DURATION OF BREASTFEEDING AND FACTORS THAT AFFECT IT IN ALMADINAH 2016

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Breastfeeding has a number of benefits to both mother and baby, which infant formula lacks. Health organizations, including the World Health Organization (WHO), recommend breastfeeding exclusively for six months. This means that no other foods or drinks other than possibly vitamin D are typically given. After the introduction of foods at six months of age, recommendations include continued breastfeeding until at least one to two years of age.

Sample of 420 participants was collected in Almadinah City, in Saudi Arabia. The study included 420 participants a Postal survey was sent to mothers randomly from the general population of Almadinah using a questionnaire based on discussed risk factors.

87% of mothers breastfeed their babies while 13% never did. 31% of mothers breastfeed their babies for 1-6 months, 21% for 6-12 months, 22% for 12-18 months, 27% for 18-24 months. 66% used supplementary milk while 34% never used it.

The percentage of breastfeeding in Almadina is higher than expected, higher than global percent by 6%. The average duration of breastfeeding in Almadinah is higher than other city in KSA. There is no relation between age and breastfeeding and its duration and supplementary milk use.

Introduction and literature review:

Breastfeeding or nursing is the feeding of babies and young children with milk from a woman's breast. Health professionals recommend that breastfeeding begin within the first hour of a baby's life and continue as often and as much as the baby wants. During the first few weeks of life babies may nurse roughly every two to three hours. The duration of a feeding is usually ten to fifteen minutes on each breast. Older children feed less often. Mothers may pump milk so that it can be used later when breastfeeding is not possible. Breastfeeding has a number of benefits to both mother and baby, which infant formula lacks [1].

Health organizations, including the World Health Organization (WHO), recommend breastfeeding exclusively for six months. [2]

This means that no other foods or drinks other than possibly vitamin D are typically given. After the introduction of foods at six months of age, recommendations include continued breastfeeding until at least one to two years of age. [3]
Globally about 38% of infants are only breastfed during their first six months of life.[4] In the United States, about 75% of women begin breastfeeding and about 13% only breastfeed until the age of six months.[3]

Breast milk has an optimal balance of fat, sugar, water, and protein that is needed for a baby's growth and development. Breastfeeding triggers biochemical reactions which allows for the enzymes, hormones, growth factors and immunologic substances to effectively defend against infectious diseases for the infant.

The first type, produced during the first days after childbirth, is called colostrum. Colostrum is easy to digest although it is more concentrated than mature milk. It has a laxative effect that helps the infant to pass early stools, aiding in the excretion of excess bilirubin, which helps to prevent jaundice.

In addition, AAP states that while breastfeeding mothers "should avoid the use of alcoholic beverages", an "occasional celebratory single, small alcoholic drink is acceptable, but breastfeeding should be avoided for 2 hours after the drink. [5]

Weaning is the process of replacing breast milk with other foods; the infant is fully weaned after the replacement is complete. Psychological factors affect the weaning process for both mother and infant, as issues of closeness and separation are very prominent[6]

Breast milk contains several anti-infective factors such as bile salt stimulated lipase (protecting against amoebic infections) and lactoferrin (which binds to iron and inhibits the growth of intestinal bacteria). [7][8]

Infants exclusively breastfed have less chance of developing diabetes mellitus type 1 than those with a shorter duration of breastfeeding.[9]

Infants that are otherwise healthy uniformly benefit from breastfeeding. "No known disadvantages" stem from breastfeeding. However, extra precautions should be taken or breastfeeding be avoided in circumstances including certain infectious diseases, or use of certain medications[10][11]

Race, ethnicity and socioeconomic status affect choice and duration in the United States. A 2011 study found that on average, US women who breastfed had higher levels of education, were older and were more likely to be white.

Globally about 38% of babies are just breastfeed during their first six months of life.[2] In the United States as of 2012, 75% of women started breastfeeding, 43% breastfeed for six months though only 13% exclusively breastfed, and 23% breastfeed for twelve months. [12]

Breastfeeding rates in the United Kingdom were the lowest in the world in 2015 with only 0.5% of mothers still breastfeeding at a year, while in Germany 23% are doing so, 56% in Brazil and 99% in Senegal.[13]

That compares with 23% in Germany, 56% in Brazil and 99% in Senegal.

The researchers said it was a "widespread misconception" that breastfeeding was beneficial only in poor countries.

In the UK, 81% of mothers had tried breastfeeding at some point, but only 34% were breastfeeding at six months and 0.5% at 12 months.

In the US, 79% started, 49% were still going after six months and 27% after a year.

It is the worst record in the world. Breastfeeding is far more common in developing countries, but the UK figures are behind even similar countries in Europe.

Women in the UK are advised to feed their baby exclusively on breast milk for the first six months and then a combination of breast milk and other foods, however, it does not give a recommend end-point.[14]
Objectives:-
- To know the duration of breastfeeding in Almadinah 2016.
- To study the risk factors that affect the duration of breastfeeding.
- To know the percentage of use supplementary milk.

Method and participant:-
Sample of 420 participants was collected in Almadinah City, in Saudi Arabia. The study included 420 participants. A postal survey was sent to mothers randomly from the general population of Almadinah using a questionnaire based on discussed risk factors. Data were analyzed using SPSS version 16. Univariate analysis was done and cross tabulation was used to summarize the frequency and percentage of the variables. Chi-square was used as an appropriate statistical test and $P \leq 0.05$ was used as a statistical significant level. Multiple regression was used to control for confounders and assess the risk factors.

Results:-
87% of mothers breastfeed their babies while 13% Never did. 31% of mothers breastfeed their babies for 1-6 months, 21% for 6-12 months, 22% for 12-18 months, 27% for 18-24 months.

66% used supplementary milk while 34% never used it.

50% of mothers who used supplementary milk between the first month to six months, 31% after 6 months 19% after 1 year.

A total of 422 person participated in the survey.
The majority of the respondents 91% are Saudi mothers and 9% non-saudi mothers.
The majority of mothers:-
87% of mothers who have breastfeed their babies.

The minority of mothers:-
13% of mothers did not breastfeed their babies.

The majority of mothers:
50% of mothers who used supplementary milk between the first month to six months.

After how long the mothers starting use of supplementary milk

- After six months: %19
- Between one month to six months: %31
- After one year: %50

The majority of mothers:
50% of mothers who used supplementary milk between the first month to six months.
The mid point of mothers:-
31% of mothers who used supplementary milk after six months.

The minority of mothers:-
19% of mothers who used supplementary milk after one year.

The majority of mothers:-
66% of mothers they used supplementary milk.

The minority of mothers:-
34% of mothers they did not used supplementary milk.
42% of mothers breastfed their children only when they need to breastfeed
30% of mothers breastfed their children 4-6 times a day
28% of mothers breastfed their children 1-3 times a day

31% of the mothers were breast-feeding period for their newborns from 1 month to 6 months
27% of the mothers were breast-feeding period for their newborns from one year and half to two years.
22% of the mothers were breast-feeding period for their newborns from one year to one year and a half.
21% of the mothers were breast-feeding period for their newborns from 6 months to one year.

![Percentage of age compared with the use of supplementary milk](chart)

63% of mothers aged between 20-30 years were using supplementary milk and 37% did not use supplementary milk.
68% of mothers aged between 30-40 years were using supplementary milk and 32% did not use supplementary milk.
69% of mothers aged more than 40 years were using supplementary milk and 31% did not use supplementary milk.
63% of mothers aged less than 20 years were using supplementary milk and 37% did not use supplementary milk.

**After the hypothesis:**
Alternative hypothesis: that there is a relationship between age and people who are using supplemental milk.
Value of Chi-Square Tests = 1.066
Degree of freedom = 3
And the p-value was = 0.785

**After statistical test Chi-Square for Independence:**
with Confidence level 95% turned out there is no relation between age and the people who are using supplemental milk. These two variables are independent.
## Mothers less than 20 years:
- 34% were breastfeeding period of one month to 6 months
- 25% were breastfeeding period from one year and a half to two years
- 22% were breastfeeding period from year to year and a half
- 19% were breastfeeding period of 6 months to a year

## Mothers aged 20-30 years:
- 33% were breastfeeding one month to 6 months
- 29% were breastfeeding period than a year and a half to two years
- 18% were breastfeeding period from year to year and a half
- 20% were breastfeeding for 6 months to a year

## Mothers aged 30-40 years:
- 30% were breastfeeding one month to 6 months
- 26% were breastfeeding period from year to year and a half
- 24% were breastfeeding period than a year and a half to two years
- 20% were breastfeeding for 6 months to a year

## Mothers more than 40 years:
- 31% were breastfeeding period than a year and a half to two years
- 26% were breastfeeding period from year to year and a half
- 23% were breastfeeding period of 6 months to a year
- 20% were breastfeeding period of one month to 6 months

## After the hypothesis:
Alternative hypothesis: That there is a relationship between age and duration of breast-feeding
The value of Chi-Square Tests = 5.928
Degree of freedom = 9
And the p-value was = 0.747
After statistical test Chi-Square for Independence:
with Confidence level 95% turned out there is no relation between age and the duration of breast-feeding. These two variables are independent.

Mothers less than 20 years:
94% of mothers less than twenty years breastfed their babies
6% of mothers less than twenty years Not breastfeed their babies

Mothers aged 20-30 years:
87% of mothers between 20-30 years breastfed their babies
13% of mothers between 20-30 years Not breastfeed their babies

Mothers aged 30-40 years:
91% of mothers between 30-40 years breastfed their babies
9% of mothers between 30-40 years Not breastfeed their babies

Mothers more than 40 years:
78% of mothers more 40 years breastfed their babies
22% of mothers more 40 years Not breastfeed their babies

After the hypothesis:
Alternative hypothesis: That there is a relationship between age and breastfeeding
The value of Chi-Square Tests = 6.834
Degree of freedom=3
And the p-value was = 0.073

After the hypothesis:
Alternative hypothesis: That there is a relationship between age and breastfeeding
The value of Chi-Square Tests = 6.834
Degree of freedom=3
And the p-value was = 0.073
After statistical test Chi-Square for Independence:
with Confidence level 95% turned out there is no relation between age and breastfeeding. These two variables are independent.

Mothers elementary level of education:
36% were breastfeeding from one month to six months
28% were breastfeeding period of six months to one year
22% were breastfeeding period from year to year and a half
14% were breastfeeding duration from one year to two years

Mothers primary level of education:
46% were breastfeeding from one month to six months
31% were breastfeeding period from year to year and a half
15% were breastfeeding period of six months to one year
8% were breastfeeding duration from one year to two years

Mothers high school level of education:
30% were breastfeeding from one month to six months
23% were breastfeeding period from year to year and a half
19% were breastfeeding period of six months to one year
28% were breastfeeding duration from one year to two years

Mothers Academic level of education:
29% were breastfeeding from one month to six months
23% were breastfeeding period from year to year and a half
20% were breastfeeding period of six months to one year
28% were breastfeeding duration from one year to two years
Mothers postgraduate level of education:-
35% were breastfeeding from one month to six months
9% were breastfeeding period from year to year and a half
17% were breastfeeding period of six months to one year
39% were breastfeeding duration from one year to two years

After the hypothesis:-
Alternative hypothesis:-
That there is a relationship between the level of education and the duration of breast-feeding
The value of Chi-Square Tests =11.003
Degree of freedom=12
And the p-value was = 0.529

After statistical test Chi-Square for Independence:-
with Confidence level 95% turned out there is no relation between level of education and the duration of breast-feeding These two variables are independent.

Mothers elementary level of education:-
74% used complementary milk
26% did not use supplementary milk

Mothers primary level of education:-
57% used complementary milk
43% did not use supplementary milk

Mothers high school level of education:-
56% used complementary milk
44% did not use supplementary milk
Mothers Academic level of education:-
67% used complementary milk
33% did not use supplementary milk

Mothers postgraduate level of education:-
83% used complementary milk
17% did not use supplementary milk

After the hypothesis:-
Alternative hypothesis:-
That there is a relationship between the level of education and the use the supplementary milk

The value of Chi-Square Tests = 8.793
Degree of freedom = 4
And the p-value was = 0.066

After statistical test Chi-Square for Independence:-
with Confidence level 95% turned out there is no relation between level of education and the people who are using supplemental milk These two variables are independent.

Mothers elementary level of education:-
88% of mothers breastfed their children
12% of mothers did not breastfeed their children

Mothers primary level of education:-
87% of mothers breastfed their children
13% of mothers did not breastfeed their children
Mothers high school level of education: -
91% of mothers breastfed their children
9% of mothers did not breastfeed their children

Mothers Academic level of education: -
86% of mothers breastfed their children
14% of mothers did not breastfeed their children

Mothers postgraduate level of education: -
86% of mothers breastfed their children
4% of mothers did not breastfeed their children

After the hypothesis: -
Alternative hypothesis: -
That there is a relationship between the level of education and the breastfeeding

The value of Chi-Square Tests = 3.618
Degree of freedom = 4
And the p-value was = 0.46

After statistical test Chi-Square for Independence: -
with Confidence level 95% turned out there is no relation between level of education and breastfeeding These two variables are independent.

The Percentage of Child Order compared with those who Only breastfeeding and those who are use of supplementary milk

Mothers who used the supplementary milk with first child: -
64% used supplementary milk with first child
36% did not use supplementary milk with first child
Mothers who used the supplementary milk with second child:-
66% used supplementary milk with second child
34% did not use supplementary milk with second child

Mothers who used the supplementary milk with third child:-
69% used supplementary milk with third child
31% did not use supplementary milk with third child

Mothers who used the supplementary milk with fourth child:-
61% used supplementary milk with fourth child
39% did not use supplementary milk with fourth child

Mothers who used the supplementary milk with the fifth child or next:-
71% used supplementary milk with the fifth child or next
29% did not use supplementary milk with the fifth child or next

After the hypothesis:-
Alternative hypothesis:-
That there is a relationship between the Child Order and the use the supplementary milk

The value of Chi-Square Tests = 1.851
Degree of freedom = 4
And the p-value was = 0.76

After statistical test Chi-Square for Independence:-
with Confidence level 95% turned out there is no relation between Child Order and the people who are using supplemental milk. These two variables are independent.

The Percentage of Child Order compared with the duration of breast-feeding

Duration of breast-feeding for the first child:-
37% of mothers were breastfeeding a child from one month to six months
21% of mothers were breastfeeding a child period of six months to one year
15% of mothers were breastfeeding a child period from year to year and a half
27% of mothers were breastfeeding a child duration from one year to two years

Duration of breast-feeding for the second child:-
35% of mothers were breastfeeding a child from one month to six months
16% of mothers were breastfeeding a child period of six months to one year
24% of mothers were breastfeeding a child period from year to year and a half
25% of mothers were breastfeeding a child duration from one year to two years

**Duration of breast-feeding for the third child:**
- 27% of mothers were breastfeeding a child from one month to six months
- 21% of mothers were breastfeeding a child period of six months to one year
- 25% of mothers were breastfeeding a child period from year to year and a half
- 27% of mothers were breastfeeding a child duration from one year to two years

**Duration of breastfeeding for the fourth child:**
- 24% of mothers were breastfeeding a child from one month to six months
- 21% of mothers were breastfeeding a child period of six months to one year
- 27% of mothers were breastfeeding a child period from year to year and a half
- 28% of mothers were breastfeeding a child duration from one year to two years

**Duration of breastfeeding for children fifth or next:**
- 25% of mothers were breastfeeding a child from one month to six months
- 25% of mothers were breastfeeding a child period of six months to one year
- 23% of mothers were breastfeeding a child period from year to year and a half
- 27% of mothers were breastfeeding a child duration from one year to two years

**After the hypothesis:**

**Alternative hypothesis:**
That there is a relationship between the Child Order and the duration of breast-feeding

The value of Chi-Square Tests = 8.170
Degree of freedom = 12
And the p-value was = 0.77

**After statistical test Chi-Square for Independence:**
with Confidence level 95% turned out there is no relation between Child Order and duration of breast-feeding These two variables are independent.

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The percentage of the order of the child and breast-feeding

<table>
<thead>
<tr>
<th>Yes breastfed my baby</th>
<th>I did not breastfeed my baby</th>
</tr>
</thead>
<tbody>
<tr>
<td>89%</td>
<td>11%</td>
</tr>
<tr>
<td>88%</td>
<td>12%</td>
</tr>
<tr>
<td>90%</td>
<td>10%</td>
</tr>
<tr>
<td>83%</td>
<td>17%</td>
</tr>
<tr>
<td>87%</td>
<td>13%</td>
</tr>
<tr>
<td>100%</td>
<td>0%</td>
</tr>
</tbody>
</table>

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The first child for mothers:
- 87% of mothers breastfed their first child
- 13% of mothers did not breastfeed their first child
The second child for mothers:-
83% of mothers breastfed her second child
17% of mothers did not breastfeed her second child

The third child of the mother:-
90% of mothers breastfed her third child
10% of mothers did not breastfeed her third child

The fourth child of the mother:-
88% of mothers breastfed her fourth child
12% of mothers did not breastfeed her fourth child

The fifth child of the mother or the next:-
89% of mothers breastfed her fifth or next
11% of mothers did not breastfeed her baby fifth or next

After the hypothesis:-
Alternative hypothesis:-
That there is a relationship between the Child Order and the breast-feeding

The value of Chi-Square Tests = 1.657
Degree of freedom = 4
And the p-value was = 0.80

After statistical test Chi-Square for Independence:-
with Confidence level 95% turned out there is no relation between Child Order and breast-feeding These two variables are independent.
Mothers who work:-
69% used complementary milk
31% did not use supplementary milk

Mothers do not have work:-
62% used complementary milk
38% did not use supplementary milk

After the hypothesis:-
Alternative hypothesis:-
That there is a relationship between mother work and used supplementary milk
The value of Chi-Square Tests = 1.941
Degree of freedom = 1
And the p-value was = 0.164

After statistical test Chi-Square for Independence:-
with Confidence level 95% turned out there is no relation between mother work and use of supplementary milk
These two variables are independent.

The percentage of mothers who do not work and who work compared to the duration of breastfeeding

Mothers who work:-
30% of mothers were breastfeeding a child from one month to six months
23% of mothers were breastfeeding a child period of six months to one year
20% of mothers were breastfeeding a child period from year to year and a half
27% of mothers were breastfeeding a child duration from one year to two years

Mothers do not have work:-
32% of mothers were breastfeeding a child from one month to six months
18% of mothers were breastfeeding a child period of six months to one year
24% of mothers were breastfeeding a child period from year to year and a half
26% of mothers were breastfeeding a child duration from one year to two years

After the hypothesis:-

**Alternative hypothesis:**
That there is a relationship between the mother work and the duration of breast-feeding

The value of Chi-Square Tests = 2.230
Degree of freedom = 3
And the p-value was = 0.53

After statistical test Chi-Square for Independence with Confidence level 95% turned out there is no relation between mother work and duration of breast-feeding These two variables are independent.

Mothers who work:-
90% of mothers breastfed their babies
10% of mothers they did Not breastfeed their babies

Mothers do not have work:-
84% of mothers breastfed their babies
16% of mothers they did Not breastfeed their babies

After the hypothesis:-

**Alternative hypothesis:**
That there is a relationship between the mother work and the breast-feeding

The value of Chi-Square Tests = 3.291
Degree of freedom = 1
And the p-value was = 0.070
After statistical test Chi-Square for Independence with Confidence level 95% turned out there is no relation between mother work and breast-feeding. These two variables are independent.

The Families' income, which is less than 3,000 riyals:-
87% of mothers breastfed their babies
13% of mothers did not breastfeed their babies

The Families' income, which is between 3,000 and 5,000 riyals:-
89% of mothers breastfed their babies
11% of mothers did not breastfeed their babies

The Families' income, which is between 5,000 and 10,000 riyals:-
89% of mothers breastfed their babies
11% of mothers did not breastfeed their babies

The Families' income, which is more than 10,000 riyals:-
86% of mothers breastfed their babies
14% of mothers did not breastfeed their babies

After the hypothesis:-
Alternative hypothesis:-
That there is a relationship between family income and the of breast-feeding

The value of Chi-Square Tests = 1.039
Degree of freedom = 3
And the p-value was = 0.79

After statistical test Chi-Square for Independence with Confidence level 95% turned out there is no relation between family income and breast-feeding. These two variables are independent.
The Families income, which is less than 3,000 riyals:-
68% used supplementary milk with their Babies
32% did not use supplementary milk with their Babies

The Families income, which is between 3000 and 5,000 riyals:-
68% used supplementary milk with their Babies
32% did not use supplementary milk with their Babies

The Families income, which is between 5000 and 10,000 riyals:-
68% used supplementary milk with their Babies
32% did not use supplementary milk with their Babies

The Families income, which is more than 10,000 riyals:-
61% used supplementary milk with their Babies
39% did not use supplementary milk with their Babies

After the hypothesis:-
Alternative hypothesis:-
That there is a relationship between the family income and use of supplementary milk

The value of Chi-Square Tests = 1.631
Degree of freedom = 3
And the p-value was = 0.65

After statistical test Chi-Square for Independence with Confidence level 95% turned out there is no relation between family income and use of supplementary milk. These two variables are independent.
The Families income, which is less than 3,000 riyals:-  
24% of mothers were breastfeeding a child from one month to six months  
19% of mothers were breastfeeding a child period of six months to one year  
43% of mothers were breastfeeding a child period from year to year and a half  
14% of mothers were breastfeeding a child duration from one year to two years  

The Families income, which is between 3000 and 5,000 riyals:-  
42% of mothers were breastfeeding a child from one month to six months  
22% of mothers were breastfeeding a child period of six months to one year  
22% of mothers were breastfeeding a child period from year to year and a half  
14% of mothers were breastfeeding a child duration from one year to two years  

The Families income, which is between 5000 and 10,000 riyals:-  
27% of mothers were breastfeeding a child from one month to six months  
20% of mothers were breastfeeding a child period of six months to one year  
21% of mothers were breastfeeding a child period from year to year and a half  
32% of mothers were breastfeeding a child duration from one year to two years  

The Families income, which is more than 10,000 riyals:-  
31% of mothers were breastfeeding a child from one month to six months  
19% of mothers were breastfeeding a child period of six months to one year  
19% of mothers were breastfeeding a child period from year to year and a half  
31% of mothers were breastfeeding a child duration from one year to two years  

After the hypothesis:-  
Alternative hypothesis:-  
That there is a relationship between family income and the duration of breast-feeding
The value of Chi-Square Tests = 16.457
Degree of freedom = 9
And the p-value was = 0.058

After statistical test Chi-Square for Independence with Confidence level 95% turned out there is no relation between family income and the duration of breast-feeding. These two variables are independent.

Discussion:
This research is the first one encountered about duration of breastfeeding in Almadinah, KSA. Our study goes with that of the ministry of health in KSA as our study revealed that average duration of breastfeeding is 8 months while in their study it is 7.5 [15]. In our study, 31% of mothers breastfeed for 6 months while globally 38% [16]. There is good percentage of mothers who started breastfeeding in Almadinah, it is 87% in our study its higher than globally percentage 81% [17]. Breastfeeding rates in the United Kingdom were the lowest in the world in 2015 with only 0.5% of mothers still breastfeeding at a year, while in Germany 23% are doing so, 56% in Brazil and 99% in Senegal [13]. Higher percentage found in Australia 90% in their annual report. There is no association between the age and use of supplementary milk. Value of Chi-Square Tests = 1.066, Degree of freedom = 3, And the p-value was = 0.785. After statistical test Chi-Square for Independence with Confidence level 95% turned out there is no relation between age and the duration of breast-feeding. These two variables are independent. There is no relation between the work and breastfeeding duration and use of supplementary milk as whole mothers taking vacation.

Conclusion:
The percentage of breastfeeding in Almadina is higher than expected, higher than global percent by 6%. The average duration of breastfeeding in Almadinah is higher than other cities in KSA. There is no relation between age and breastfeeding duration and supplementary milk use. Also, there is no relation between level of education and breastfeeding duration and use of supplementary milk. There is no relation between income and breastfeeding duration and use of supplementary milk. There is no relation between order of the child in the family and breastfeeding duration and use of supplementary milk.

How we analyzed:
The statistical program we use is Statistical Package for the Social Sciences (SPSS) version 22.

The statistical test:
Descriptive statistics (Frequencies)
Chi-Square Tests
Bi-serial
Spearman’s rho

References: