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## STUDY THE LEVEL OF NUTRITIONAL KNOWLEDGE OF MOTHERS OF BREAST AND ARTIFICIAL FEEDING IN SHARKIA GOVERNORATE

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Received: 03/09/2019; Accepted: 15/09/2019

**ABSTRACT:** The aim of this work was to study the level of nutritional knowledge of mothers about breast and artificial feeding, sources of nutritional knowledge of mothers was also studied. This cross-sectional study was conducted on 200 mothers, selected randomly from urban and rural areas in Sharkia Governorate, Egypt during the period from March to May, 2019. All mothers filled a questionnaire to evaluate their knowledge about breast and artificial feeding. The results showed that the highest percentage of working and housewives mothers (50.0 and 53.1%) were aged 25-32 years old, respectively. About 65.8 and 46.3% of the working mother and housewives mothers were from urban area, respectively. The majority of working mothers were educated. The results revealed that the majority of working and housewives mothers (97.5 and 92.1%) were married. The results indicated that the children sex was 63.2% male and 36.8% female for working mothers. Whereas, they were 46.9% male and 53.1% female for housewives. It is obvious that the 57.9% of working mothers had children their age were (576-850) days. Whereas, the highest proportion of housewives (37.7%) had children their age was 25-300 days. The results indicated that the percentage of good nutrition children was 97.5 and 89.5% of housewives and working mothers, respectively. The results declared that the working and housewives mothers get nutritional knowledge by percent 63.2 and 46.3% from visiting doctor, respectively. The results illustrated that the highest percentage of working and housewives mothers (84.2 and 60.5%) had low level of general knowledge about breast feeding. Also, most of working and housewives mothers (76.3 and 62.3%) had low level of general knowledge about artificial feeding. It can be concluded that the most of subjects had low level of knowledge about breast and artificial feeding. Therefore, the recommendations are the use of programs to raise awareness for mothers about breast and artificial feeding.

**Key words:** Nutritional knowledge, breast feeding, artificial feeding, housewives and working mothers.

### INTRODUCTION

Knowledge is a complex scheme of beliefs, information, and skills gained through experience and education. In terms of nutrition and eating, knowledge can be described as the familiarization of the benefits of food and nutrients and its effect on health and the ability to remember and recall specific terminology and information on the subject (Zarnowiecki *et al.*, 2012; Romanos-Nanclares *et al.*, 2018).

Healthy eating behaviors in childhood are very important. It helps prevent malnutrition,

growth retardation, and acute child nutrition problems, in addition to preventing chronic, long-term health problems such as cardiovascular diseases, type 2 diabetes, cancer, obesity, and osteoporosis (Yabanc *et al.*, 2013). Parents are mostly responsible on this subject (Nicklas, 1995; Nicklas and Hayes, 2008).

Attitudes are measured to identify individual positive or negative disposition regarding a health problem, dietary practices, nutritional recommendations, dietary guidelines, or dietary preferences. Parents are effective on their children's eating behaviors and preferences,

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especially mothers who are the role models of their children about eating behaviors. Eating behaviors evolve during the first years of life as biological and behavioral processes directed toward meeting requirements for health and growth. Parents powerfully shape children's early experiences with food and eating, providing both genes and environments for children (**Mardhiah *et al.*, 2019**).

Therefore, it is important to determine mother's eating habits to support healthy nutrition of both child and mother. Public health strategies should focus on encouraging parental healthy-eating attitudes rather than simply educating parents on what to feed their children, recognizing the important influence of parental behavior on children's practices (**Romanos-Nanclares *et al.*, 2018**). Eating behaviors of the mother are affected by some factors such as socioeconomic status, educational status, age, working position, and knowledge level of nutrition of mother (**Variyam *et al.*, 1999; Vereecken and Maes, 2010; McLeod *et al.*, 2011**). Also, poor knowledge about nutrition and food diversity of caregivers influence the feeding practices of mothers which can be improved by counseling the caregivers on correct feeding practices by knowledgeable health workers (**Manikyamba *et al.*, 2015**). It is assumed that nutritional knowledge level of the mother affects eating behaviors of their children (**Berihu *et al.*, 2013**). It is clear from the above mentioned the importance of this study which was designed to assess nutritional knowledge of mothers regarding breast and artificial feeding in Sharkia Governorate.

## MATERIALS AND METHODS

The present cross-sectional study was conducted on working and housewife mothers that have a child aged 3 years old in Sharkia Governorate, Egypt. An orally expressed consent was taken by the participating mothers. A total of 200 mothers were interviewed who were randomly selected from urban areas (10<sup>th</sup> of Ramadan-Belbeis- Fakous- El-Huseiniya- Zagazig- Minya El-kamh- Kafr saqr) and rural areas (Manshyet Rghep- Samakin Elgharb- Almonagaa- AboKhalil-Eliwa-Soad-Elmalakyin Elbaharya- Elhamadyeen).

A structured questionnaire was prepared for the study during the period from March to May, 2019. The data were obtained through interview with each mother to answer the questions found in designed questionnaire sheet. The questionnaire was comprised of four parts as follow: personal and socio-demographic characteristics of respondents, general knowledge about breast and artificial feeding.

### Knowledge about Breast Feeding

The items were scored as follows, (I know) answer was scored (3), (to some extent) answer was scored (2) and (I don't know) answer was scored (1).

### Knowledge About Formula Feeding

The items were scored as follows, (I know) answer was scored (3), (to some extent) answer was scored (2) and (I don't know) answer was scored (1).

### Statistical Analysis

Statistical Package for Social Sciences (SPSS) version 20 was used to analyze the collected questionnaire data. The data were presented in the form of frequencies, percentages and analytical tests including Chi-square. For all tests, at  $P \leq 0.05$  was considered significant.

## RESULTS AND DISCUSSION

### Personal and Socio-Demographic Characteristics of Respondents

#### Age of mother

Table 1 describes the distribution of participants mothers according to their age. It is obvious that the highest percentage of working mothers (50%) was aged 25-32 years old, while those aged 17-24 was 13.2%, and working mothers aged 33-40 was 36.8%. The highest proportion of housewives (53.1%) was aged 25-32, while those aged 17-24 was 38.9% and those aged 33-40 was 8.0%. It is evident from these results that there were significant differences in working mothers and housewives according to the age of mother.

#### Residence area

Table 2 describes distribution of respondents according to residence area. About 65.8 and 46.3%

**Table 1. Distribution of mothers participating in the study according to their age**

Age of mother	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
<b>Years old</b>						
<b>Low 17-24</b>	5	13.2	63	38.9	68	34.0
<b>Average 25-32</b>	19	50.0	86	53.1	105	52.5
<b>High 33-40</b>	14	36.8	13	8.0	27	13.5
<b>Total</b>	38	100.00	162	100.0	200	100.00

Chi-Square = 24.984 df= 2  $p \leq 0.05$ **Table 2. Distribution of mothers participating in the study according to residence area**

Residence area	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
<b>Rural</b>	13	34.2	87	53.7	100	50.0
<b>Urban</b>	25	65.8	75	46.3	100	50.0
<b>Total</b>	38	100.0	162	100.0	200	100.0

Chi-Square= 4.678 df= 1  $p \leq 0.05$ 

of the working and housewives mothers were from urban area, respectively. Whereas, 34.2% and 53.7% were from rural for working and housewives mothers, respectively. It is evident from the results that there were significant differences in working and housewife mothers according to residence area.

#### **Educational level of mother**

Table 3 describes the distribution of participants according to educational level of mothers in relation to the working and housewives mothers. These results explain that the highest percentage of mothers (65.8%) had Bachelor's degree in the working mothers. While, the highest percentage of housewives mothers (46.9%) had secondary school degree. The majority of working mothers were educated. On the other hand, the lowest percentage of the working mothers had (M.Sc./ Ph.D.) degree (18.4%). The results specified that

there were statistically significant differences in the working and housewives mothers according to educational level. **Berihu et al. (2013)** showed that mother's knowledge on nutritional requirement of infant and young child feeding in Mekelle, Ethiopia was found to be 180 (33.3%) on primary education, 160 (30.1%) were on the secondary education, 84 (15.5%) were with no education, 78 (14.4%) were with college diploma and the rest 36 (6.7%) were those who can read and write.

#### **Marital status**

Distribution of respondent according to marital status are given in Table 4. The results revealed that the majority of working and housewives mothers (92.1 and 97.5%) were married. The results specified that there were statistically insignificant differences in the working and housewives mothers.

**Table 3. Distribution of mothers participating in the study according to educational level of mother**

Educational level of mother	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
Illiterate	1	2.6	9	5.6	10	5.0
Read and write	0	0.0	10	6.2	10	5.0
Primary school	0	0.0	17	10.5	17	8.5
Secondary school	5	13.2	76	46.9	81	40.5
Bachelor's degree	25	65.8	43	26.5	68	34.0
(M.Sc./ Ph.D.) degree	7	18.4	7	4.3	14	7.0
<b>Total</b>	<b>38</b>	<b>100.0</b>	<b>162</b>	<b>100.0</b>	<b>200</b>	<b>100.0</b>

Chi-Square= 38.205 df= 5  $p \leq 0.05$

**Table 4. Distribution of mothers participating in the study according to marital status**

Marital status	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
Married	35	92.1	158	97.5	193	96.5
Divorced	1	2.6	2	1.25	3	1.5
Widowed	2	5.3	2	1.25	4	2.0
<b>Total</b>	<b>38</b>	<b>100.0</b>	<b>162</b>	<b>100.0</b>	<b>200</b>	<b>100.0</b>

Chi-Square= 2.992 df= 2  $p \leq 0.05$

#### Gender of child

Table 5 describes distribution of child gender. The results indicated that 63.2% were male and 36.8% were female for working mothers. Whereas, 46.9% were male and 53.1% were female for housewives.

#### Child 's age per day

Table 6 describes the distribution of participants according to child 's age per day. It is obvious that more than fifty percent of working mothers (57.9%) had children their age ranged between 576 to 850 days, while, who aged 25 to 300 and 301 to 575 days were 21.1%. Whereas, the highest proportion of housewives (37.7%) had children their age was 25 to 300, while, who aged 301 to 575 days was 29.0% and those aged 576 to 850 days was 33.3%. It is evident from the results that there were significant differences in

working and housewives mothers according to child 's age per day.

#### Chest circumference/head circumference of child

Distribution per cent of participants according to chest circumference/head circumference of child is present in Table 7. It is obvious that the percentage of good nutrition children was 97.5 and 89.5% of housewives and working mothers, respectively. While, the percentage of nutritional deficiency children was less in housewives than working mothers and it reached 2.5% and in working mothers valued 10.5%. This result may be due to working mothers are busy some time in their work every day. It is obvious from the present results that there were significant differences in working and housewife mothers according to chest circumference/head circumference of child.

**Table 5. Distribution of mothers participating in the study according to gender of child**

Gender of child	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
Male	24	63.2	76	46.9	100	50.0
Female	14	36.8	86	53.1	100	50.0
<b>Total</b>	38	100.0	162	100.0	200	100.0

Chi-Square= 3.249 df= 1 p ≤ 0.05

**Table 6. Distribution of mothers participating in the study according to child's age per day**

Child 's age per day	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
Low 25-300	8	21.1	61	37.7	69	34.5
Average 301-575	8	21.1	47	29.0	55	27.5
High 576-850	22	57.9	54	33.3	76	38.0
<b>Total</b>	38	100.0	162	100.0	200	100.0

Chi-Square= 8.055 df=2 p ≤ 0.05

**Table 7. Distribution of mothers participating in the study according to chest circumference / head circumference**

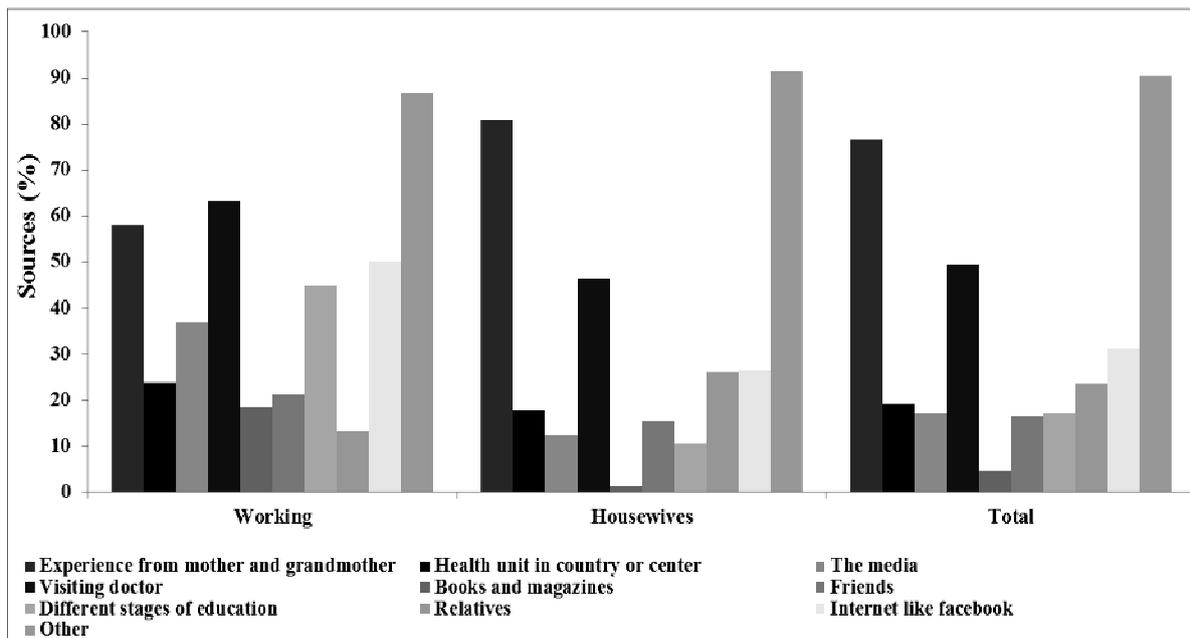
Chest circumference/head circumference	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
Nutritional deficiency	4	10.5	4	2.5	8	4.0
Good nutrition	34	89.5	158	97.5	192	96.0
<b>Total</b>	38	100.0	162	100.0	200	100.0

Chi-Square= 5.204 df=1 p ≤ 0.05

**Source of nutritional knowledge of mothers**

Fig. 1 illustrates the sources of nutritional knowledge of the mothers about breast and artificial feeding. The results declared that the working mothers get nutritional knowledge (63.2%) from visiting doctor, 57.9% from experience from her mother and grandmother, 44.7% from different stages of education, 36.8% from the media, 33% from other, 23.7% from health unit in country or center, 21.1% from

friends, 19% from internet like facebook, 18.4% from books and magazines, 5% from relatives. While, housewives get nutritional knowledge 91.4% from other, 80.9% from experience from her mother and grandmother, 46.3% from visiting doctor, 26.5% from internet like Facebook, 25.9% from relatives, 17.9% from health unit in country or center, 15.4% from friends, 12.3% from the media, 10.5% from different stages of education, 1.2% from books and magazines.



**Fig. 1. Distribution of mothers participating in the study according to source of nutritional knowledge of mothers**

### General Knowledge about Breast Feeding

Table 8 shows the distribution of participants according to their general knowledge about breast feeding. The results defined that the majority of working and housewives mothers (81.6 and 79.0%), respectively were not aware about "That children must be given natural breast feeding for 6 months without supplementary food" as shown in item 1. In the same Table the highest percentage of working and housewives mothers (100 and 95.7%), respectively were aware about "Breast feeding is better for the baby than for artificial feeding" as shown in item 2. On the other hand, 92.1% of working mothers were aware than housewives (89.5%), about "Breast feeding is recommended during the first hours of childbirth as" shown in item 3. The results defined that 65.8 and 47.5% of working and housewives mothers, respectively, were aware about "Breastfeeding is useful in returning the uterus to its normal state" as shown in item 4. The same Table evidenced mother's awareness percentage about "Natural breast feeding protects the mother from breast and ovarian cancer" as shown in item (5) It was 71.1% in working mothers and it was higher than housewives (48.8%). Also results indicated

that 92.1% of working mothers know that breast feeding should be continued during the child's illness, while, 76.5% from housewives know that as shown in item (6). In the same Table the highest percentage of working and housewives mothers (63.2 and 49.4%), respectively, were aware about "Breastfeeding reduce from infecting children allergic" as shown in item (7). The results in item (8) defined that 64.4% of working mothers were aware about "It is best to continue breastfeeding for two years". On the other hand, 51.2% of housewives aware about that. Also indicated that 52.6% of working mothers knew that breast feeding helps to lose weight gained during pregnancy, while, 50.0% from housewives know that as shown in item (9). The results cleared that 42.6% of housewives were aware about "Avoid breast feeding during congestion of breast", as declared in item (10), while, working mothers was 39.5%. As well as the 54.9% of housewives were aware about "We should not give the baby breast feeding during the fever of mothers", as declared in item (11), and it reached 52.6% of working mothers. Table 8 clear up the highest percentage of working mothers and housewives (73.7 and 61.7%), respectively were aware about "Breast feeding contributes to improvement the

Table 8. Distribution of respondents mothers according to their knowledge about breast feeding

No.	Item	Response	Working		Housewives		Total		Chi-Square
			No.	(%)	No.	(%)	No.	(%)	
1	The children must be given natural breast feeding for 6 months without supplementary food	I know	1	2.6	10	6.2	11	5.5	0.747
		To some extent	6	15.8	24	14.8	30	15.0	
		I don't know	31	81.6	128	79.0	159	79.5	
2	Breast feeding is better for baby than the artificial feeding	I know	38	100.0	155	95.7	193	96.5	1.702
		To some extent	0	0.0	5	3.1	5	2.5	
		I don't know	0	0.0	2	1.2	2	1.0	
3	Breast feeding is recommended during the first hours of childbirth	I know	35	92.1	145	89.5	180	90.0	3.155
		To some extent	0	0.0	10	6.2	10	5.0	
		I don't know	3	7.9	7	4.3	10	5.0	
4	Breast feeding is useful in returning the uterus to its normal state	I know	25	65.8	77	47.5	102	51.00	5.920*
		To some extent	7	18.4	27	16.7	34	17.0	
		I don't know	6	15.8	58	35.8	64	32.0	
5	Natural breast feeding protects the mother from breast and ovarian cancer	I know	27	71.1	79	48.8	106	53.0	6.158*
		To some extent	7	10.5	28	17.3	32	16.0	
		I don't know	4	18.4	55	34.0	62	31.0	
6	Breast feeding should be continued during the child's illness	I know	35	92.1	124	76.5	159	79.5	5.097
		To some extent	3	7.9	27	16.7	30	15.0	
		I don't know	0	0.00	11	6.8	11	51.1	
7	Breast feeding reduce from infecting children allergic	I know	24	63.2	80.0	49.4	104	52.0	5.790*
		To some extent	11	28.9	40	24.7	51	25.0	
		I don't know	3	7.9	42	25.9	45	22.5	
8	It is best to continue breast feeding for two years	I know	26	64.4	85	51.2	105	54.5	4.121
		To some extent	7	18.4	55	34.0	62	31.0	
		I don't know	5	13.2	24	14.8	29	14.5	
9	Breast feeding helps to lose weight gained during pregnancy	I know	20.0	52.6	81	50.0	101	50.5	0.166
		To some extent	8	21.1	33	20.4	41	20.0	
		I don't know	10	26.3	48	29.6	58	29.0	
10	Avoid breast feeding during congestion of breast	I know	15	39.5	69	42.6	84	42.0	0.149
		To some extent	8	21.1	34	21.0	42	21.0	
		I don't know	15	35.6	59	36.4	74	37.0	
Total			78	100.0	162	100.0	200	100.0	

Table 8. Cont.

No.	Item	Response	Working		House wife		Total		Chi-Square
			No.	(%)	No.	(%)	No.	(%)	
11	We should not give the baby breast feeding during the fever of mothers	I know	20	52.6	89	54.9	109	54.5	2.097
		To some extent	8	21.1	20	12.3	28	14.0	
		I don't know	10	26.3	53	32.7	63	31.5	
12	Breast feeding contributes to improvement the health of mothers	I know	28	73.7	100	61.7	128	64.0	2.090
		To some extent	4	10.5	20	12.3	24	12.0	
		I don't know	6	15.8	42	25.9	48	24.0	
13	Breast feeding helps in saving money and time	I know	33	86.8	145	89.5	178	89.0	2.395
		To some extent	5	13.2	12	7.4	17	8.5	
		I don't know	0	0.0	5	3.1	5	2.5	
14	Breast feeding is good for your child health	I know	38	100.0	157	96.9	195	97.5	1.203
		To some extent	0	0.0	3	1.9	3	1.5	
		I don't know	0	0.0	2	1.2	2	1.0	
15	Breast feeding is useful in raising the level of intelligence, cognitive and behavioral skills	I know	33	86.8	140	86.4	173	86.5	1.051
		To some extent	5	13.2	18	11.1	23	11.5	
		I don't know	0	0.0	4	2.5	4	2.0	
16	Breast feeding helps to support the immune system and improvement the digestion process to the child	I know	37	97.4	148	91.4	185	92.5	1.711
		To some extent	1	2.6	11	6.8	12	6.0	
		I don't know	0	0.0	3	1.9	3	1.5	
17	Colostrum is contained the antibodies needed to protect the child against diseases	I know	37	97.4	143	88.3	180	90.0	3.096
		To some extent	1	2.6	10	6.2	11	5.5	
		I don't know	0	0.0	9	5.6	9	4.5	
18	Human milk contains all food elements sufficient for the baby	I know	33	86.8	132	81.5	165	82.5	4.264
		To some extent	1	2.6	21	13.0	22	11.0	
		I don't know	4	10.5	9	5.6	13	6.5	
19	Breast feeding increases the secretion of breast milk	I know	35	92.1	131	80.9	166	83.0	3.579
		To some extent	3	7.9	20	12.3	23	11.5	
		I don't know	0	0.0	11	6.7	11	5.5	
20	Breast milk achieves a sense of food safety for the infant	I know	36	94.7	144	88.9	180	90.0	1.399
		To some extent	2	5.3	15	9.3	17	8.5	
		I don't know	0	0.0	3	1.9	3	1.5	
21	Human milk strengthens the emotional and psychological relationship between the mother and child	I know	38	100.0	148	91.4	186	93.0	3.531
		To some extent	0	0.0	12	7.4	12	6.0	
		I don't know	0	0.0	2	1.2	2	1.0	
22	Lack of sleep and stress affect the secretion of mother milk	I know	25	65.8	71	43.8	96	48.0	6.011*
		To some extent	7	18.4	45	27.8	52	26.0	
		I don't know	6	15.8	46	28.4	52	26.0	
23	Intake some drugs affect the secretion of breast milk and then the child	I know	27	15.8	91	56.2	118	59.0	2.860
		To some extent	6	71.1	36	22.2	42	21.0	
		I don't know	5	13.2	35	21.6	40	20.0	
24	Drinking too much water, especially before breast feeding, helps the mother to produce more milk	I know	25	65.8	119	73.5	144	72.0	1.052
		To some extent	8	21.1	24	14.8	32	16.0	
		I don't know	5	13.2	19	11.7	24	12.0	
25	Eating some foods such as leafy vegetables, halva, drink the fenugreek and milk helps the mother to produce more milk	I know	31	81.6	139	85.8	170	85.0	0.647
		To some extent	4	10.5	11	6.8	15	7.5	
		I don't know	3	7.9	12	7.4	15	7.5	
Total			38	100.0	162	100.0	200	100.0	

\*P&lt;0.05

health of mothers' as shown in item (12). In addition, Table 8 shown mothers awareness percentage about "Breast feeding helps in saving money and time" as show in item (13) was 89.5% in housewives and it was higher than working mothers (86.8%). While, 100% of working mothers were aware in item (14) about "Breast feeding is good for her child health", but 96.9% of housewives knew that. In item (15) the percentage of working mothers and housewives (86.8 and 86.4%), respectively, was aware that "breast feeding is useful in raising the level of intelligence and cognitive and behavioral skills". Also, indicated the percentage of mothers awareness in item (16) about "Breast feeding helps to support the immune system and improvement the digestion process to the child" was higher in working mothers (97.4%) than housewives (91.4%). Furthermore, 97.4% of working mothers were conscious about "Colostrum is contained the antibodies needed to protect the child against diseases", as shown in item (17) and 88.3% of housewives conscious about that.

Over, 86.8% of working mothers were aware about "Human milk contains all food elements sufficient for the baby", as shown in item (18) and this result more than housewives (81.5%). As well as the Table mention the percentage of mothers awareness in item (19) about "Breast feeding increases the secretion of breast milk" was higher in working mothers (92.1%) than housewives (80.9%).

Whereas, (94.7%) of working mothers are familiar with item (20) on "Breast milk achieves a sense of food safety for the infant", but (88.9%) of housewives know this. The results obtained that (100%) of working mothers were aware about "Human milk strengthens the emotional and psychological relationship between the mother and child", as declared in item (21) and this result more than housewives (91.4%). On other hand, 65.8% of working mothers were conscious about "Lack of sleep and stress affect the secretion of mother milk", as defined in item (22), and 43.8% of housewives know this. Otherwise, Table 8 indicated that 71.1% of working mothers know to some extent that Intake some drugs affect the secretion of breast milk and then the child, while 56.2% of housewives knew that as shown in item (23).

In addition, the same Table manifest mothers awareness percentage about "Drinking too much water, especially before breast feeding helps the mother to produce more milk " as shown in item (24) it was 73.5% in housewives and it was higher than working mothers 65.8%. Moreover, 85.8% of housewives were aware about "Eating some foods such as leafy vegetables, halwa, drink the fenugreek and milk helps the mother to produce more milk ", as declared in item (25) and this result more than working mothers 81.6%. It is obvious from the present study that there were statistically significant differences in some knowledge items number (4, 5, 7 and 22) regarding general knowledge about breast feeding among all studies subjects (working and housewives mothers).

### General Knowledge about Artificial Feeding

Table 9 shows distribution of participants according to their general knowledge about artificial feeding. The results defined that the highest percentage 65.8 and 65.4% of working and housewife mothers, respectively, don't know that artificial feeding is give industrial milk or animals dairy to babies as a substitute for mother milk when the mother has an illness that could be passed on to the baby through breast milk or presence a condition impede breast feeding the baby naturally as shown in item (1). Mothers response in item (2) defined that 73.7% of working mothers and 35.8% of housewives know artificial feeding helps to know the amount of milk the child is intake. Whereas, (52.6%) of working mothers are familiar with item (3) on "The time, which is spend the child in formula feeding less than that in breastfeeding", but (42.6%) of housewives know this. The results declared that 78.9% of working mothers were aware about "The absorption of minerals from breast milk is better than that found in artificial milk", as declared in item (4) than this result more than housewives (66.7%). Mothers reply as shown in item (5) showed that 78.9 and 73.5% of working mothers and housewives, respectively, were aware about "Artificial feeding takes effort during the preparation and cleaning process". On other hand, 65.8% of working mothers were conscious about "Artificial feeding leads to increased intestinal infections and diarrhea ", as defined in item (6), and it was 56.8% of housewives. The

**Table 9. Distribution of respondents mothers according to their knowledge about artificial feeding**

No.	Item	Response	Working Housewife		Total		Chi-Square		
			No. (%)	No. (%)	No. (%)	No. (%)			
1	Artificial feeding is give industrial milk or animals dairy to babies as a substitute for mother milk when the mother has an illness that could be passed on to the baby through breast milk or presence a conditions impede breastfeeding the baby naturally	I know	25	23.7	37	22.8	46	23.0	0.049
		To some extent	4	10.5	19	11.7	23	11.5	
		I don't know	9	65.8	106	65.4	131	65.5	
2	Artificial feeding helps to know the amount of milk the child is intake	I know	28	73.7	81	35.8	109	54.5	6.970*
		To some extent	3	7.9	23	14.2	26	13.0	
		I don't know	7	18.4	58	50.0	65	32.5	
3	The time, which is spend the child in artificial feeding less than that in breast feeding	I know	20	52.6	69	42.6	89	44.5	1.766
		To some extent	6	15.8	23	14.2	29	14.5	
		I don't know	12	31.6	70	43.2	82	41.0	
4	The absorption of minerals from breast milk is better than that found in artificial milk	I know	30	78.9	108	66.7	138	69.0	4.606
		To some extent	4	10.5	11	6.8	15	7.5	
		I don't know	4	10.5	43	26.5	47	23.5	
5	Artificial feeding takes effort during the preparation and cleaning process	I know	30	78.9	119	73.5	149	74.5	1.803
		To some extent	4	10.5	12	7.4	16	8.0	
		I don't know	4	10.5	31	19.1	35	17.5	
6	Artificial feeding leads to increased intestinal infections and diarrhea	I know	25	65.8	92	56.8	117	58.5	1.253
		To some extent	6	15.8	27	16.7	33	16.5	
		I don't know	7	18.4	43	26.5	50	25.0	
7	Artificial feeding affects the child's immunity negatively	I know	26	68.4	91	56.2	117	58.5	2.525
		To some extent	6	15.8	26	16.0	32	16.0	
		I don't know	6	15.8	45	27.5	51	25.0	
8	Artificial feeding leads to obesity in children	I know	24	63.2	79	48.8	103	51.5	3.655
		To some extent	7	18.4	28	17.3	35	17.5	
		I don't know	7	18.4	55	34.0	62	31.0	
9	Cow's milk contains a protein that causes allergies to children	I know	17	44.7	67	41.4	84	42.0	1.274
		To some extent	8	21.1	25	15.4	33	16.5	
		I don't know	13	34.2	70	43.2	83	41.5	
10	Artificial milk does not contain antibodies	I know	18	47.4	53	32.7	71	35.5	3.409
		To some extent	9	23.7	39	24.1	48	24.0	
		I don't know	11	28.9	70	43.2	81	40.5	

Table 9. Cont.

No.	Item	Response	Working		House wife		Total		Chi-Square
			No.	(%)	No.	(%)	No.	(%)	
11	Artificial milk contamination is easily from several sources	I know	29	76.3	108	66.7	137	68.5	1.328
		To some extent	3	7.9	18	11.1	21	10.5	
		I don't know	6	15.8	36	22.2	42	21.0	
12	The spoilage speed of the artificial milk especially in the summer	I know	29	76.3	117	72.2	146	73.0	0.276
		To some extent	3	7.9	16	9.9	19	9.9	
		I don't know	6	15.8	29	17.9	36	17.5	
13	Artificial milk can be diluted too much, leading to not get the infant his nutritional needs	I know	20	52.6	66	40.7	86	43.0	1.844
		To some extent	7	18.4	34	21.0	41	20.5	
		I don't know	11	28.9	62	38.3	73	36.5	
14	Changing the type artificial milk in some cases may be lead to diarrhea	I know	30	78.9	98	60.9	128	64.3	4.387
		To some extent	2	5.3	17	10.6	19	9.5	
		I don't know	6	15.8	46	28.6	52	26.1	
15	Artificial milk is expensive	I know	32	84.2	131	80.9	136	81.5	0.230
		To some extent	1	2.6	5	3.1	6	3.0	
		I don't know	5	13.2	26	16.0	31	15.5	
16	Wide or narrow bottle nipples can be cause some problems for the baby during feeding	I know	28	73.7	94	58.0	122	61.0	3.279
		To some extent	4	10.5	23	14.2	27	13.5	
		I don't know	6	15.8	45	27.8	51	25.5	
17	Bottle nipples affect the normal shape of the child's jaw	I know	14	36.8	63	38.9	77	83.5	5.794*
		To some extent	12	31.6	25	15.4	37	18.5	
		I don't know	12	31.6	74	45.7	68	43.0	
<b>Total</b>			38	100.0	162	100.0	200	100.0	

\*P&lt;0.05

results evidenced that (68.4%) of working mothers were aware about "Artificial feeding affects the child's immunity negatively", as declared in item (7) and this results was more than housewives (56.2%). As well as, the Table mention the percentage of mothers awareness in item (8) about "Artificial feeding leads to obesity in children" was higher in working mothers (63.2%) than housewives (48.8%). The results in item (9) revealed that (34.2 and 43.2%) of working mothers and housewives, respectively, weren't aware about "Cow's milk

contains a protein that causes allergies to children". The results that are given in item (10) of working mothers and housewives (47.4 and 32.7%), respectively, were aware about "Artificial milk does not contain antibodies". While, the results in item (11) indicated that about (76.3%) of working mothers and (66.7%) of housewives know that artificial milk contamination is easily from several sources. Furthermore, 76.3% of working mothers were conscious about "The spoilage speed of the artificial milk especially in the summer", as

shown in item (12) and 72.2% of housewives are conscious about that. This Table also obvious that the percentage of working mothers who knew that artificial milk can be diluted too much, leading to not get the infant his nutritional needs, was 52.6%, while, 40.7% from housewives knew that as shown in item (13). Mothers reply as shown in item (14) showed that (78.9 and 60.9%) of working mothers and housewives, respectively, were aware about "Changing the type of artificial milk in some cases may be lead to diarrhea". Over, 84.2% of working mothers were aware about "Artificial milk is expensive", as shown in item (15) and this result more than housewives 80.9%. On other hand, (73.7%) of working mothers were conscious about " Wide or narrow bottle nipples can be cause some problems for the baby during feeding", as defined in item (16), and it was (58.0%) of housewives. In addition, the same Table show mothers awareness percentage about "Bottle nipples affect the normal shape of the child's jaw " as show in item (17) was 38.9% in housewives and it was higher than working mothers 36.8%. It is obvious from the present study that there were statistically significant differences in some knowledge items number (2

and 17) regarding general knowledge about breast feeding among all studies subjects (working and housewives mothers).

### Level of Knowledge About Breast and Artificial Feeding

As shown in Table 10, the results illustrated that the highest percentage of working and housewife mothers (84.2 and 60.5%) had low level of general knowledge about breast feeding. It is obvious from the present study that there were significant differences between subjects (working and housewife mothers) and levels of knowledge about breast feeding. Also, most of working and housewife mothers (76.3 and 62.3%) had low level of general knowledge about artificial feeding (Table 11).

### Conclusion

From the current study, it could be concluded that the most of working mothers and housewives (84.2 and 60.5%) had low level of knowledge about breast and artificial feeding (working mothers and housewives, 76.3% and 62.5%) in Sharkia Governorate, Egypt during the period from March to May 2019.

**Table 10. Distribution of participants according to level of knowledge about breast feeding**

Breast feeding	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
Low(25-36)	32	84.2	98	60.5	130	65.0
Average (37-48)	5	13.2	60	37.0	65	32.5
High(23-37)	1	2.6	4	2.5	5	2.5
<b>Total</b>	<b>38</b>	<b>100.0</b>	<b>162</b>	<b>100.0</b>	<b>200</b>	<b>100.0</b>

Chi-Square= 8.067 DF= 2 P= 0.018

**Table 11. Distribution of participants according to level of knowledge about artificial feeding**

Artificial feeding	Working		Housewives		Total	
	No.	(%)	No.	(%)	No.	(%)
Low 17-28	29	76.3	101	62.3	130	65.0
Average 29-40	3	7.9	22	13.6	25	12.5
High 41-52	6	15.8	39	24.1	45	22.5
<b>Total</b>	<b>38</b>	<b>100.0</b>	<b>162</b>	<b>100.0</b>	<b>200</b>	<b>100.0</b>

Chi-Square= 2.659 DF= 2 P=0.265

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## دراسة مستوى المعرفة الغذائية لدى الامهات بالرضاعة الطبيعية والصناعية في محافظة الشرقية

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يهدف هذا البحث إلى دراسة مستوى المعرفة الغذائية للأمهات عن الرضاعة الطبيعية والرضاعة الصناعية، حيث أجريت هذه الدراسة على ٢٠٠ من الأمهات اللاتي تم اختيارهن عشوائياً من المناطق الحضرية والريفية في محافظة الشرقية، مصر في الفترة من مارس إلى مايو ٢٠١٩، وذلك من خلال استبيان لتقييم معرفتهن بالرضاعة الطبيعية والرضاعة الصناعية، أظهرت النتائج أن أعلى نسبة من الأمهات العاملات وربات البيوت ٥٠,٠% و ٥٣,١% كانت أعمارهن تتراوح ما بين ٢٥-٣٢ سنة، على التوالي، كان حوالي ٦٥,٨% و ٤٦,٣% من الأمهات العاملات وربات البيوت من المناطق الحضرية، غالبية الأمهات العاملات تعلمن، أظهرت النتائج أن غالبية الأمهات العاملات وربات البيوت ٩٧,٥% و ٩٢,١% كن متزوجات، تشير نتائج جنس المولود إلى أن ٦٣,٢% من الذكور و ٣٦,٨% من الإناث للأمهات العاملات، في حين أن ٤٦,٩% من الذكور و ٥٣,١% من الإناث لربات البيوت، أكثر من خمسين بالمائة من الأمهات العاملات ٥٧,٩% لديهن أطفال تتراوح أعمارهن ما بين ٥٧٦- إلى ٨٥٠ يوماً، حيث أن أعلى نسبة من ربات البيوت ٣٧,٧% لديهن أطفال تتراوح أعمارهن ما بين ٢٥ إلى ٣٠٠، أشارت النتائج إلى أن النسبة المئوية لأطفال التغذية الجيدة كانت ٩٧,٥% و ٨٩,٥% من ربة المنزل والأمهات العاملات، على التوالي، أوضحت النتائج أن الأمهات العاملات وربات البيوت يحصلن على معرفة غذائية بنسبة ٦٣,٢% و ٤٦,٣% من الطيبب الزائر، على التوالي، أظهرت النتائج أن أعلى نسبة من الأمهات العاملات وربات البيوت ٨٤,٢% و ٦٠,٥% لديهن مستوى منخفض من المعرفة العامة حول الرضاعة الطبيعية، أن معظم الأمهات العاملات وربات البيوت ٧٦,٣% و ٦٢,٣% لديهن مستوى منخفض من المعرفة العامة حول الرضاعة الصناعية، يمكن أن نستنتج أن معظم الأمهات لديهن مستوى منخفض من المعرفة عن الرضاعة الطبيعية والرضاعة الصناعية لذلك، يمكن التوصية باستخدام برامج لزيادة الوعي للأمهات حول الرضاعة الطبيعية والرضاعة الصناعية.

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