RESEARCH ARTICLE

# KNOWLEDGE AND ATTITUDE OF BREASTFEEDING AMONG FUTURE PARENTS ATTENDING PREMARITAL INVESTIGATION CLINIC IN MAKKAH CITY

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**ABSTRACT**

**Background:** Breastfeeding contributes to the health and well-being of mothers, it helps to space children, reduces the risk of ovarian cancer and breast cancer, increases family and national resources, is a secure way of feeding and is safe for the environment. In Saudi Arabia, the current practice of feeding of Saudi infants is very far from compliance with even the most conservative WHO recommendations of exclusive breastfeeding for 4 to 6 months. In Saudi Arabia, few studies have assessed non-pregnant young adults' perceptions of infant feeding.

**Aims & Objective:** The study was conducted to To measure the knowledge and attitude of breastfeeding among attendees attending for premarital investigations as well as to assess the factors that might influence their knowledge & attitude.

**Materials and Methods:** Cross-sectional study of a systematic random sample of attendees attending for premarital investigations in the premarital investigation clinic in Al-Noor specialist hospital during the period 1st to 31st of August, 2012.

**Results:** A total of 217 future parents participated in the study. Overall, their age ranged between 15 and 69 with a mean of 25.21 ± 7.50 years. There were 87 males (40.1%) compared to 130 females (59.9%). All participants were Saudi. Breastfeeding knowledge scores ranged from 42.9% to 100%, with a mean score of 82% (SD=12.9), indicating overall good knowledge levels. Mean attitude score percent was 79.38 ± 12.80 with a range from 43.75% to 100%, indicating overall positive attitudes. All participants claimed that they have information regarding breastfeeding. Relatives were the most reported source of breastfeeding information in both males and females.

**Conclusion:** A major implication that can be drawn from the current study is that overall, future parents in Saudi Arabia have sufficient breastfeeding knowledge in most aspects. However, they have insufficient knowledge in few aspects that need special emphasis in health education campaigns.

**Key Words:** Breastfeeding; Premarital Investigation; Knowledge; Attitude; Saudi Arabia

## Introduction

The global strategy includes, as a priority for all governments, to ensure that the health and other relevant sectors protect, promote and support exclusive breastfeeding for six months and continued breastfeeding up to two years of age or beyond, while providing women access to the support they require – in the family, community and workplace – to achieve this goal.[1]

Human milk is recognized by the American Academy of Pediatrics as the optimal feeding for all infants, although supplementation with specially formulated human milk fortifiers is required to meet the nutritional needs of premature newborns.[2] Exclusive breastfeeding is recommended for the first six months after birth, and partial breastfeeding (breast milk plus complementary foods) for up to at least 12 months of age, and thereafter for as long as mutually desired.[2] The World Health Organization advises that partial breastfeeding continue up to two years of age, and beyond.[3] It defines exclusive breastfeeding as maternal milk being the only food source, with no other liquids or food given except medicines, minerals, and vitamins.[4] The Economic Research Service of the US Department of Agriculture estimates that achievement of this goal would result in annual savings of over 3.6 billion dollars due to reductions in infant morbidity.[5] A lack of exclusive breastfeeding during the first six months of life contributes to over a million avoidable child deaths each year.[6]

Breast milk is the ideal natural food for newborns and infants. It is safe, readily available and affordable, which helps to ensure that infants get adequate sustenance. Breastfeeding reduces child mortality and has health benefits that extend into adulthood.[7] Breastfeeding contributes to the health and well-being of mothers, it helps to space children, reduces the risk of ovarian cancer and breast cancer, increases family and national resources, is a secure way of feeding and is safe for the environment.[8] The Lactation amenorrhoea method has been shown to be 98% effective.[9] If Child is up to 6 months old; Mother is amenorrhoeic; Child is exclusively breast-fed.

Globally, despite WHO recommendations on breastfeeding,

less than 40% of infants under six months of age are exclusively breastfed.[7] In Saudi Arabia, the current practice of feeding of Saudi infants is very far from compliance with even the most conservative WHO recommendations of exclusive breastfeeding for 4 to 6 months.[10] In a review of statistics on breastfeeding in SA, the majority of mothers start breastfeeding their infants but soon introduce bottles.[11] The percent of exclusive breastfeeding was 1.7% and the partial breastfeeding was the most common type of feeding (78.8%). The single most common reason cited for the early introduction of bottle feeding is that the breast milk is insufficient.[12]

Infant feeding decisions depend on attitudes toward breastfeeding, which may be formed as early as adolescence.[13] Furthermore, knowledge was also found to be significant predicting factor for the decision to breastfeed in the future.[14] The success of programs that promote breastfeeding may depend on clear understanding of the attitudes that facilitate breastfeeding among the target population.[15] Thus, it has become critical to understand attitude toward infant feeding in the young, to identify appropriate ways of improving breastfeeding attitudes, and to determine requirements for the successful promotion of breastfeeding.[16]

In Saudi Arabia, few studies have assessed non-pregnant young adults' perceptions of infant feeding. As future parents, premarital couple's knowledge and attitude toward breastfeeding will be explored in this study because their knowledge and attitude may impact future breastfeeding decisions in SA. Males will be included as research has previously shown the importance of the father's preferences on the choice of infant feeding method. Giugliani et al. reported that father's opinion about breastfeeding was the most important factor related to breastfeeding.[17,18] In addition, father knowledge regarding breastfeeding found to be associated with higher rates of full breastfeeding at 6 months.[19]

The study aimed to explore the knowledge and attitude of breastfeeding among future parents attendees attending for premarital investigations in clinic at Al- Noor hospital in Makkah during August, 2012.

## Materials and Methods

A cross sectional study design was implemented in the premarital investigation clinic in Al- Noor hospital, Makkah Al- Mukkaramah city. It is the most holy city in Islam, is located in western Saudi Arabia in Central Hijaz & is the annual site for pilgrimage for Muslims from all over the world. In Makkah city, there are three premarital investigation clinics, one in Al-Noor specialist hospital, the second in Hera hospital and the third in maternity hospital. The study included all attendees attending for premarital investigations in the premarital investigation clinic in Al-Noor specialist hospital during the period 1st to 31st of August, 2012. The number of the attendees daily was around 30 attendees. The number of the sample estimated was 215 during one month period. A systematic random sampling technique was applied as every third person was recruited to participate in the study. The response rate was 92%.

The dependent variable was the breastfeeding knowledge and the attitude toward it while the independent variables were age, nationality, sex, education level, previous breastfeeding and sources of breastfeeding education. The knowledge and attitude scale had been previously developed and used in similar studies. This scale used is a self-administered already validated questionnaire consisting of the socio-demographic variables and questions measuring the knowledge and attitude.[20] It was modified to be fit for the target population. It is in English language. So, it was translated to Arabic language by an expert translator. Back translation was adopted from Arabic to English by a different translator. Then, the questionnaire was validated by two consultants of family physician. Finally, it was tested by pilot study to determine its applicability. Knowledge scores were recoded to reflect correct and incorrect responses and the total number of correct responses were calculated and converted into a percentage score out of 100. Regarding attitude score, score 0 was given to disagree attitude while score 1 was given to agree attitude. A total attitude score was calculated by summing all 16 attitude scale items and divided by the total number of items and then converted into a percentage score out of 100. To facilitate analysis, negatively worded items on the attitude scale were reverse coded to ensure consistent scoring so that higher attitude scores reflected more positive attitudes.

The questionnaire was distributed by the researcher and a trained nurse through meeting the target population,. Then, it was collected immediately. Pilot study was done on 20 attendees to test the questionnaire applicability and understanding. These date were not included in the current report.

Permission from joint program of family and community medicine was obtained, approval from Al- Noor specialist hospital, verbal consent from each participant was taken as well as confidentiality was ensured.

**Data entry and Statistical Analysis:**

Statistical Package for Social Sciences (SPSS) software version 16.0 was used for data entry and analysis. Descriptive statistics (e.g. number, percentage, range, standard deviation, arithmetic mean) and analytic statistics (students' t-test for comparison between means of two independent groups, one-way analysis of variance "ANOVA" test for comparison between means of more than two independent groups and chi Square tests ($\chi^2$) to test for the association and/or the difference between two categorical variables) were applied. Pearson`s correlation coefficient (r) was applied to test for the association between breastfeeding knowledge and attitude scores. P-value equal or less than 0.05 was considered statistically significant.

## Results

A total of 217 future parents (from both sexes) attending premarital investigation clinic in Makkah city in 2009 were recruited to explore their knowledge and attitude towards breastfeeding. Table 1 displays their demographic characteristics. Overall, the age of the participants ranged between 15 and 69 with a mean of 25.21±7.50 years. The age of females, as a separate group, ranged between 15 and 41 years with a mean of 22.85±4.69 years. Most of the participants from both sexes (70.0%) were 20 – 29 years old. There were 87 males (40.1%) compared to 130 females (59.9%). All participants were Saudi. The majority of the participants had no history of previous marriage working (85.3%). About one half of them were university graduated (48.4%) and one third were educated at the level of secondary schools (35.0%). Approximately half of them were students (47.5%) and one third were employee (33.6%). Only, 7.4% of them were jobless. Out of 32 participants with history of previous marriage, 23 (10.6% of the total sample) had children. Figure 1 displays that the majority of males (93.1%) wanted their future child to be breastfed as opposed to 64.6% of females. This difference was statistically significant (P<0.001).

Breastfeeding knowledge scores ranged from 42.9% to 100%, with a mean score of 82.0% (SD=12.9), indicating overall good knowledge levels. It is obvious from table 2 that there was no statistically significant difference between males and females in all knowledge statements except that 77.0% of males believed that most women make enough breast milk to adequately feed the baby as compared to 65.8% of females (P<0.05). Most participants were aware that breastfeeding was healthier, that breastfeeding helps prevent infections in the baby, that there are differences in breast milk and cow`s milk, that breastfeeding should be started soon after birth, and that breastfeeding alone provides sufficient nutrition in the first few months of life for the baby. Most of the participants (79.3%) believed that breastfeeding women should avoid eating certain foods and 68.7% believed that the ability to breastfed was related to breast size.

Table 3 displays the factors that might influence participants' knowledge of breastfeeding. Participants attended premarital investigation clinic and aged forty years or more had higher knowledge score as compared to all other age categories (89.68 ± 7.24 versus 84.33 ± 10.50, 80.40 ± 13.72, and 85.71 ± 10.31 for those in the age groups 15-19years, 20-29 years and 30-39 years respectively). These difference was statistically significant (P<0.05). There was no statistically significant difference (P>0.05) between males and females regarding breastfeeding knowledge score (82.02 ± 13.29 and 81.92 ± 12.74 for males and females respectively).

Surprisingly, participants with postgraduate level of education had the lowest breastfeeding knowledge score (77.55 ± 8.68), while those with elementary level of education had the highest breastfeeding knowledge score (85.71 ± 12.37). However, the difference was not statistically significant (P>0.05). Similarly, there was no statistically significant difference between participants of different job status regarding breastfeeding knowledge (P>0.05). Neither history of previous marriage, history of having children nor type of preferred infant feeding affect significantly the breastfeeding knowledge score as illustrated in table 3.

Participants' attitudes toward breastfeeding are shown in table 4. Mean attitude score percent was 79.38±12.80 with a range from 43.75% to 100%, indicating overall positive attitudes. Almost all respondents had respect for women who breastfed (98.6%) and agreed that breastfeeding helps a mother feel closer to her baby (98.6%). Breastfeeding in public was viewed as an acceptable practice by only 45.2% of respondents and 30.0% of participants believed that it would be embarrassing. Formula feeding was perceived as more convenient and providing more freedom to the mother in almost half of the participants (49.8%). The majority of respondents believe that women of all educational and socioeconomic levels should breastfeed and that formula feeding and breastfeeding benefited the child equally. No significant attitudinal differences were found between male and female participants in all attitude statements except for the belief that the decision to breastfeeding should be made by both parents, where 86.2% of males as opposed to 65.4%of

females agreed on that (P<0.001) as well as the belief that women of all educational levels should breastfeed their children where 93.1% of males and 98.5% of females agreed on that (P<0.05).

**Table-1: Demographic characteristics of the participants (n=217)**

| Socio-demographic variables | | Number | % |
|---|---|---|---|
| Age in Years | 15-19 | 31 | 14.3 |
| | 20-29 | 152 | 70 |
| | 30-39 | 25 | 11.5 |
| | ≥40 | 9 | 4.1 |
| | Range | 15-69 years | |
| | Mean ± SD | 25.21 ± 7.50 | |
| Gender | Male | 87 | 40.1 |
| | Female | 130 | 59.9 |
| Educational Level | Elementary | 7 | 3.2 |
| | Intermediate | 22 | 10.1 |
| | Secondary | 76 | 35 |
| | University | 105 | 48.4 |
| | Postgraduate | 7 | 3.2 |
| Job Status | Student | 103 | 47.5 |
| | Employee | 73 | 33.6 |
| | Housewife | 25 | 11.5 |
| | Jobless | 16 | 7.4 |
| Previous Marriage | Yes | 32 | 14.7 |
| | No | 185 | 85.3 |
| Having Children | Yes | 23 | 10.6 |
| | No | 194 | 89.4 |

**Table-2: Knowledge about breastfeeding among participants according to their sex (n=217)**

| Knowledge Statement | Responded Correctly N (%) | | | P-value* |
|---|---|---|---|---|
| | Males N=87 | Females N=130 | Total N=217 | |
| • For a baby, formula feeding is healthier than breastfeeding. | 70 (80.5) | 109 (83.8) | 179 (82.5) | 0.32 |
| • The baby sucking on the mother's breast is painful. | 49 (56.3) | 65 (50.0) | 114 (52.5) | 0.219 |
| • Breastfed baby are smarter than babies who are not breastfed. | 74 (85.1) | 110 (84.6) | 184 (84.8) | 0.545 |
| • There is no difference between breast milk, cow's milk and soymilk. | 80 (92.0) | 116 (89.2) | 196 (90.3) | 0.338 |
| • Breastfeeding alone provides sufficient nutrition in the first few months of life for the baby. | 78 (89.7) | 124 (95.4) | 202 (93.1) | 0.088 |
| • Nicotine, caffeine, and medicine are passed from mother's body to breast milk. | 71 (81.6) | 115 (88.5) | 186 (85.7) | 0.113 |
| • Most women make enough breast milk to adequately feed the baby. | 67 (77.0) | 83 (65.8) | 150 (69.1) | 0.027** |
| • The breastfeeding women should avoid eating certain foods. | 72 (82.8) | 100 (76.9) | 172 (79.3) | 0.193 |
| • Babies who are formula fed have more illness than babies who are breastfed. | 70 (80.5) | 110 (84.6) | 180 (82.9) | 0.268 |
| • Breastfeeding helps prevent infections in the baby. | 82 (94.3) | 123 (94.6) | 205 (94.5) | 0.567 |
| • Breastfeeding helps protect babies from having allergies. | 73 (83.9) | 115 (88.5) | 188 (86.6) | 0.222 |
| • A woman who has small breasts cannot breastfed. | 60 (69.0) | 89 (68.5) | 149 (68.7) | 0.53 |
| • Some babies have allergies to cow's milk. | 73 (83.9) | 108 (83.1) | 181 (83.4) | 0.513 |
| • Breastfeeding should be started as soon as possible after the baby is born. | 80 (92.0) | 124 (95.4) | 204 (94.0) | 0.224 |

* Based on Chi-square value; ** statistically significant

**Table-3: Factors that might influence participants' knowledge of breastfeeding (n=217)**

| Personal Habits | | Knowledge Score Percentage | | P-value* |
|---|---|---|---|---|
| | | Mean | SD | |
| Age in years | 15-19 | 84.33 | 10.5 | 0.035* |
| | 20-29 | 80.4 | 13.72 | |
| | 30-39 | 85.71 | 10.31 | |
| | ≥40 | 89.68 | 7.24 | |
| Gender | Male | 82.02 | 13.29 | 0.819 |
| | Female | 81.92 | 12.74 | |
| Educational level | Elementary | 85.71 | 12.37 | 0.475 |
| | Intermediate | 79.55 | 11.93 | |
| | Secondary | 81.02 | 12.65 | |
| | University | 83.2 | 13.58 | |
| | Postgraduate | 77.55 | 8.68 | |
| Job status | Student | 82.18 | 13.19 | 0.877 |
| | Employee | 82.39 | 12.38 | |
| | Housewife | 80 | 13.2 | |
| | Jobless | 81.7 | 14.28 | |
| Previous marriage | Yes | 81.47 | 13.44 | 0.92 |
| | No | 82.05 | 12.88 | |
| Having children | Yes | 84.47 | 13.04 | 0.395 |
| | No | 81.66 | 12.92 | |
| Type of preferred infant feeding | Exclusive breast | 81.9 | 13.21 | 0.908 |
| | Bottle or mixed | 82.14 | 12.13 | |

* P < 0.05

**Table-4: Attitudes toward breastfeeding among participants according to their sex (n=217)**

| Attitude Statement | Responded Positive Attitude, N (%) | | | P-value* |
|---|---|---|---|---|
| | Males N=87 | Females N=130 | Total N=217 | |
| • Breastfeeding makes breasts less attractive. | 68 (78.2) | 100 (76.9) | 168 (77.4) | 0.483 |
| • Breastfeeding would make my partner or me more attractive. | 63 (72.4) | 80 (61.5) | 143 (65.9) | 0.065 |
| • Babies enjoy breastfeeding more than formula feeding. | 83 (95.4) | 124 (95.4) | 207 (95.4) | 0.633 |
| • Breastfeeding will help a mother feel closer to her baby. | 86 (98.9) | 128 (98.5) | 214 (98.6) | 0.647 |
| • Formula feeding is more sanitary than breastfeeding. | 72 (82.8) | 107 (82.3) | 179 (82.5) | 0.542 |
| • Breastfeeding in public is embarrassing. | 24 (27.6) | 41 (31.5) | 65 (30.0) | 0.32 |
| • Formula feeding and breastfeeding benefit the child equally. | 79 (90.8) | 117 (90.0) | 196 (90.3) | 0.52 |
| • The decision to breastfeeding should be made by both parents. | 75 (86.2) | 85 (65.4) | 160 (73.7) | <0.001** |
| • Breastfeeding is acceptable in public. | 36 (41.4) | 62 (47.7) | 98 (45.2) | 0.219 |
| • Babies who are breastfed get a better start in life. | 84 (96.6) | 122 (93.8) | 206 (94.9) | 0.288 |
| • Women of all educational levels should breastfeed their children. | 81 (93.1) | 128 (98.5) | 209 (96.3) | 0.047** |
| • Women of all socioeconomic class should breastfeed their children. | 82 (94.3) | 120 (92.3) | 202 (93.1) | 0.396 |
| • Breastfeeding is more convenient than formula feeding. | 79 (90.8) | 112 (86.2) | 191 (88.0) | 0.207 |
| • I respect women who breastfeed. | 86 (98.9) | 128 (98.5) | 214 (98.6) | 0.647 |
| • Breastfeeding is cheaper than formula feeding. | 78 (89.7) | 118 (90.8) | 196 (90.3) | 0.48 |
| • Formula feeding gives more freedom to the mother. | 44 (50.6) | 64 (49.2) | 108 (49.8) | 0.478 |

* Based on Chi-square value; ** Statistically significant

Table 5 shows the factors that might influence participants' attitudes toward breastfeeding. Respondents aged forty years or more had higher attitude score as compared to all other age categories (84.03 ± 16.86 versus

77.02 ± 13.54, 78.95 ± 12.56, and 83.251 ± 11.23 for those in the age groups 15-19years, 20-29 years and 30-39 years respectively). However, these difference were statistically insignificant (P>0.05). There was no statistically significant difference (P>0.05) between males and females regarding their attitude toward breastfeeding (82.02 ± 13.29 & 81.92 ± 12.74 for males and females attitude score percentage respectively). Participants with postgraduate level of education had the lowest breastfeeding attitude score (76.79 ± 11.25), while those with elementary level of education had the highest breastfeeding knowledge score (82.14 ± 11.08). However, the difference was not statistically significant (P>0.05). There was no statistically significant difference between participants of different job status regarding their attitude to breastfeeding (P>0.05).

**Table-5: Factors that might influence participants' attitude toward breastfeeding (n=217)**

| Personal Habits | | Knowledge Score Percentage | | P-value* |
|---|---|---|---|---|
| | | Mean | SD | |
| Age in years | 15-19 | 77.02 | 13.54 | 0.195 |
| | 20-29 | 78.95 | 12.56 | |
| | 30-39 | 83.25 | 11.23 | |
| | ≥40 | 84.03 | 16.86 | |
| Gender | Male | 80.46 | 11.43 | 0.309 |
| | Female | 78.65 | 13.63 | |
| Educational level | Elementary | 82.14 | 11.08 | 0.696 |
| | Intermediate | 78.13 | 15.4 | |
| | Secondary | 78.21 | 11.66 | |
| | University | 80.48 | 13.28 | |
| | Postgraduate | 76.79 | 11.25 | |
| Job status | Student | 78.34 | 13.15 | 0.67 |
| | Employee | 80.39 | 11.57 | |
| | Housewife | 81 | 13.91 | |
| | Jobless | 78.91 | 14.59 | |
| Previous marriage | Yes | 81.64 | 12.39 | 0.28 |
| | No | 78.99 | 12.86 | |
| Having children | Yes | 82.34 | 13.54 | 0.242 |
| | No | 79.03 | 12.7 | |
| Type of preferred infant feeding | Exclusive breast | 80.42 | 12.08 | 0.033* |
| | Bottle or mixed | 76.08 | 14.47 | |

* P < 0.05

**Table-6: Sources of information about breastfeeding among participants according to their gender (n=217)**

| Sources of Information | Males (N=87) | | Females (N=130) | | Total (N=217) | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Media (TV/Radio) | 24 | 28 | 35 | 27 | 59 | 59 |
| Relatives | 35 | 40 | 64 | 49 | 99 | 99 |
| Schools | 24 | 28 | 54 | 42 | 78 | 78 |
| Doctors/nurses | 17 | 20 | 8 | 6.1 | 25 | 25 |
| Others* | 12 | 14 | 14 | 11 | 26 | 26 |

* Internet, newspapers, magazines, books. 22 males (25.3%) and 30 females (23.1%) had information from more than one source. $\chi^2 = 12.24$, P<0.01

**Table-7: Association of Source of information about breastfeeding among participants and knowledge score percentage (n=217)**

| Source of information | Knowledge Score Percentage | | P-value |
|---|---|---|---|
| | Mean | SD | |
| Media (TV/Radio) | 83.33 | 11.21 | |
| Relatives | 81.03 | 14.58 | |
| Schools | 79.97 | 18.13 | 0.793 |
| Doctors/nurses | 83.93 | 12.97 | |
| Others | 84.38 | 14.1 | |
| More than one source | 82.97 | 11.15 | |

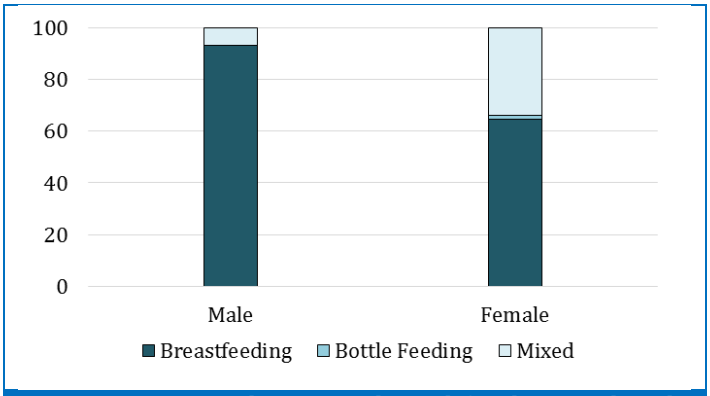


**Figure-1: Comparison between males and females regarding the most favorable way for future children feeding**

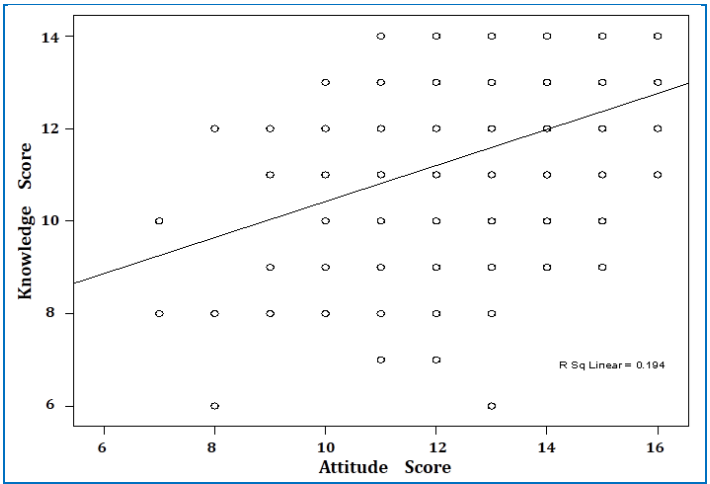


**Figure-2: Correlation between Respondents` breastfeeding knowledge and attitudes**

Neither history of previous marriage nor history of having children affect significantly the breastfeeding knowledge score as illustrated in table 5. Participants preferred exclusive breastfeeding had significant higher attitude score percentage as compared to those preferred bottle or mixed infant feeding (P<0.05). Figure 2 illustrates the positive correlation between respondents' breastfeeding knowledge and attitudes (r=0.44, P<0.001).

Table 6 displays the differences between males and females regarding sources of information about breastfeeding. All participants claimed that they have information regarding breastfeeding. Approximately one fourth of the participants (25.3% and 23.1% of males and females respectively) reported that they have information about breastfeeding from more than one source. The main source of information was relatives in both sexes separately and overall (40.2%, 49.2% and 45.6% for males, females and overall respectively). The second source of information was schools for females and overall (41.5% and 35.9% for females and overall respectively) while it was media and schools for males (27.6%). These differences were statistically significant (p<0.05). As shown in table 7, the highest breastfeeding knowledge

score percentage was reported among participants who had other sources of information e.g. internet, newspapers, magazines, books (84.38 ± 14.10) and lowest score percentage was reported among those who depend on schools as a source of information (79.97 ± 13.18). However, the difference was not statistically significant, P>0.05.

## Discussion

The overall aim of this study was to determine future parents' knowledge and attitudes toward breastfeeding in Makkah. To achieve this, a self-report questionnaire was completed by a representative sample of future parents attending premarital investigation clinic in Makkah city. To our knowledge, this is the first study to investigate the breastfeeding knowledge and attitudes of Saudi future parents and focus on those attending premarital investigation clinics. In Hong Kong, similar questionnaire has been used for university students.[20]

The findings from this study do support the evidence that have been documented by others that even in a group of adults not imminently considering pregnancy and childbearing, infant feeding knowledge levels are already high.[22] In the current study the level of breastfeeding knowledge is high with no significant difference between participants with history of previous marriage and those with that history.

Although the data indicate that this sample of future parents have positive breastfeeding attitudes, direct comparisons with results from other studies are difficult because of the differences in the items included, methods used to calculate scores, and the study populations. Nevertheless, the present study and a Hong Kong study that included university students in its cohort[20] and an Indian study included adolescent girl students[23] used different subsets of items and recorded similar positive attitude scores.

For mothers, breastfeeding is not a simple nutritional decision.[24] Attitudes and social norms strongly influence the breastfeeding decision. Although breastfeeding in public was considered acceptable by 45.2% of the participants and 30.0% of them reported that they would nonetheless find it embarrassing. These findings highlight a conflict that new mothers often face. While breastfeeding is promoted by health care professionals and most people are aware that it is healthier for babies, In Saudi Arabia, in other Islamic countries and in other places, breastfeeding in public is not well accepted. Some public places provide clean and private facilities for breastfeeding women and new mothers are expected to use bottles to feed their children while in public. Thus, breastfeeding women either restrict their activities outside the home, or when taking their infants out in public, prepare a bottle of infant formula to feed the baby.[25] Hence, although overall breastfeeding attitudes were positive, it was perceived as inconvenient, embarrassing, and restrictive of the mother`s freedom as mentioned by almost half of the participants in the current study.

Although the health benefits of breastfeeding were widely understood by participants in the current study, the great majority (90.3%) also perceived that formula could equally beneficial. This percentage was higher than that have been reported in Hong Kong.[21] Infant formula is often regarded as the "normal" method of infant feeding, whereas breastfeeding is perceived as the "deluxe" or "premium" feeding method.[26] To counter these misperceptions, breastfeeding needs to be promoted as the normal method of infant feeding and anything else is less than optimal. Health professionals have been reluctant to educate childbearing families about the risks associated with infant formula feeding for fear of making mothers feel guilty about not breastfeeding. Infant formula, however, carries health risks for infants that are not insignificant.[27] And childbearing families and the general population need to be made aware of these risks. It is the responsibility of health professionals to ensure that future and expectant parents are able to make fully informed decisions about infant feeding.

In the current study, less educated participants had more breastfeeding knowledge and more positive attitude towards breast feeding than those with higher educational levels, although it was not significant. The same finding has been reported in Jordan, 2006.[28] In contrast, education had a positive effect on breastfeeding in wester communities and developed countries.[29,30]

In the current study, a significant higher percentage of females than males (30.9% versus 23.0% for females and males respectively) do not believe that most women make enough breast milk to adequately feed the baby. Studies throughout the world have identified that concern about milk supply is the most common reason women give for stopping breastfeeding.[31] Education for women regarding time needed for colostrum to change to transitional milk and education regarding ways of successful breastfeeding can be valuable in decreasing concern about milk supply.

Improving infant feeding knowledge through antenatal

education programs is often the primary strategy to increase breastfeeding rates elsewhere.[22] However, this strategy has been somewhat successful in improving breastfeeding initiation rates but has been less successful in increasing duration and exclusivity.[32]

Consistent with the literature the majority of the respondents indicated their intention to have their own children breastfed.[33] The current study further supports previous studies that indicate attitudes toward breastfeeding methods begin to form well before pregnancy. However, as mentioned by Creenwood and Littlejohn, 2002, that many adolescents have not yet made a firm decision on infant feeding methods.[34] Hence, breastfeeding education and health promotion emphasising breastfeeding as the optimal nutritional basis is supported for both primary and secondary school students to promote positive breastfeeding attitudes in potential future parents.

In accordance to the results of the current study, other studies reported that family is an important as a source of influential information in relation to breast feeding. In this and other studies the participant`s family is reported as an important influence on the attitude toward breastfeeding, whether this be negative or positive.[33,35] Thus, relatives of adolescents, especially mothers, may be an important source of information and therefore should be included in breastfeeding education and health promotion interventions.

Since attitudes toward breastfeeding are formed long before pregnancy and most parents have made a decision on the method of infant feeding well before the pregnancy, it is not sufficient to focus education and promotion programs on childbearing families during the antenatal period. Prenatal education is unlikely to modify these deeply embedded misconceptions.[20]

## Conclusion

Conclusively, overall, future parents in Saudi Arabia have sufficient breastfeeding knowledge in most aspects and overall positive attitude. However, they have some msiconceptions and insufficient knowledge in few aspects that need special emphasis in health education campaigns.

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