about the benefits of breastfeeding for child and mothers as well but none of them have planned for more than 1 year of breastfeeding either exclusively or partially. There is evidence that even after termination of breastfeeding there is an ongoing protection against illness due to influences on the immune system mediated via human milk. Normal development of an infant is heavily dependant on the provision of human milk because it has far reaching effects on the infant’s immune response as it provides not only nutrients but enzymes and proteins that are not found in any other food source.
Therefore stress and encouragement should be on breastfeeding rather than on mode of feeding or duration of feeding.

Another possibility for mothers to breastfeed their infants would be during the night time because co-sleeping is a common practice in the developing countries. That arrangement might explain the non-variability between the groups of employed and unemployed mothers regarding their initial infant feeding pattern and duration of breastfeeding.

Psychological factors were found to be associated primarily with decisions about duration of breastfeeding. Findings also reflect that mothers with positive previous experience will breastfeed for longer period.

In the cross sectional study a number of Socio cultural factors, physiological and psychological factors have been identified as barriers to breastfeeding and belief that feeding formula milk is as good as breast milk. If decision to breastfeed have been made early/beginning of pregnancy it is easy for mothers to continue breastfeeding for longer duration.

It is necessary to understand how women come to adopt ways of life, standards of evaluation and self-perception associated with a modern life style and how do women who migrate from the traditional to modern universe adjust to new situations, adopt new attitudes and patterns of behavior. Moreover it is necessary to understand the agents of change and the social passages or turning points associated with the critical attitude, the most crucial element in the process of modernization.

There is a risk that mothers belonging to poor working class families, working in upper middle class households through direct observation, may start following the so-called modern infant feeding like supplementing breastfeeding with bottle feeding. Poor housing and sanitary conditions, low family income, high degree of illiteracy and high fertility are associated with a heavy workload for mothers and other family members. Along with bottle-feeding these factors by themselves and in combination, lead to high risk for neonatal and infant mortality, morbidity, malnutrition, low growth and delayed psychomotor and cognitive developments. Mothers experience emotional distress, fatigue, pain of loss and increase in workload as a result of a sick child, which becomes a burden on the household income due to the extra expenditures on medicine etc. These factors might lead to a bad inter-spouse relationship and malnutrition of the siblings.
REFERENCES


12. Annesi, 2005


44. Engeler, T., (1998). Review of current interventions and identification of best practice currently used by community based Aboriginal and Torres strait Island health service providers in promotion and supporting breastfeeding and appropriate infant nutrition. Canberra: Office for Aboriginal and Torres Strait Islander Health Services.


57. Fishbein & Ajzen, 1975
60. Galanakis, E. (2010); Breastfeeding better than vaccines at preventing infections,


85. Heider's Balance Theory, Osgood and Tannenbaum's Congruity Theory, and Festinger's Dissonance Theory


102. Kristin Beermann 2011The Effectiveness of Prenatal Education on Breastfeeding Initiation and Continuation Rates


