



## **Breastfeeding Indicators in Jazan Region, Saudi Arabia**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Authors MSM, HMK, AAA, AHA, ARA, EAB, MAA, SAH, RMQ and AAI prepared the project proposal and designed the research paper. Author MSM performed data analysis. Authors MSM, HMK, AAA, AHA, ARA, EAB, MAA, SAH, RMQ and AAI wrote the manuscript and provided significant input on the manuscript. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Aims:** The study aimed at exploring breastfeeding indicators and examining the effect of some demographic and maternity factors on exclusive breastfeeding among mothers of Jazan region, south west Kingdom of Saudi Arabia (KSA).

**Study Design:** Observational cross-sectional study design.

**Place and Duration of Study:** The study conducted in Jazan region, south west Kingdom of Saudi Arabia (KSA), during November 2012

**Methodology:** Community survey covered a random sample of 400 mothers who have at least one child less than 5 years old. Participants were interviewed using structured questionnaire containing background characteristics and breastfeeding information. Descriptive statistics were used for summarizing study variables. Differences in proportions were compared for significance using Chi Square/Fisher exact test. Logistic regression analysis was also used to test some associations with exclusive breastfeeding. All tests were two-sided and  $p < 0.05$  was considered statistically

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significant

**Results:** The majority of the women 93% had ever breastfed their infants (95% C.I. (90.0-95.1)). Prevalence of breastfeeding initiation was 44.1% [95% C.I. (39.1-49.2)] as mothers initiated breastfeeding after less than hour after delivery. The prevalence of exclusive breastfeeding was 26.9%, (95% C.I. (22.6-31.6)). Regarding reasons for discontinuing breastfeeding, the main reason led the mothers to wean their infants was diminished milk supply (45.9%).

**Conclusion:** The study recommends encouragement of exclusive breastfeeding. Promotion of breastfeeding support groups is essential for advocating the great benefits and advantages of breastfeeding for mothers and their babies.

*Keywords: Exclusive breastfeeding; initiation of breastfeeding; weaning.*

## 1. INTRODUCTION

The World Health Organization (WHO) acknowledged the importance of breastfeeding and strongly recommended the exclusive breastfeeding for the period of first six months of life and to be continued to two years of age or beyond. Promotion of exclusive breastfeeding is the single most cost-effective intervention to reduce infant morbidity and mortality in developing countries [1-5].

Breastfeeding contributes to the health and well-being of mothers; it helps children spacing, reduces the risk of ovarian and breast cancer, increases family and national resources is a secure way of feeding the infant. More over breastfeeding creates a unique emotional relationship between the mother and her baby, since breastfeeding meets both the nutritional and nurturing needs.

The benefits of breastfeeding for infant extend to decreases of risk of death dramatically as the infant grows [1]. The growing huge amount of literature suggests new evidences on benefits of the breastfeeding. In a meta-analyses of 60 recent publications WHO studied the long-term outcomes of breastfeeding on blood pressure, type-2 diabetes, serum cholesterol, overweight and obesity and intellectual performance [5]. The meta-analyses revealed that benefits are great for children and adolescents, and smallest among adults, suggesting a gradual dilution of the effect with time [5].

Many studies had been conducted on breastfeeding in Kingdom of Saudi Arabia (KSA) during the past two decades. Study conducted in Al Kharj health center, between the period of November 2000 to February 2001 to gather statistics on breastfeeding prevalence and demographic characteristics of breastfeeding in general population. The results of this study revealed that partial breastfeeding was the most common mode of infant feeding among study sample with 66.1% while exclusive breastfeeding was among 27.3% of mothers [6].

In Al-Hassa, KSA 2009 study conducted to investigate exclusive breastfeeding among mothers attending primary healthcare centers for vaccinating their infants at the age of 6 months. The results indicated that only 24.4% of infants were exclusively breastfed at the age of 6 months [7]. A recent study conducted in Riyadh, 2010 to investigate the knowledge and attitude of Saudi women towards breastfeeding practice. The results of this study found that attitudes towards exclusive breastfeeding was low despite high level of their education, as 36.8% of women planned to exclusively breastfeed during the first few weeks [8].

The literature review of medical research on breastfeeding practice in Jazan region south west KSA suggested no previous study published on this important issue. For this reason, we decided to explore breastfeeding indicators in this area of KSA. The aim of this study is to investigate breastfeeding practices and its associated factors, with special emphasis on exclusive breastfeeding among mothers in Jazan region, KSA.

## **2. MATERIALS AND METHODS**

### **2.1 Study Area**

The study was conducted in Jazan, the smallest province of KSA, located in south-western part of country. It is bounded to the north by Asir province, the south by the State of Yemen, to the east by both Asir province and the State of Yemen. Jazan covers an area of 11,671 km<sup>2</sup> and populated with 1,365,110 populations according to the last population census conducted in 2010.

### **2.2 Study Design and Participants**

Observational cross-sectional descriptive study design was employed for this study. The focus of this study was mothers the reproductive age (15-49) who have at least one child less than five years of age.

### **2.3 Sampling Size and Design**

Based on the values  $\pi = 0.5$  (as no previous estimate of prevalence of breastfeeding in Jazan province), desired marginal error = 0.05 and z or (confidence level 95%) = 1.96, non-response rate 10% and design effects 1.5, the study sample size was estimated at 400 women. The sample design was two stages cluster random sampling based on the Jazan sub administrative units. In the first stage five sub administrative units were selected randomly among the 14 sub-administrative units comprising Jazan province. The second stage involved the selection of eighty eligible women from each selected sub-administration unit using systematic random sampling method.

### **2.4 Data Collection and Study Instrument**

Data was collected using structured questionnaire composed of 21 questions arranged in two categories; the first part collects information on demographics and socioeconomic background characteristics of mothers; age of child, educational status of mother and father, family income use of contraceptives, total number of children ever born and some obstetric factors. The second part devoted to collect information on mother's breastfeeding practice; duration of breastfeeding, reasons of weaning, child feeding practice during the first six months. Before actual data collection stage started, a pilot survey was conducted among 30 participants. The main objective of the pre-testing was to test the adequacy and the content of the questionnaire, length of interview and identification of the study respondents. Data were collected during November 2012

### **2.5 Data Management and Statistical Analysis**

Data was collected by medical students. Data was verified, cleaned and entered at Jazan Faculty of Medicine. Data entered and analyzed using the SPSS software (version 17.0).

The dependent variables were; naturally breastfed which was categorized dichotomously as (no/yes); breastfeeding initiation, categorized into three periods (less than the 1st hour, from 1 to 23 hour and after 3 days) and exclusive breast-feeding, which was defined as the mother/care taker reported that nothing else but breast milk was given to the infant during the first four months and categorized as (no/yes). Descriptive statistics (Frequencies, cross tabulation and percentages) were used for summarizing the dependent and outcome variables. Pearson's chi-square/Fisher Exact test was used to assess differences between proportions. Logistic regression was also used to test some associations with exclusive breastfeeding. All tests were two-sided and  $p < 0.05$  was considered statistically significant

### 3. RESULTS

Table 1 provides some background characteristics of the studied mothers. The table shows that majority of women were in the age group (15-29). Regarding educational status, 70% of the women were university graduates. Moreover 47.5 % of women are government employee, while house wives were 33.5% of the women. The table also shows the distribution of mothers who are currently using family planning methods. Results showed that 76.3% of them were current user of contraceptive methods, while non-users were constituted 23.8%. Regarding contraceptive methods 40.5% of the women were using hormonal methods.

**Table1. Some background characteristics of the studied women**

| Characteristics            | N          | %          | Characteristics              | N          | %          |
|----------------------------|------------|------------|------------------------------|------------|------------|
| <b>Mother's Age</b>        |            |            | <b>Contraceptives Use</b>    |            |            |
| 15-19                      | 16         | 4.0        | Users                        | 305        | 76.2       |
| 20-24                      | 89         | 22.2       | Non-Users                    | 95         | 23.8       |
| 25-29                      | 94         | 23.5       | <b>Contraceptive type</b>    |            |            |
| 30-34                      | 86         | 21.5       | Hormonal                     | 162        | 40.5       |
| 35-39                      | 86         | 21.5       | Local                        | 78         | 19.5       |
| over the 40                | 29         | 7.3        | Natural                      | 57         | 14.3       |
| <b>Mother's education</b>  |            |            | Other                        | 8          | 2.0        |
| Illiterate                 | 2.0        | 0.5        | NA                           | 95         | 23.7       |
| Primary                    | 14         | 3.5        | <b>Child gender</b>          |            |            |
| Intermediate               | 23         | 5.8        | Male                         | 229        | 57.3       |
| Secondary                  | 81         | 20.3       | Female                       | 171        | 42.8       |
| University and above       | 280        | 70.0       | <b>Child Age (in Months)</b> |            |            |
| <b>Mother's occupation</b> |            |            | 1-11                         | 110        | 27.5       |
| House Wife                 | 135        | 33.8       | 12-23                        | 107        | 26.8       |
| Government                 | 190        | 47.5       | 24-35                        | 82         | 20.5       |
| Other                      | 75         | 18.8       | 36-47                        | 60         | 15.0       |
| <b>Total</b>               | <b>400</b> | <b>100</b> | 48-60                        | 41         | 10.3       |
|                            |            |            | <b>Total</b>                 | <b>400</b> | <b>100</b> |

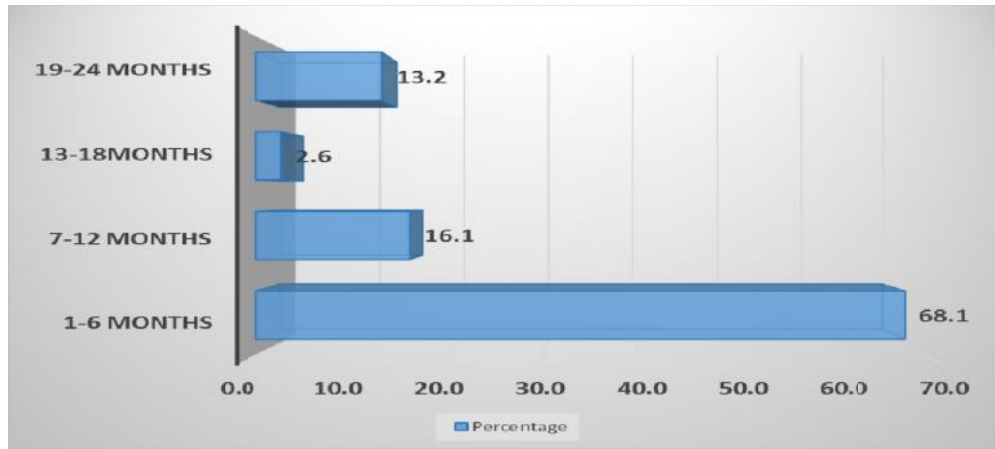
Table 2 illustrates the distribution of natural breastfeeding among the women. It is clear from the table that the majority of the women 93% had ever breastfed their infants (95% C.I. (90.0-95.1)). Furthermore 48.2% of the women had breastfed their infants for a period of full four months (95% C.I. (42.6-53.7)). When women asked about breastfeeding initiation, 44.1%, (95% C.I. (39.1-49.2)) initiated breastfeeding after less than hour from delivery. It is clear from the table that woman who exclusively breastfed for full four months were 26.9%, (95% C.I. (22.6-31.6)). Fig. 1 on the other hand provides the distribution of breastfeeding for six months intervals. From the graph 68.1% of the women breastfeeding their infants for six

months period, while 84.2% of the women completed one year breastfeeding their babies. The table further suggested no significant difference between, breastfeeding indicators for male and female children (*P*. Value >0.05 for all)

**Table 2. Breastfeeding practice among studied women**

| Variable                                   | Category        | Male N (%) | Female N (%) | Total N (%) | 95% C.I   | <i>P</i> . Value* |
|--|-----------------|------------|--------------|-------------|-----------|-------------------|
| <b>Ever Breastfed (n=400)</b>              | Breastfed       | 211(92.1)  | 161(94.2)    | 372(93.0)   | 90.0-95.1 | 0.550             |
|  | Not-Breastfed   | 18(7.9)    | 10(5.8)      | 28(7.0)     | -         |                   |
| <b>Duration of Breastfeeding (n=305)</b>   | ≤ 4 month       | 86(48.9)   | 61(47.3)     | 147(48.2)   | 42.6-53.7 | 0.430             |
|  | >4 month        | 90(51.1)   | 68(52.7)     | 158(51.8)   | -         |                   |
| <b>Initiation of Breastfeeding (n=372)</b> | Less than 1hour | 100(47.4)  | 64(39.8)     | 164(44.1)   | 39.1-49.2 | 0.080             |
|  | More than 1hour | 111(52.6)  | 97(60.2)     | 208(55.9)   | -         |                   |
| <b>Exclusive Breastfeeding (n=372)</b>     | Exclusive       | 61(28.9)   | 39(24.2)     | 100(26.9)   | 22.6-31.6 | 0.086             |
|  | Non-exclusive   | 150(71.1)  | 122(75.8)    | 272(73.1)   | -         |                   |

Based on Fisher exact test



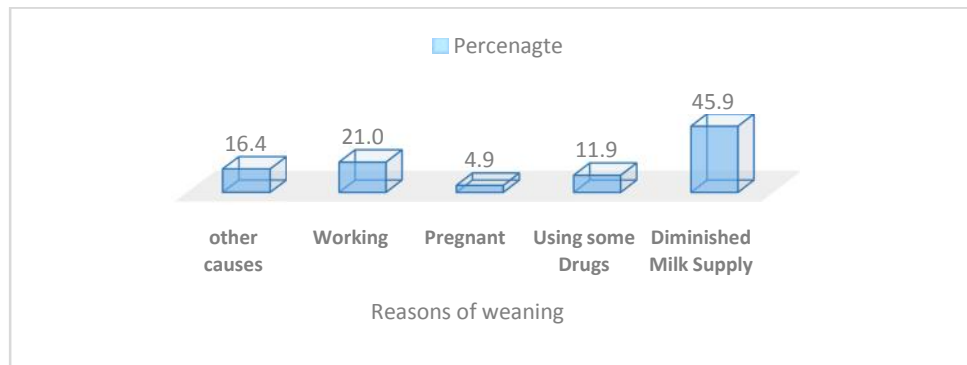
**Fig. 1. Duration of breastfeeding among studied women**

To determine factors associated with exclusive breastfeeding, Table 3 presents some socio-economic and maternal characteristics for mothers who breastfed exclusively compared with non-exclusively breastfeed for the same period. According to the table exclusive breastfeeding increases with increase of mother's age but with no significant difference between women who exclusively breastfed their infants and those who did not, *P*. Value = 0.584. The table further showed that pattern of exclusive breastfeeding does not change with changing in mother occupation status *P*. Value = 0.170, all other factors in the table were not associated with or influencing exclusive breastfeeding among studied women.

**Table 3. Exclusive breastfeeding by socio-demographic characteristics of mothers in Jazan Region**

| Characteristics                       | Exclusive breastng   |           | P. Value  |              |
|---------------------------------------|----------------------|-----------|-----------|--------------|
|                                       | Yes N %              | No N %    |           |              |
| Age Groups                            | 15-19                | 3(21.4)   | 11(78.6)  | 0.584        |
|                                       | 20-24                | 18(20.7)  | 69(79.3)  |              |
|                                       | 25-29                | 23(25.6)  | 67(74.4)  |              |
|                                       | 30-34                | 23(29.5)  | 55(70.5)  |              |
|                                       | 35-39                | 25(32.9)  | 51(67.1)  |              |
|                                       | over the 40          | 8(29.6)   | 19(70.4)  |              |
| Mother`s education                    | Illiterate           | 0(0.0)    | 2(100.0)  | 0.513        |
|                                       | Primary              | 3(23.1)   | 10(76.9)  |              |
|                                       | Intermediate         | 9(40.9)   | 13(59.1)  |              |
|                                       | Secondary            | 18(24.3)  | 56(75.7)  |              |
|                                       | University and above | 70(26.9)  | 190(73.1) |              |
| Mother`s occupation                   | House Wife           | 35(26.7)  | 96(73.3)  | 0.170        |
|                                       | Employed             | 52(30.4)  | 119(69.6) |              |
|                                       | Other                | 13(18.6)  | 57(81.4)  |              |
| Contraceptive Use                     | Users                | 76(26.8)  | 208(73.2) | 0.513        |
|                                       | Non-users            | 24(27.3)  | 64(72.7)  |              |
| Parity                                | One Child            | 22(19.8)  | 89(80.2)  | 0.146        |
|                                       | 2-4                  | 55(30.2)  | 127(69.8) |              |
|                                       | More than 5          | 18(26.9)  | 49(73.1)  |              |
| Received Information During Pregnancy | Yes                  | 100(27.3) | 266(72.7) | <b>0.170</b> |
|                                       | No                   | 0(0.0)    | 6(100.0)  |              |

Since all variables presented in Table 3 were not significantly associated with exclusive breastfeeding, we re-coded variables in the table and conducted logistic regression analysis. Table 4 shows the results of binary logistic regressions analysis. According to the table only age group (15-29) has a marginal significant impact on exclusive breastfeeding (OR: 1.80; 95% CI: 0.95-3.39). Fig. 2 illustrates the main reasons which lead the mothers to stop breastfeeding. It was clear that the main reason led the mothers to wean their infants was diminished milk supply (45.9%). Only 4.9% of them stopped breastfeeding because they were pregnant.



**Fig. 2. Reasons for stopping breastfeeding**

**Table 4. Logistic regression analyses of exclusive breastfeeding related factors among study participants**

| Category                  | OR   | 95% C.I.   | P. Value |
|---------------------------|------|------------|----------|
| <b>Gender</b>             |      |            |          |
| Female (Ref.)             | 1    |            |          |
| Male                      | 1.27 | 0.79 -2.03 | 0.313    |
| <b>Age groups(Ref.)</b>   |      |            |          |
| 14-24 years               | 1    |            |          |
| 25-34 years               | 1.80 | 0.95-3.39  | 0.050    |
| More than 35 years        | 1.25 | 0.73- 2.14 | 0.413    |
| <b>Educational Status</b> |      |            |          |
| Secondary and below       | 1    |            |          |
| University and above      | 1.01 | 0.61-1.66  | 0.984    |
| <b>Working Status</b>     |      |            |          |
| No(Ref.)                  | 1    |            |          |
| Yes                       | 1.01 | 0.63-1.64  | 0.960    |
| <b>Mode of Residence</b>  |      |            |          |
| Urban(Ref.)               | 1    |            |          |
| Rural                     | 1.23 | 0.66-2.34  | 0.495    |
| <b>Parity</b>             |      |            |          |
| One Child (Ref.)          | 1    |            |          |
| 2-4                       | 1.49 | 0.73-3.03  | 0.277    |
| More than 5               | 0.85 | 0.54-1.57  | 0.606    |
| <b>Contraceptives Use</b> |      |            |          |
| No(Ref.)                  | 1    |            |          |
| Yes                       | 1.03 | 0.60-1.76  | 0.925    |

#### 4. DISCUSSION

Breastfeeding is a natural pulse of all mothers as it allows them to express their love, tenderness and protection for their children. Islam recognizes and highlighted the importance of breastfeeding practice before some 1400 years. Our study results revealed that ever breastfeeding was found to be high at 93% among the study population in Jazan province indicating high breastfeeding initiation rate. This finding is similar to recent study conducted in Riyadh, which showed breastfeeding prevalence to be 95%[9]. Our results have shown that duration of breastfeeding for 6 months was 68.1%, which is higher than the results of the study conducted in Riyadh which provided 50% [9].

It is recommended that all newborns should start breastfeeding immediately within the first hour after delivery, the prevalence of timely initiation of breastfeeding among Jazan mothers was 44.1% lower than studies conducted in Sudan 54.2% [10], Jordan 86.6% [11], Nepal 72.2% [12], Ethiopia 52.4% [13]. The exclusive breastfeeding for four months was found to be 26.9% to some extent in conformity with studies conducted in other places of KSA [6,7].

Factors that determine stoppage of breastfeeding in our study were insufficient milk as a main cause 45.9%, which is similar to studies conducted in New Zealand and Riyadh, KSA [14,15]. Other factors that influence breastfeeding duration are work of the mother using some drug and pregnancy during breastfeeding. Only 4.9% of the women reported stoppage of breastfeeding for pregnancy reason, this is in contrast to study conducted in Sudan which indicated that pregnancy was the main reason for discontinued of breastfeeding for 54.1% of the women [10]. Only 65.8% of mothers have previously received breastfeeding education

from their doctor during Antenatal Care (ANC) visits. These results confirm the previously reported study in Riyadh, KSA [8].

The main strength of this study is that it is the first study to investigate breastfeeding in Jazan region, however some significant limitations should be mentioned; first the study is based on a cross-sectional survey design, and we can confirm associations but not causality based on these data. Also the study sample may not be well representative for all Jazan women, this is clear from the distribution of the mother's level of education which indicate that the majority of the women are university graduates which is not true in the actual population. Also caution should be considered when comparing exclusive breastfeeding with other studies, since our study defines exclusive breastfeeding for the first four months of life. Finally the statistical analysis assumed a simple random sample and thus may under estimate variances in some cases.

## **5. CONCLUSION**

The findings of this study suggested that prevalence of ever breastfeeding among mothers in Jazan region was high, but exclusive breastfeeding was below WHO young child feeding recommendations. The results further showed that reduced amount of milk were the main reason leading mothers to shift to other alternatives feeding their babies. Another cause that hinders mother from breastfeeding was being out for work.

Finally the study recommends encouragement of exclusive breastfeeding and it should be given a high priority in all health education plans. Also promotion of breastfeeding support groups is essential for advocating the great advantages of breastfeeding for mothers and their babies.

## **CONSENT**

Not applicable.

## **ETHICAL APPROVAL**

This study was conducted in accordance to ethical standards within the political borders of the Kingdom of Saudi Arabia. All participants involved in this study have read, understood and signed a written consent form. The study has been approved by Jazan University, Kingdom of Saudi Arabia.

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## **COMPETING INTERESTS**

The authors have no conflict of interest to declare.



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