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RESEARCH ARTICLE

KNOWLEDGE AND BARRIERS OF BREASTFEEDING AMONG HEALTH CARE WORKERS IN PRIMARY HEALTH CARE CENTERS OF ALADL AND AL-SHARAYA'A SECTORS, MAKKAH AL-MUKARRAMAH, 2016. CROSS-SECTIONAL STUDY.

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Key words:-
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Abstract

Background:- Breastfeeding is the best nutrition that newborn need for optimal growth and development. It has a short and long term benefits for both maternal and infants. This study aimed to estimate the prevalence of the breastfeeding knowledge and the barriers to breastfeeding among health care workers in Primary health care, at Makkah, 2016.

Method:- A cross-sectional study was conducted among All Healthcare working mothers who have a child aged 5 years or younger working in the Primary health care centers of Al-Adel and Al-Sharaya'a sectors of Ministry of health, at Makkah Al-Mukarramah.

Result:- Ninety-two from 95 mothers participated in the study with response rate (96.8%), 72 (78.3%) were Saudi, with mean age score 33.3±5.6. The majority (85-92.4%) were married, 84 (91.3%) reported previous experience with breastfeeding, 43 (46.7%) reported receiving bottle feeding at the hospital, only 9 (9.8%) cases admitted to NICU. The majority (74-80.4%) reported using both methods for feeding the baby (breastfeeding and bottle), Only 11 (12%) mothers reported current breastfeeding. The mean score of knowledge level was 9.3±2.1 rang (2-12), where the majority (83.7%) had sufficient knowledge. The main barrier reported by 82 (89.1%) was back to work, followed by 62(67.4%) inadequate breast milk.

Conclusion:- The study findings showed that the participants had sufficient level of breastfeeding importance, however, still there is a gap between knowledge, practice, and attitude due to several barriers. The main barriers were back to work and inadequate breast milk.

Introduction:-

Breastfeeding is the best nutrition that newborn need for optimal growth and development**(1)**. It has a short and long term benefits; it reduces the incidence of type-II diabetes, allergies, and infectious disease**(1,2)**. Its advantages not only to the infant but also to the mother, it protects her from several kinds of cancers**(1)**. Moreover, it considers a way of birth control in the first six months**(1)**. Exclusive breastfeeding according to WHO that is the infant receives breast milk only without additional food, drink or even water, except medications**(3)**. It recommended to begin within a few minutes after birth and continued to six months of age Then complementary food introduced along with

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breastfeeding up to two years of age**(1)**. In spite of widely acknowledged benefits, the rates of breastfeeding are not very promising, which range from 30-60% at early postpartum **(4)**. A number of national and international studies identified several factors that affect breastfeeding; single and young mothers, lack of knowledge about breastfeeding, time-consuming, use of contraceptive pills, caesarean section, cigarette smokers, latching problems, cracked nipple, mastitis and child disease**(2,5,6)**. Moreover, a systematic review study carried out among developing countries, they found that working mothers were the most common barrier to exclusive breastfeeding **(7)**.

Many new mothers experience some difficulties with the continuation of breastfeeding; they need support and awareness regarding the importance of exclusive breastfeeding and how to overcome the barriers to breastfeeding. One of the significant barriers is the continuation of breastfeeding after returning to work. The breastfed mothers usually experience some difficulties and inflexibility in the work location and hours**(5)**. The investigator had some difficulties at the beginning with the breastfeeding. However, the knowledge of its importance had helped to overcome some of these challenges. This study intended to estimate the prevalence of the breastfeeding knowledge and the barriers to breastfeeding. Furthermore, to determine the factors associated with these barriers among health care workers in Primary health care, at Makkah Al-Mukarramah, 2016.

Methodology (materials and methods):-

This is a cross-sectional study conduct during April 2016 among all Healthcare worker mothers in the primary healthcare centers of the ministry of health, at Makkah. Which allocated in three sectors inside Makkah city and four of in the rural areas.

All Healthcare working mothers who have a child aged five years old or younger working in the Primary health care centers of Al-Adel and Al-Sharaya'a sectors, during the study period (2016). The total number of PHCCs in these two sectors is 22. By using Cluster sampling technique, Al-Adel sector was the sector inside Makkah and Al Sharaya'a sector from the rural areas. The sample size represents the total population.
Data was obtained by distributing a self-administered questionnaire consists of 3 parts (Socio-demographic data, knowledge about breastfeeding benefits, breastfeeding Barriers).

Dependent variables: (previous experience with breastfeeding and barriers). Independent variables: (age, Nationality, marital status and education level).

Statistical analyses were conducted by using Statistical package for social sciences (SPSS) version 20. Parametric data are expressed as mean, standard deviations and range (minimum and maximum), and categorical data were expressed as number (percentage), The comparison between groups was compared using Chi–square test for categorical variables and independent T-test for parametric variables, and considered significant (P) <0.05.

Limitations:-
There was a limitation in time, and some of the workers Refused to participate.

Result:-

Ninety-two from 95 mothers participated in the study with response rate less than half (96.8%).

Table 1 (Demographic data) Out of the 92 mothers involved in the study 72 (78.3%) were Saudi and 20 (21.7%) were non- Saudi, with mean age score 33.3±5.6 rang (26-46), 34 (37%) had nurses diploma, 26 (28.3%) were general practitioner and 12 (13%) were family medicine specialist, 7 (7.6%) Bachelor of nurse, 9 (9.8%) dentist assistant,2 (2.2%) lab technician, 2 (2.2%) pharmacist. The majority (85-92.4%) were married. The mean score of a children number was 3.0±1.0 and 2.6 ±1.5 years for the age of youngest children, and only 10 (10.9%) cases were pregnant during the study period. **(Table 1).**

Table 2(Obstetric and feeding characteristics) Regarding feeding characteristics, 84 (91.3%) reported previous experience with breastfeeding, 59 (64.1%) reported spontaneous vaginal delivery and 33 (35.9%) caesarean section. Maternity and children hospital was the place of delivery in 23 (25%) of the cases, 43 (46.7%) reported receiving bottle feeding at the hospital, only 9 (9.8%) cases admitted to NICU. The majority (74-80.4%) reported using both methods for feeding the baby (breastfeeding and bottle). Only 11 (12%) mothers reported current breastfeeding, and

14 (15.2%) cases reported using formula milk during duty hours, 72(78.3%) stated breastfed their last youngest child, 37 (40%) stated using breast pump with their last child. **(Table 2) & (Figures 1, 2, 3)**

Table 3 (participants" knowledge of breastfeeding) showed participants' knowledge of breastfeeding. The mean score was 9.3±2.1 rang (2-12) where in 4 items (2,4,7 &10) the rate of choosing the right answer was more than 90%. In 4 items (1,3,5 &9) the rate was more than 80%. In 3 items (6,8&11) the rate was more than 60%, and in one item (12) the rate of the right answer was 18.5%. Regarding item 13 (Pumping), 32.6% reported true, and 46.7% reported falls. In the following the rate of each corrected answer for each item; (Breastfeeding stimulates the uterus contract after delivery to control postpartum bleeding) 95.7% reported the right answer (true). (Women who breastfeed will likely reduce their risk for uterine, endometrial, breast and ovarian cancer) 94.6% reported the right answer (true). (Breast pump is a tool that allows a woman to express breast milk when it is not possible to breastfeed her infant directly) 93.5% reported the right answer (true). (Colostrum is an antibody-rich first milk which can help the infant pass its meconium or first bowel movement) 90.2% reported the right answer (true). (Formula milk is easily digested than Breast milk) 88.0% reported the right answer (false), (Exclusive breastfeeding is recommended for the first 6 months) 87.0% reported the right answer (true), (Breastfeeding protect the baby from diseases such as diarrhea, allergy, and ear infection) 84.8% reported the right answer (true), (No additional food is needed by breastfed infants till 4 to 6 months of age) 81.5% reported the right answer (true) , (Because breastfeeding requires additional calories, women who breastfeed may take longer to return to their pre-pregnancy weight) 66.3% reported the right answer (false) , (You can store Breast milk at room temperature [25 to 27ºC] - up to four hours) 63% reported the right answer (true), (No additional water is required by breastfed infants until 4 to 6 months of age) 62% reported the right answer (true), (You can store Breast milk in the freezer up to one year) 18.5% reported the right answer (true) . The mean of overall score was 9.3±2.1 rang (2-12), where the majority (83.7%) had sufficient knowledge. **(Table3) & (Figure 4)**

Table 4 (Breastfeeding barriers) showed the findings of breastfeeding barriers , the highest barrier reported by 82 (89.1%) was back to work , followed by 62(67.4%) inadequate breast milk, then 58(63.1%) low knowledge about how to handle pumped breast milk, 56 (60.8%)low knowledge about how to pump breast milk, 53 (57.6%) using contraceptive pills, 49 (53.3%) sore nipple , 48 (52.2%) failure to latch on by the infant, 43 (46.7%) engorged breast, 42 (45.7%) Mastitis, 40 (43.5%) reported low knowledge of breastfeeding benefits, 36 (39.1%) lake of interest, 33 (35.9%) NICU admission, 29 (31.5%) time consuming, 23 (25.0%) cesarean section and lastly 17 (18.5%) embarrassment. **(Table 4) & (Figure 5)**

Table 5 (comparison knowledge score regarding nationality, education level, and marital status) showed that there was significant association between level of knowledge and nationality and educational level. Were non-Saudi doctors and nurses with bachelor degree had higher scores than Saudi, pharmacist, diploma nurse and technicians ($p=0.01$, $p<0.0001$) respectively. The Post hoc test showed significant difference between the following educational level (general practitioner and Diploma Nurse, $p=0.016$), (general practitioner and dentist assistant, $p=0.002$) and (family medicine specialist and dentist assistant, $p=0.014$). On the other hand, there was no significant association between knowledge score and marital status. **(Table 5)**

Table 6 (comparison knowledge score regarding mode of delivery and feeding characteristics). It also showed that there was a significant association between level of knowledge and receiving a bottle feeding at the hospital, method of feeding, breastfed last youngest child. Where women who didn't receive bottle-feeding in the hospital, women who used both ways in feeding and women breastfed their youngest children had higher scores than women who received bottle-feeding in the hospital, women who used formula way only feeding and women didn't breastfeed their youngest children ($p=0.04$, $p=0.002$, $p=0.003$) respectively. On the contrary, there was no significant association between knowledge score and previous experience in breastfeeding, mode of delivery, NICU admission, a method of feeding child during work and previously used of a breast pump. **(Table 6)**

Table 7 (a comparison of the duration of breastfeeding regarding feeding characteristics) Regarding the duration of breastfeeding, the result showed that the duration of breastfeeding was shorter among babies who received bottle feeding in the hospital and who admitted to NICU without significant difference ($P=0.94$, $P=0.20$) respectively. Furthermore, there was no significant difference in the duration regarding PHC sectors and being the first baby ($P=0.61$, $P=0.94$) respectively. **(Table 7)**

Discussion:-

Worldwide the main recommendation of infant feeding is starting breastfeeding within the first hour after the delivery and make it exclusive for the first 6 months and continue to 1 year **(2,8)**, where the benefits of breastfeeding for both mother and baby was confirmed in allot of studies**(2,8,9)**. Several studies were conducted to assess the level of awareness of breastfeeding importance and the barriers force mother to stop it. This study aimed to estimate the prevalence of the barriers to breastfeeding and to determine the factors associated with these barriers among health care workers in Primary health care, at Makkah, 2016

The age mean score was 33.3±5.6 (26-46), and the mean score of a children number was 3.0±1.0, these results indicate that all the participants are in the childbearing age with one experience or more of breastfeeding (84%).

In the current study 53.3% reported early breastfeeding initiation, which is higher than India study (44.6%) **(10)** and lower than USA study (81%) **(11)** and Nigeria study (60%) **(12)**, this rate is lower than HP 2020 goals of ever breastfeeding (81.9 %)**(13)**.

The majority (70-80.4%) reported using both methods for feeding breastfeeding and formula, 10 (10.9%) reported breastfeeding only and 8 (8.7%) reported formula milk only. While in Nigeria study (40%) for exclusive and (58%) for both**(14)**. Furthermore, in Alkharj study (82.3%) for exclusive and (44.5%) for both **(4)**. These numbers are indicating that there is reducing in breastfeeding rate among working women which need immediate attention.

Findings of the results showed that 83.7% had sufficient knowledge about breastfeeding benefits, where the majority reported that BF prevent mothers (94.6%) and baby (84.8%) from being sick. Additionally, 87% of the participant, admitted their knowledge of the recommendation of exclusive breastfeeding during the first six months, and 81.5% understood that mothers' milk is a sufficient nutritional source for the first 4-6 months. This rate was higher than what in Nigeria study (70%)**(14**), and Hail study**(6)**.

In the current study, the rate of having right information was higher than in Hail study, where the majority of participants could mention at least 8 right information while in hail study the majority could mention one right information and no one exceed 4 information.

There was a significant difference in the knowledge mean scores among people with higher level of education, those whom their child received a bottle feeding at the hospital and breastfed last youngest child. Those who breastfed their younger child had the highest level of knowledge. Moreover, women with a higher level of education their babies did not receive bottle feeding in the hospital this consistent with previous studies **(6,11,14)**, this might be because of high level of education allow women to look for further information, discuss with other and reach a decision. Several studies indicate that if the mother had previous experience in breastfeeding without problem or received the appropriate advice, there is bigger chance to breastfeed again **(7)**. In Nigeria study and India study, the authors reported that not only the increase in Institute delivery is important but more importantly is to carry out awareness activity for the mothers about breastfeeding benefits encouraging them to do it and providing them with all the supports and guides they need. Which is part of a global project of WHO/UNICEF (baby friendly hospital initiative) authority**(10,14)**.

Despite the sufficient level of awareness among the participants in the present study, still there is a gap between knowledge and practice, this could be as a result of several barriers faced mothers and forced them to stop breastfeeding. The majority reported resuming work as the main barrier (89.1%). Other significant reported barriers are low knowledge about how to pump breast milk and handle it (62.0%) inadequate breast milk (64.4%). Whilst, use of contraceptive pills (57.6%), sore nipple (53.2%), failure to latch on by the infant (51.2%) and low knowledge about the benefits of breastfeeding (43.5%) are less reported barriers, this is consistence with previous studies **(2,5,7)**. In Hail study, the authors reported back to work (38.6%) and mother's illness (15.8%) to be the main barriers to continuing breastfeeding **(6)**. In Riyadh study, the main barriers were embarrassing from feeding in public area (83.2%), back to work (73.5%) **(5)**. In Hong Kong study the main barriers were Insufficient milk (34.55) and back to work (31.4%) **(2)**. In USA studies the main barriers were Inadequate breast milk and back to work **(8,11)**. All the studies reported different barriers. However, all of them agreed that Inadequate breast milk and back to work are the main barriers, inadequate breast milk could be explained that some women had problems in lactation and technical procedures rather than insufficient milk producing**(11)**. Back to work was the main barrier to the fact that not all working women have the time to feed their children. Moreover, not all job contract provides women with the

enough time before coming back to job particularly women who worked outside the government, where women who had paid leave are more welcome to breastfeed their babies than others.**(9,13,14,15)**

Table (1):- Demographic data;

Variables	Mean± SD	Rang (min-max)
Age	33.3±5.6	(26-46)
Number of children	3.0±1.0	(1-11)
Youngest children age	2.6 ±1.5	(0.1-5.0) years
Variables	**N**	%
Nationality		
1-Saudi	72	78.3
2-Non Saudi	20	21.7
Education		
Diploma Nurse	34	37.0
General practitioner	26	28.3
Bachelor of Nurse	7	7.6
Family medicine specialist	12	13.0
Dentist assistant.	9	9.8
Lab technician	2	2.2
Pharmacist.	2	2.2
Marital status		
Married	85	92.4
Divorced	5	5.4
Widowed	2	2.2
Pregnant		
No	82	89.1
Yes	10	10.9

Table (2):- Obstetric and feeding characteristics:

Variables	N	%
previous experience with breastfeeding		
No	8	8.7
Yes	84	91.3
Mode of delivery		
Spontaneous vaginal delivery	59	64.1
Cesarean section	33	35.9
Received bottle feeding at the hospital		
No	49	53.3
Yes	43	46.7
NICU admission		
No	83	90.2
Yes	9	9.8
Method of infant feeding		
Breastfeeding only	10	10.9
Formula feeding only	8	8.7
Both Breast and Formula feeding	74	80.4
Currently breastfeeding		
No	81	88.0
Yes	11	12.0
breastfed last youngest child		
No	9.8	9
Yes	72	78.3
Unknown	11	12.0
Child feeding during work hours		

Formula	14	15.2
Didn't work for 2 years	2	2.2
Pumped breast milk	4	4.3
Not breastfeeding now	1	1.1
Unknown	71	77.2
Did you use a breast pump?		
No	55	59.8
Yes	37	40.2

Data are presented as number & percentage (%)

Table (3):- participants' knowledge of breastfeeding:

variables	N	%
Breastfeeding protects the child from diseases such as diarrhea, allergy and ear infection.		
TRUE	78	84.8
Women who breastfeed will likely reduce their risk for uterine, endometrial, breast and ovarian cancer.		
TRUE	87	94.6
Exclusive breastfeeding is recommended in the first 6 months		
TRUE	80	87.0
Breastfeeding helps the uterus contract after birth to control postpartum bleeding.		
TRUE	88	95.7
Formula milk is easily digested than Breast milk.		
FALSE	81	88.0
Because breastfeeding requires additional calories, women who breastfeed may take longer to return to their pre-pregnancy weight.		
FALSE	61	66.3
Colostrum is the antibody-rich first milk; it can be helpful to the infant to pass its meconium or first bowel movement.		
TRUE	83	90.2
No additional water is required by breastfed infants until 4 to 6 months of age.		
TRUE	57	62.0
No additional food is required by breastfed infants until 4 to 6 months of age.		
TRUE	75	81.5
The breast pump is a device that allows a woman to express breast milk when it is not likely to breastfeed her infant directly.		
TRUE	86	93.5
Pumping should not hurt, even if you have sore or painful nipples.		
TRUE	30	32.6
FALSE	43	46.7
I do not know	19	20.7
You can save Breast milk at room temperature [25 to 27ºC] - up to four hours.		
TRUE	68.5	63
You can store Breast milk in the freezer up to one year.		
TRUE	17	18.5
Overall level of knowledge		
Insufficient	15	16.3
Sufficient	77	83.7
Variables	Mean± SD	Rang (min-max)
Score	9.3±2.1	(2-12)
Percentage	77.5±17.2	(16.7-100)

Table (4):- Breastfeeding barriers:

variables	N	%
Low knowledge about the benefits of breastfeeding.	40	43.5
failure to latch on by the infant.	48	52.3

Use of contraceptive pills.	53	57.6
Embarrassment	17	18.5
Time consuming	29	31.5
Lack of interest.	36	39.1
Sore nipple.	49	53.3
Engorged breast.	43	46.7
Mastitis	42	55.7
Cesarean section.	23	25.0
NICU admission	33	35.9
Inadequate breast milk.	62	67.4
Low knowledge about how to pump breast milk.	56	60.8
Low knowledge about how to handle pumped breast milk.	58	63.1
Back to work.	82	89.1

Table (5):- comparison knowledge score regarding nationality, education level, and marital status:

variables		Mean	±	SD	P value
Nationality [a]	Saudi	09.01	±	2.1	0.010*
	Non-Saudi	10.35	±	1.4	
Education [b]	Diploma Nurse	8.71	±	2.2	0.0001*
	General practitioner	10.35	±	1.4	
	Bachelor of Nurse	10.00	±	0.8	
	Family medicine specialist	10.25	±	1.9	
	Dentist assistant.	7.44	±	1.9	
	Lab technician	9.00	±	1.4	
	Pharmacist.	6.50	±	2.1	
Marital status [b]	Married	9.41	±	2.0	0.15
	Divorced	7.60	±	2.1	
	Widowed	9.00	±	1.4	

Data are presented as mean & standard deviation
a Significance between groups was determined using independent t- test
b Significance between groups was determined using one-way ANOVA
*Statistically significance < 0.05

Table (6):- comparison knowledge score regarding mode of delivery and feeding characteristics:

variables		Mean	±	SD	P value
Previous experience with breastfeeding	No	9.25	±	3.73	0.938
	Yes	9.30	±	1.86	
Mode of delivery	Spontaneous vaginal delivery	9.49	±	1.81	0.247
	Cesarean section	8.96	±	2.44	
receiving a bottle feeding at the hospital	No	9.71	±	1.47	0.041*
	Yes	8.83	±	2.51	
NICU admission	No	9.30	±	1.97	0.965
	Yes	9.33	±	2.91	
Method of feeding	Breastfeeding only	9.50	±	2.22	0.002*
	Formula feeding only	6.87	±	3.35	
	Both Breast and Formula feeding	9.54	±	1.70	
Currently breastfeeding	No	9.17	±	2.09	0.097
	Yes	10.27	±	1.55	
Breastfed last youngest child	No	7.22	±	3.30	0.003*
	Yes	9.41	±	1.78	
Child feeding during work hours	Formula	9.92	±	1.32	0.340
	Didn't work for 2 years	9.50	±	2.12	
	Pumped breast milk	11.25	±	.957	
	Not breastfeeding now	10.00	±		

Used breast pump	No	9.29	±	1.71	0.940
	Yes	9.32	±	2.51	

Data are presented as mean & standard deviation
Significance between groups was determined using independent t- test and one-way ANOVA
*Statistically significance < 0.05

Table (7) comparison the duration of breastfeeding regarding feeding characteristics:

variables		Mean	±	SD	P value
Receiving a bottle feeding at the hospital	no	8.14	±	0.66	0.94
	yes	8.00	±	1.10	
NICU admission	no	8.44	±	0.91	0.20
	yes	3.20	±	0.32	
First baby	no	8.58	±	1.0	0.61
	yes	7.32	±	0.54	
PHC sector	Al Adel	8.74	±	1.15	0.94
	Alsharaya'a	7.36	±	0.45	

Data are presented as mean & standard deviation
Significance between groups was determined using independent t- test and one-way ANOVA
*Statistically significance < 0.05

Figure 1:- Received bottle feeding at the hospital

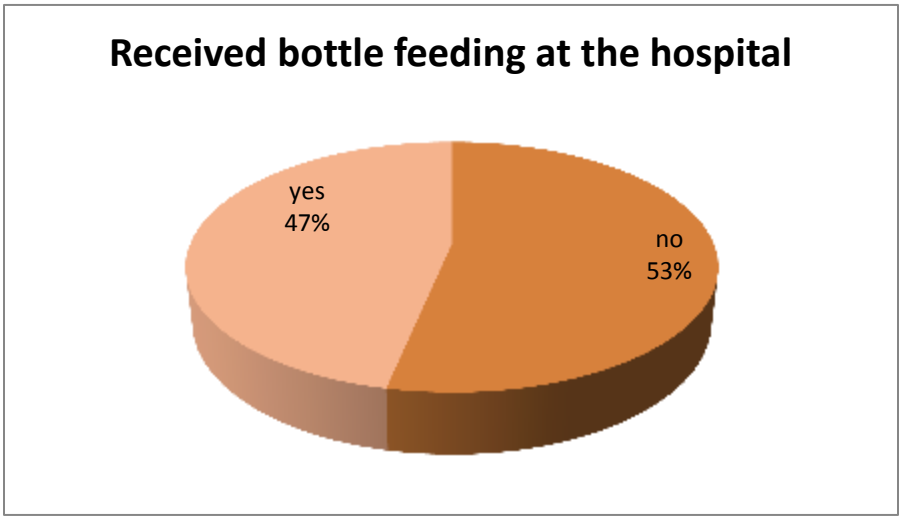


Figure 2: Method of feeding

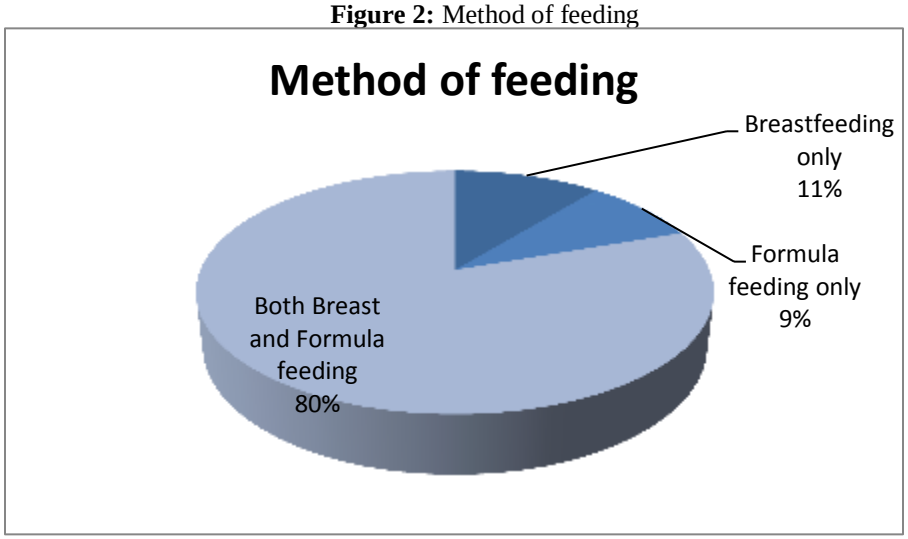


Figure 3:- Child feeding during work hours

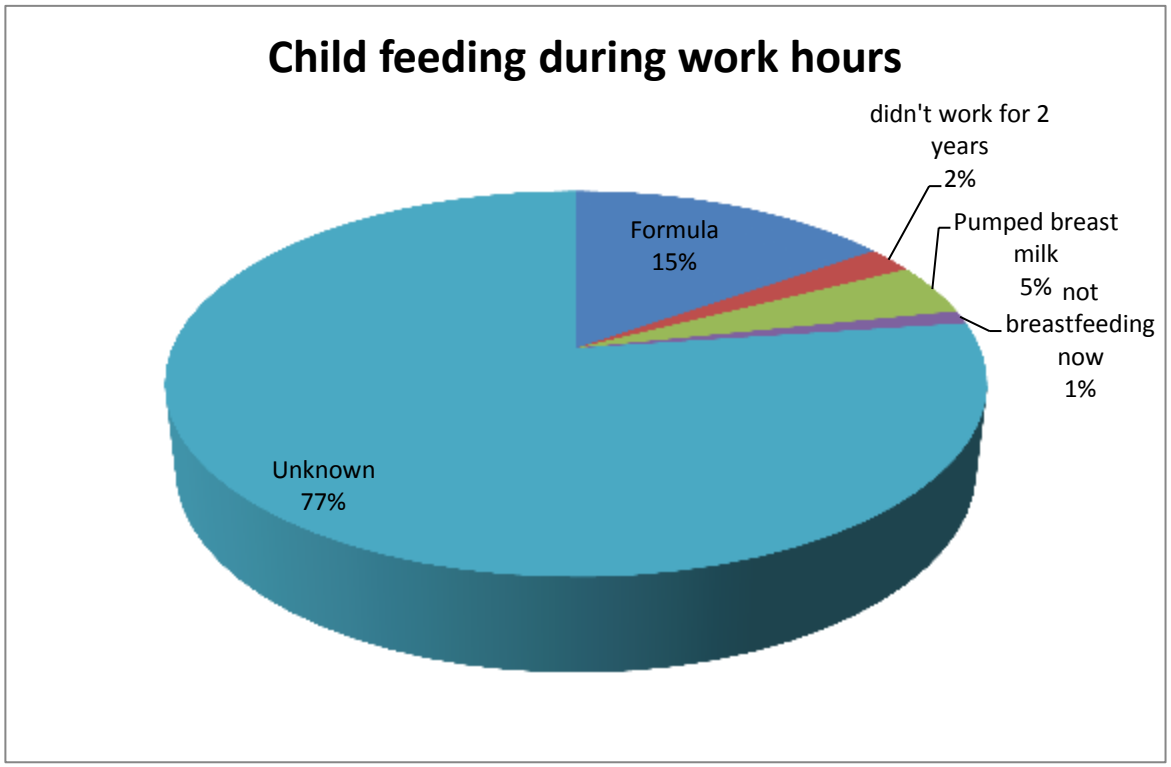


Figure 4:- Knowledge about breastfeeding

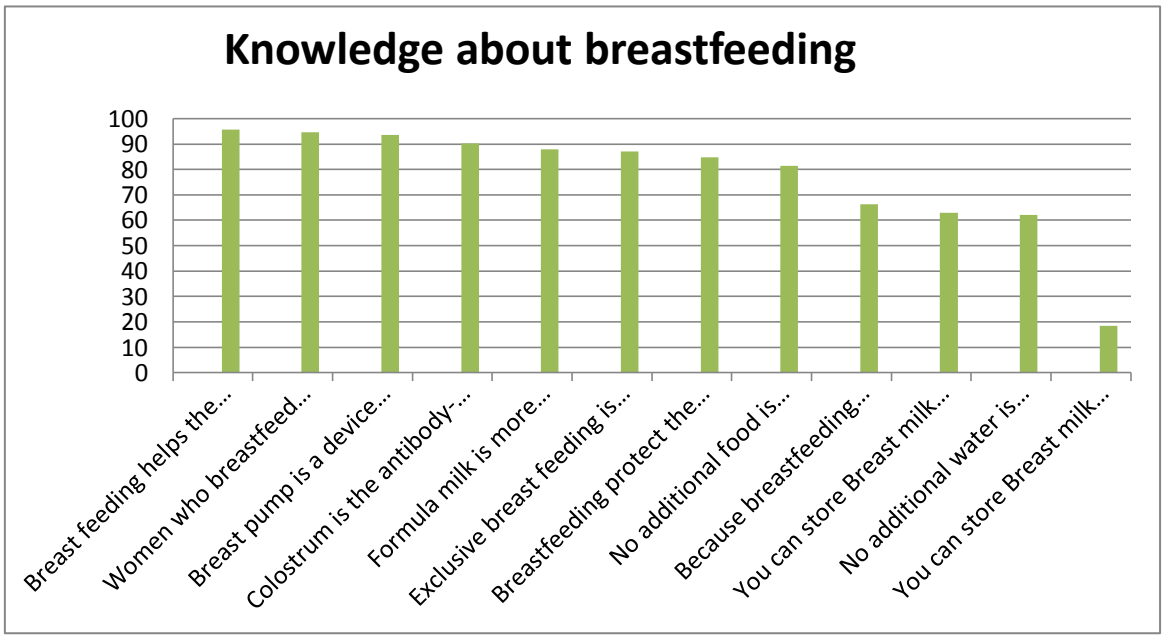
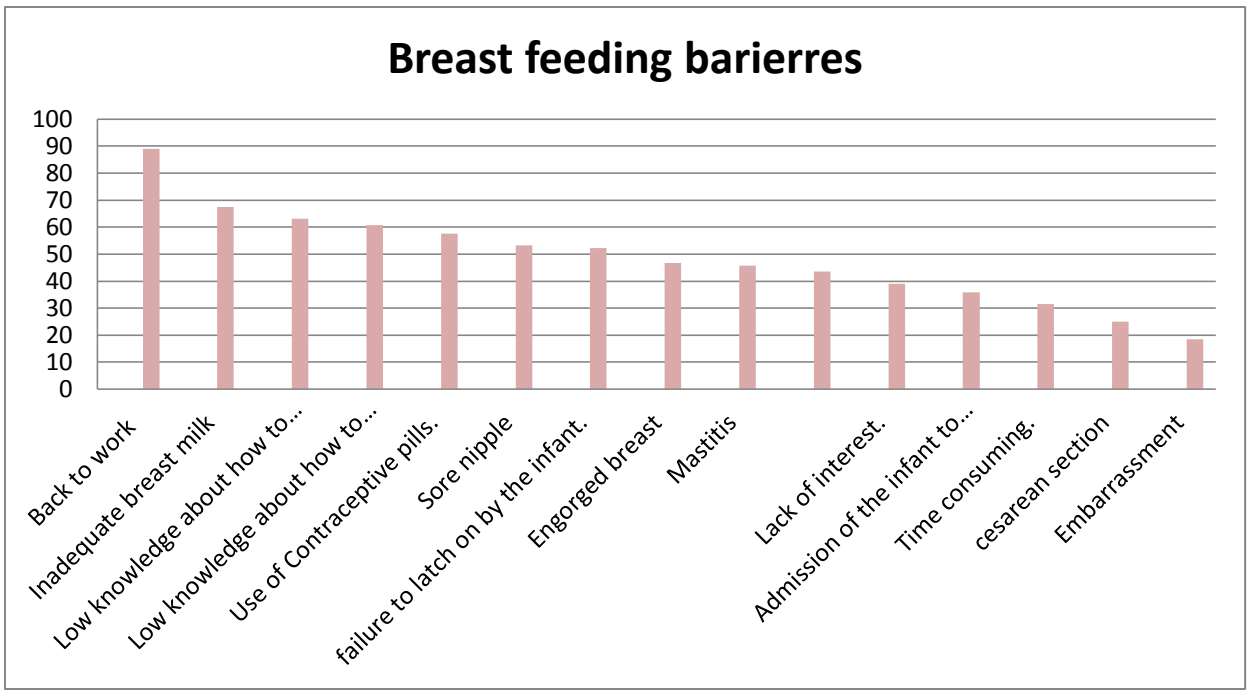


Figure 5:- Breastfeeding barriers



Conclusion:-

The findings of the study reported that the participants had sufficient level of breastfeeding importance, however, still, there is a gap between knowledge and practice and attitude due to several barriers. The main barriers were back to work and inadequate breast milk. Those who had a high level of education, their baby never receive bottle feeding in the hospital and breastfed their youngest children had significantly higher level of knowledge than others.

• Further studies need to be conducted to detect the role of each barrier with stopping breastfeeding in bigger sample size and multicenter.

Recommendation:-

- More educational program is required to design and implement in easy & familiar language among the community to raise the level of awareness.
- Use the media to spread the importance information about breastfeeding benefits.
- Improve service quality and increase the health care providers' responsibility in providing pregnant women with adequate knowledge of breastfeeding.
- Improve service quality and increase the health care providers' responsibility in supporting mother who breastfeeds
- Use counseling during the prenatal and perinatal period to increase the awareness of the importance of exclusive breast-feeding.
- Encourage policy maker to establish strategies to help working women.
- Implicate a flexible schedule for a working mother to encourage the continuation of breastfeeding.

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