

# Pattern of infant feeding at a University Hospital in Western Saudi Arabia

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## ABSTRACT

**Objective:** To analyze the pattern of breastfeeding in mothers, identify causes of failure to breastfeed, initiate, and sustain breastfeeding practices at a University Hospital in Western Saudi Arabia.

**Methods:** Prospective interviews with mothers of infants seen consecutively during routine well baby clinic visits were conducted in the year October 2001 through to September 2002 using structured 18 item questionnaires. This study was carried out at King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia.

**Results:** One hundred and twenty-eight interviews were conducted. Of the study groups 106 (83%) were breastfeeding. Of the mothers who came from low income families and no university education the figure was 90 (70%). Only 72 (56%) mothers had some form of health education regarding infant feed and most of the education came from relatives. Fourteen (10.9%) mothers reported encouragement to breastfeeding by medical personnel. Early discharge home from the newborn

nursery at less than 24 hours age was significantly associated with success in establishing breastfeeding ( $p < 0.047$ ). Breastfeeding rates were 90% for infants in the first 6 months of life, but dropped to 72% afterwards. The reasons given for switching to formula feeding, in the order of frequency: inadequate milk supply (50%), working mothers (12.7%) and life style (10%). Mothers who were breast feeding were significantly more satisfied with their feeding practice than those whom were bottle feeding ( $p < 0.05$ ).

**Conclusion:** The most significant factor precluding initiation of breastfeeding was late discharge from the nursery, while the most common obstacle to sustaining breastfeeding was the misconception of mothers regarding adequacy of milk supply. Intervention targeted at adoption of baby friendly nursery atmospheres and promotions of health education are economically feasible in the community.

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The Kingdom of Saudi Arabia (KSA) is progressing fast in all aspects of life. However, breastfeeding is said to be on the decline.<sup>1,2</sup> There are reasons for this, but there are also wise and concerned efforts to reverse the decline. The decision whether to breastfeed is usually made before conception or delivery,<sup>3,4</sup> probably affected not only by knowledge on breastfeeding but also by factors such as education, occupation and socioeconomic status of the parents.<sup>5,6</sup> Human milk is considered the preferred first food for full-term infants because it is known to provide all the required nutrients for infants. Human milk is, however, a highly variable product and it's altered by several factors including maternal diet,

maternal age, maternal nutrition status, stage of lactation, and infant's demand to milk. The variability in the composition of human milk offers a likely explanation for a wide variation in growth rates observed among breast fed infants. Although most breast fed infants grow at satisfactory rates, there are many exceptions. Breastfeeding confers significant health, nutritional, immunologic, developmental psychological, social, economic and environmental benefits to infants, mothers, families, and society.<sup>7</sup> Human milk is unique for infants feeding and is species specific; all substitute feeding options differ markedly from it. Feeding recommendation endorsed by The

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International Agencies and Academics of Pediatric specify that the infant should be exclusively breast feed for about 6 months.<sup>8</sup> Unfortunately; however, rates of breastfeeding continue to drop and affects both factors underlying this trend, which differ according to the population studied. Local studies may help in identifying the factors specific to a given population.

The aim is to study the pattern of breastfeeding in our local population and identify the causes of failure of breastfeeding in the community.

**Methods.** The study population comprised of parents of infants seen during a routine visit at the Well Baby Clinic (WBC), King Abdulaziz University Hospital (KAUH), Jeddah, KSA. Prospective structured interviews with these parents were conducted from October 2001 to September 2002. (KAUH is a teaching hospital providing multi-specialty adult and pediatric primary care to the general population of Jeddah, it also provides tertiary care for most of the regional population of the Western Province, KSA). The annual delivery rate is 2,600 live births per year. The WBC is designed for routine follow up examination, counseling of healthy infants and children delivered at KAUH, and to provide routine immunization program. The parents approached were assured that taking part in the study is voluntary, and non-participation will not affect their care at KAUH. Inclusion criteria were: women, between 16-40 years, who came with their infants for vaccination, and had delivered during the last 12 months. The study tool was a pre-tested self-administered 18 item questionnaire (**Table 1**) designed, supervised, and conducted by the investigators. On completion of the questionnaire, mothers were instructed on infant feeding and detected misconceptions were clarified.

Statistical analysis was performed using statistical package for social sciences 10 statistical package. Comparison between variables was carried out using the appropriate tests, and statistical significance was assigned at  $P < 0.05$ .

**Results.** One hundred and twenty-eight structured interviews with the mothers were conducted. The summary of some demographic characteristic of the study sample is shown in **Table 2** A total of 128 infants under 12 months of age were included in the study. Breastfeeding were 106 (82.8%), bottle feeding were 22 (17.2%). Out of these, 95.3% were products of full-term pregnancy while 4.7% were premature. The male to female ratio was 0.9:1. Of the full-term infants, 72% were discharged from the nursery before 24 hours, and 28% after 24 hours. Thirteen percent stayed at the hospital more than one day. Among those full-terms discharged earlier than 24 hours, 80 (63%) infants were breastfeeding while 12 (9%) infants were on bottle feeding. This was in contrast to the infants who stayed more than 24 hours, in which only 26 (20%) were breastfeeding and 10 (8%) were bottle feeding. ( $p =$

Table 1 - Sample questions representative of the 18 item questionnaire.

Questionnaire area	Sample questions
Demographics and social information related to the mother	<ol style="list-style-type: none"> <li>1. Age</li> <li>2. Education</li> <li>3. Income (family)</li> <li>4. Parity</li> <li>5. Occupation</li> <li>6. Education about breastfeeding</li> <li>7. Encouragement</li> </ol>
Infant related questions	<ol style="list-style-type: none"> <li>1. Age</li> <li>2. Sex</li> <li>3. Maturity</li> <li>4. Health</li> </ol>
Feeding related questions	<ol style="list-style-type: none"> <li>1. Type</li> <li>2. Age of introduction of solid</li> <li>3. Duration of breastfeeding</li> <li>4. Cause for introducing formula</li> </ol>

0.047). Regarding social circumstances, 90 out of 128 (70.3%) mothers in the study group receive less than 5000 SR (\$1,300) as a monthly income and approximately 2/3 of the total mothers interviewed have more than one child less than 4 years of age. The majority (83%) of the group of mothers were full time housewives there was no difference between the breast feeding pattern in relation to whether the mother is not working ( $P > 0.05$ ).

Out of the total of 128 mothers, 84 (65.63%) had received education with regards to breastfeeding compared to 22 (17.2%), that did not receive specific education on the virtues of breast feeding nor instructions in the various aspects of feeding care. Regarding encouragement for breast feeding, 86 (67.2%) mothers from the study group had some source of encouragement, 65 (50.8%) from female family members, 7 (5.5%) were encouraged to breast feed by their husbands, while 14 (87.5%) were encouraged by medical personnel. On specific questioning, 22 (17.2%) of the mothers reported being discouraged from breastfeeding in favor of bottle feeding. Nevertheless, breastfeeding was more common than bottle feeding even in the absence of specific education or encouragement regarding breast feeding (**Table 2**). Preference to breastfeeding over bottle feeding was noted among all age groups, and regardless of educational status. Overall, the majority of the university educated mothers were breastfeeding. This was also true of the lesser-educated group, with 71 of school graduates and 10 of illiterate mothers breast feeding. There was no relation between education, and the feeding practice chosen with both groups preferring to breast feed. Statistical analysis revealed no relation between parity on breastfeeding. The absence of assistance to the mother in infant care did not seem to decrease the tendency to breastfeed. Breastfeeding was practiced by 56 (43%) of mothers with no assistance in

Table 2 - Demographic characteristics of the study sample (N=128).

Background/characteristic	Type of feeding		Total
	Breast n (%)	Bottle n (%)	
<b>Age of mother</b>			
<20 years	9 (75)	3 (25)	12
21-25	31 (82)	7 (18)	38
26-30	32 (89)	4 (11)	36
31-35	21 (81)	5 (19)	26
36+	13 (81)	3 (19)	16
<b>Education</b>			
Illiterate	10 (91)	1 (9)	11
School graduate	71 (80)	18 (20)	89
College or University	25 (89)	3 (11)	28
<b>Income</b>			
<5000 SR	74 (82)	16 (18)	90
5000-9,999 SR	26 (84)	5 (16)	31
≥10000 SR	6 (86)	1 (14)	7
<b>Parity</b>			
Primi	23 (72)	9 (28)	32
2nd	23 (85)	4 (15)	27
3rd	13 (87)	2 (13)	15
4th	47 (87)	7 (13)	54
<b>Occupation</b>			
Not working	89 (83)	18 (17)	107
Working	17 (81)	4 (19)	21
<b>Help with baby</b>			
Help	50 (79)	13 (21)	63
No help	56 (86)	9 (14)	65
<b>Education about breast feeding</b>			
Have education	84 (85)	15 (15)	99
No education	22 (76)	7 (24)	29
<b>Encouragement for breast feeding</b>			
None	20 (83)	4 (17)	24
Family	65 (82)	14 (18)	79
Husband	7 (78)	2 (22)	9
Medical	14 (85)	2 (13)	16
<b>Age of baby</b>			
1-2.9	66 (88)	9 (12)	75
3-5.9	18 (90)	2 (10)	20
6-8.9	13 (72)	5 (28)	18
≥9	9 (60)	6 (40)	15
<b>Sex</b>			
Male	50 (81)	12 (19)	62
Female	56 (85)	10 (15)	66
<b>Age at discharge from hospital</b>			
<1 day	80 (87)	12 (13)	92
≥1 day	26 (72)	10 (28)	36
<b>Age at solid food was introduced</b>			
None	70 (88)	10 (13)	80
1-2.9	5 (63)	3 (38)	8
3-6	28 (80)	7 (20)	35
9-12	3 (60)	2 (40)	5
<b>Satisfaction</b>			
Fully	87 (89)	11 (12)	98
Partly	12 (80)	3 (20)	15
Non satisfied	7 (47)	8 (53)	15

infant care compared to 50 (39%) of those who had assistance, although the difference was not statistical significance. As the baby grows, breastfeeding tends to decrease; the decrease in the percentage of breastfeeding in respect to the age of the infant is significantly correlated (p-value <0.295). Among mothers who switched from breast to bottle feeding the most common cause for introduction of formula was the perception that the amount of breast milk was insufficient for the infant's demands 55 (50%) followed by return to work 14 (12.7%). None of the mothers had stopped breastfeeding due to worry regarding maternal depletion of nutrition, and 11 (10%) had discontinued breastfeeding due to their life style. Mother's satisfaction with the chosen method of feeding differed significantly with more of the breast feeding mothers feeling fully satisfied with their feeding pattern than bottle feeding mothers (p-value <0.05.)

**DISCUSSION.** The study suggests that breastfeeding practice of families living in Jeddah, KSA need further improvement. Success in breastfeeding involves success in 3 stages, success in initiation, success in establishment, and success in sustaining the process. Each stage is affected by certain factors. Regarding initiation of breastfeeding, studies have shown that most mothers make up their mind with regards to breastfeeding before birth of the child.<sup>9</sup> The most critical factors at this stage are therefore, health education and counseling on the benefits and practicality of breastfeeding during antenatal visits and in the immediate post-partum period. The aim is to modify maternal attitude towards the advantages of breastfeeding. The second stage, establishment of breastfeeding may be enhanced by health education and dealing with commonly encountered lactation problems.<sup>10</sup> Adoption of the Baby Friendly Hospital Initiative,<sup>11</sup> and provision of rooming-in for the baby are expected to significantly increase the number of women establishing breast feeding. Sustaining breastfeeding once it has been initiated and established is theoretically considered to be the easiest task to accomplish, as the first 2 steps require more effort on the part of the mother, particularly the young primiparous mother. Causes of failure to sustain breastfeeding include worry about adequacy of milk supply, successive pregnancy, to accept the breast by the neonate and early introduction of supplemental or weaning foods.<sup>12-14</sup> Looking at our group of infant mother pairs, it is partly reassuring regarding the first 2 stages. Mothers showed a preference for breastfeeding although the result was not significantly related to age, income, parity, education level or availability of help, which differs from a Nigerian report. Which demonstrated significant correlation between breastfeeding and previous variable?<sup>15</sup> It might be that socio economic standard is

Table 3 - Reason given by the mother for not breastfeeding.

Reason for switching to formula	Frequency	%
Insufficient breast milk	55	50
Working	14	12.7
Lifestyle	11	10
Baby illness	8	7.3
Medical personnel advice	2	1.8
Family/friends advice	3	2.7
Pregnancy	2	1.8
Breast abscess, fissure, etc	2	1.8
Maternal illness	1	0.9
Others	12	10.9

ethnic specific as reported by Braveman et al.<sup>16</sup> Even the absence of adequate health education and encouragement to breastfeeding did not alter the mother's preference to breastfeed. Mothers who were bottle feeding were significantly less satisfied with their choice than their counterparts who were breast feeding. It is alarming that in spite of these facts, the study showed a significant decline of the percentage of breastfeeding with time. Like many studies from KSA,<sup>17-19</sup> mothers who preferred to breast feed, and who succeeded in the first 2 more difficult steps were failing at the easiest stage. The most common cause reported for switching to formula was inadequacy of breast milk supply. On specific questioning by the pediatricians interviewing the mothers it was felt that in the majority of cases this was a misconception. Specific questions asked were whether the mother could hear the baby suckling during nursing, number of wet nappies per day and weight gain. The misconception is not new. Studies addressing the improper assessment of adequacy of milk supply by nursing mothers have been observed by the World Health Organization (WHO) and other workers.<sup>20-22</sup> Unfortunately, this misconception is also shared by some medical personnel. Contrary to this belief, most mothers are able to produce breast milk in quantities adequate for the proper growth of their infants, even in societies where the mothers' diet is poor.<sup>23</sup> Building mothers confidence in their ability to produce enough milk, and proper assessment of the infant's intake are integral to the process of sustaining breast feeding once it is initiated. Although initiation and establishment of breastfeeding rates were high (95%) at 1-3 months and (90%) at 4-6 months, compared to a study that reported 73% of the mothers breastfed their infant initially and currently at (37.6%).<sup>24</sup> They were less than the WHO standards of 100%. The most common cause of failure to establish breastfeeding was prolonged

stay in the hospital. Similar results were found in Riyadh, KSA by Haque.<sup>25</sup> He reported that only 27% of hospitalized infants received breast feeding, 10% received education regarding practicing of breastfeeding, which is almost similar to our findings. This emphasizes the need to re-evaluate baby friendliness in the nursery and to re-educate staff in the process of breast feeding. Recent studies advocate that early discharge from the newborn nursery carries various advantages for the newborn and its mother. The evidence from our study further stresses this approach. There are some limitations to our study. First, the study sample was relatively small. Although the sample represents various sectors of the community living in Jeddah with low income. The limitation can be overcome by comparison with interviewed mothers attending WBC clinic in private sectors.

Education and work do not correlate significantly with breastfeeding contrary to the expected, possibly because many interviewed mothers were at 6 weeks postpartum and still did not resume work. If the group had been larger compared to those more than 6 months many may have given different results.

In conclusion, it was noted that the general tendency was towards preference of breastfeeding over bottle feeding among groups of women and their families regardless of age, income, level of education or parity. Advantage of breastfeeding should be taught in different ways to build on this strong background initiative with proper channeling, counseling and support.

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#### Abstract

Infant-feeding patterns were studied in 6,623 randomly selected Saudi families living in Riyadh, Kingdom of Saudi Arabia. The 4,796 infants studied were under one year of age and were fed with breast milk plus bottle complements. Bottle feeding was started in 27.3% of infants during the first month after birth. The mean age at which solid food was introduced was 3.45 months. The overall results suggest a decreasing incidence of breast feeding along with diminishing length of nursing period.