

# Role of Knowledge, Perception, Attitudes and Practices of Female Medical Students towards Breastfeeding

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## Abstract

Breastfeeding is the act of feeding breast milk to an infant, it can directly from the mother's breast, or breast milk can be pumped and then fed from a bottle. Breast milk contains calories, vitamins, minerals, and other important nutrients that help an infant grow and develop. It also contains antibodies, which help protect the infant against some infections. Breastfeeding also helps protect the infant and mother against certain diseases or conditions. Exclusive Breastfeeding is defined as an infant receiving only breast milk, it's recommended to exclusively breastfeed infants for the first 6 months of their life as it has positive outcomes on the infant's and mother's health. The aim of the study is to determine role of the knowledge, attitude, perception and practices on breast feeding among female medical students at Umm Al-Qura University in Makkah city, Saudi Arabia. A descriptive Cross-sectional study was conducted, (205) female students included using stratified sampling technique. Data were collected using self-administered questionnaire, factors associated with breastfeeding were measured using appropriate statistical tests with  $p$ -values of less than 0.05 were considered as statistically significant. Study clarified that (90.2%) of the medical students who have children practiced breastfeeding. (4.9%) agreed that artificial milk is a healthier than mother milk, while (42.9%) perceived that artificial milk is a healthy alternative. (95.1%) agreed that breastfeeding reduces the risk of breast cancer and ovarian cancer. study discovered that there's no statistically significant relationship between practicing breastfeeding among lactating respondents and their perception about artificial milk as a healthy choice since the  $p$ -value ( $>0.05$ ). Female medical students have a high level of knowledge, good perception and attitudes about importance of breastfeeding, but there no effect on the actual practices among lactating respondents, more efforts is needed to overcome the problem which may affect the health of coming generations.

**Keywords:** Breastfeeding, artificial feeding, knowledge, breast milk, medical students.

## Introduction

Exclusive breastfeeding is defined by The World Health Organization (WHO) as "when an infant receives only breast milk, no other liquids or solids are given - not even water, with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines".<sup>(1)</sup> In line with WHO recommendations, infants should be exclusively breastfed for the first 6 months of their lives, that from the age of 6 months they should begin eating safe and adequate complementary foods while continuing to be breastfed up to 2 years and beyond and that mothers should be counseled and provided with support for exclusive breast-feeding at each postpartum visit.<sup>1</sup>

Infants are born with vulnerable bodies and temporary immune systems that weaken as the first weeks of their life pass by, which is why breast milk is considered as the ideal source of nutrition for infants as it continues to supply up to half or more of a child's nutritional needs during the second half of the first year of life and up to one third during the second year of life, providing all the energy and nutrients that the infant requires for the first few months of life.<sup>2</sup>

According to the Centers for Disease Control and Prevention (CDC) breastfeeding is associated with many positive outcomes for the child's and the mother's overall health.<sup>3</sup>

Infants who are breastfed have a lower risk of Asthma, Obesity, Type 1 diabetes, Severe lower respiratory disease, Acute otitis media (ear infections), Sudden infant death syndrome (SIDS), Gastrointestinal infections and Necrotizing enterocolitis (NEC), meanwhile for breastfeeding mothers they are less likely to develop Breast cancer, Ovarian cancer, Type 2 diabetes and Hypertension.<sup>4</sup>

Based on a study that was published in March 2020 of 4,740 children aged 9-11 years that was conducted from 12 countries (Australia, Brazil, Canada, China, Colombia, Finland, India, Kenya, Portugal, South Africa, United Kingdom, and the United States) and aimed to examine the association between breastfeeding and childhood obesity, breastfeeding was associated with significantly lower odds of general obesity and high body fat in 9- to 11-year-old children from around the world.<sup>5</sup>

According to an article that was published by Australian Breastfeeding Association in April 2022, breastfeeding will boost the immune system of the infants and protect them against gastroenteritis.<sup>6</sup>

A cohort study showed that infants in the US who were exclusively breastfed for more than six months had a lower risk of pneumonia and recurrent otitis media than those breastfed for four to six months.<sup>7</sup>

Despite research proving the positive outcomes of breastfeeding for the mother and infant, breastfeeding remains low among mothers compared to formula feeding for various reasons such as the fear of gaining weight, lack of sleep, insufficient milk or maternal employment.<sup>8</sup>

A study that attempted to assess the knowledge, attitude, and practice among mothers in Al-Taif region, Saudi Arabia regarding breastfeeding was published in April 2021, showed that out of 300 mothers only (26%) exclusively breastfed their children.<sup>9</sup>

Another study conducted for Saudi women in 2011-2013 found out that only 194 (37%) of 517 mothers experienced exclusive breastfeeding in the first 6 months after birth, and 165 (31.9%) of the mothers continued to breastfeed for 9–12, 12–18 and 18–24 months as the most frequent periods longer than six months.<sup>10</sup>

According to the 2010 UK wide Infant Feeding Survey, exclusive breastfeeding at six weeks was 24% in England, 17% exclusively breastfeeding three months and exclusive breastfeeding at six months (as recommended by WHO) remained at around 1%.<sup>11</sup>

According to WHO the global statistics of breastfeeding remain lower than what is required to preserve the health of mothers and their children<sup>12</sup>. Between 2013–2018, 43% of newborns initiate breastfeeding within one hour of birth.<sup>13</sup> Only 41% of infants under six months of age are exclusively breastfed, whereas 70% of mothers continue to breastfeed their infants for at least one year, by two years of age breastfeeding rates dropped to 45%.<sup>14</sup>

WHO stated that the collective goal for these global rates in 2030 are to be 70% for initiation within the first hour, 70% for exclusive breastfeeding, 80% at one year and 60% at two years. Therefore, countries must enhance their health care systems and upgrade their efforts to educate and help more mothers to breastfeed in order to meet the target rates of breastfeeding.<sup>15</sup>

### **Objectives**

1. To identify level of knowledge, perceptions among female medical students towards breastfeeding.
2. To clarify negative and positive attitudes among female medical students towards breastfeeding and practices among lactating female students.
3. To clarify reasons for preference of artificial feeding.

**Methodology****Study area:**

Umm Al-Qura university health campus is situated in Alabdiya , Makkah,KSA, with five faculties including Medicine, Dentistry, Pharmaceutical sciences, Nursing ,Applied medical sciences and Public Health. The study was conducted among female medical students within the campus.

**Study design:**

This is a descriptive cross-sectional institutional based study, was conducted to achieve the study objectives, data were collected using self-administered questionnaire, factors associated with breastfeeding were measured using appropriate statistical tests with *p*-values of less than 0.05 were considered as statistically significant.<sup>16</sup>

**Study population:**

Female medical students aged over 18 years old at Umm Al-Qura University in Makkah.

**Sample size:**

(205) female medical students were selected randomly using stratified sampling technique,

**Inclusion criteria:**

All Female medical students at Umm Al-Qura University, Makkah city.

**Exclusion criteria:**

All the male medical students at Umm Al-Qura University, Makkah city.

**Data collection:**

Data were collected from participants over a period of three months using a questionnaire. The questionnaire included questions on socio-demographic status and other questions related to breastfeeding knowledge, perception attitudes and practices.<sup>17</sup> Participants were asked to respond to each item on a scale of agree to disagree. A one-point score was assigned for each answer that favored breastfeeding and a zero-point score was assigned for each answer that favored artificial feeding.

The collected data were coded and entered into statistical package for social sciences (SPSS) for analysis.

**Statistical Analysis:**

Data analysis was done via the statistical package for the social sciences (SPSS) (version 25).

**Ethical Approval and informed consent:**

Ethical approval obtained from Bio-ethical committee, UQU, participants signed the informed consent form and participations were purely voluntary.

**Results:**

**Table 1. The sample distribution according to the basic information**

Variable	Frequency	Percentage	
Age	18-20	87	42.4%
	21-22	102	49.8%
	23 and above	16	7.8%
<b>Total</b>	<b>205</b>	<b>100%</b>	
Marital Status	Single	180	87.8%
	Married	23	11.2%
	Divorced	2	1%
<b>Total</b>	<b>205</b>	<b>100%</b>	
Having Children	Yes	20	9.8%

Variable		Frequency	Percentage
	No	185	90.2%
<b>Total</b>		<b>205</b>	<b>100%</b>
<b>Breastfeeding</b>	Yes	18	90%
	No	2	10%
<b>Total</b>		<b>20</b>	<b>100%</b>
<b>Breastfeeding Duration</b>	3 months or less	4	22.2%
	6 months or less	7	38.9%
	12 months or less	3	16.7%
	2 years or less	4	22.2%
<b>Total</b>		<b>18</b>	<b>100%</b>

From table (1) it can be seen that the majority of the participants ranged from age 21 to 22 years old (49.8%), marital status is single (87.8%) and (90.2%) don't have children.

Meanwhile from the ones who have children only 18 of them practiced breastfeeding (90%), and (38.9%) of them practiced breastfeeding for 6 months or less.

**Table (2): Frequencies and Percentages of Sample's Responses Regarding Knowledge of Breastfeeding**

No	Statement	Agree		Disagree		P value
		F	P	F	P	
1	Breastfeeding benefits last as long as the child is being breastfed.	94	45.9	111	54.1	0.235
2	Formula feeding is better than breastfeeding.	195	95.1	10	4.9	0.000
3	Breastfeeding increases mother's bonding with her child.	201	98	4	2	0.000
4	Breast milk lacks Iron.	159	77.6	46	22.4	0.000
5	Breastfed children are healthier than formula fed children.	192	93.7	13	6.3	0.000
6	Breast milk storage is considered as an effective solution for working mothers.	174	84.9	31	15.1	0.000
7	Mothers that formula feed their child miss one of the great joys of motherhood.	176	85.9	29	14.1	0.000
8	Mothers shouldn't breastfeed their children in public areas for example: family gathering.	131	63.9	74	36.1	0.000
9	Breastfed children are less likely to be overweight.	146	71.2	59	28.8	0.000
10	Fathers feel left out when the mother is breastfeeding.	172	83.9	33	16.1	0.000

No	Statement	Agree		Disagree		P value
		F	P	F	P	
11	Breast milk is an ideal and complete food for the children.	200	97.6	5	2.4	0.000
12	Breast milk is digested easier than formula milk.	201	98.0	4	2.0	0.000
13	Artificial milk is considered to be a healthy alternative for the breast milk.	88	42.9	117	57.1	0.043
14	Breast milk is cheaper than formula milk.	181	88.3	24	11.7	0.000
15	A mother who smokes every now and then should not breastfeed her child.	157	76.6	48	23.4	0.000
16	Breastmilk contains all the nutrients a child's needs during the first six months.	199	97.1	6	2.9	0.000
17	Breastfeeding works as a natural contraceptive.	134	65.4	71	34.6	0.000
18	Breastfeeding stimulates the release of the hormone oxytocin, which helps contract the uterus after Childbirth.	189	92.2	16	7.8	0.000
19	Breastfeeding reduces the incidence of breast and ovarian cancer.	195	95.1	10	4.9	0.000
20	One of the reasons why mothers dispense with breastfeeding is for fear of changing the shape of the breast.	167	81.5	38	18.5	0.000

From table (2) it can be seen that there are significant differences at level (0.05), where p values of all statements are less than (0.05) except first statement in which p value is higher than (0.05).

**Table.3: Relationship between knowledge of the importance of breastfeeding and the duration of practicing.**

Variable	P value
knowledge of breast feeding	0.961
Duration of practicing	

From table (3) it can be seen that there's no statistically significant relationship between knowledge of the importance of breastfeeding and duration of practicing it, since the p-value is 0.961 (which is  $> .05$ ).

**Table.4: Relationship between preferences of artificial breastfeeding and practicing it among lactating students**

Variable	Practice breastfeeding		
	Yes	No	P value
Preference of artificial feeding	3	1	0.264
Not artificial feeding	15	1	0.422

From table (4) it can be seen that there's no statistically significant relationship between preferences of artificial breastfeeding and practicing it among lactating students, since the p-value are respectively 0.264 and 0.422.

**Table.5: relationships between age and having children and duration of breastfeeding**

Variable		Duration of practicing				P value
		3month or less	6month or less	12month or less	2 years or less	
Age	18-20	1	1	-	-	1.00
	21-22	3	2	-	2	0.867
	23 above	-	4	3	2	0.717
Have children	Yes	4	7	3	4	0.572
	No	0	0	0	0	-

From table (5) it can be seen that there's no statistically significant relationship between age and having children and duration of breastfeeding, since the p-value are(>0.05).

**Table.6: relationship between preference of artificial feeding and freezing breastmilk for female health students**

Variable	freezing breast milk		
	Yes	No	P value
Preference of artificial feeding	76	12	0.607
Not artificial feeding	98	19	0.378

From table (6) it can be seen that there's no statistically significant relationship between preference of artificial feeding and freezing breast milk for female health students, since the p-value are(>0.05)

**Table.7: relation between practicing among respondents and their perception that artificial milk is a healthy choice**

Variable	practicing breast feeding		
	Yes	No	P value
artificial milk is a healthy	8	2	0.136
artificial milk is not a healthy	10	0	0.058

From table (7) it can be seen that there's no statistically significant relationship between practicing among respondents and perception among participants that artificial milk is a healthy choice, since the p-value(>0.05)

**Table.8: Frequencies and Percentages of participants' responses Regarding Knowledge of Breast Milk**

Statement	Agree		Disagree	
	F	P	F	P
Breast milk is an ideal and complete food for the children	200	97.6	5	2.4
Breast milk contains all the nutrients a child's needs during the first six months	199	97.1	6	2.9
Breastfeeding works as a natural contraceptive	134	65.4	71	34.6
Breastfeeding stimulates the release of the hormone oxytocin, which helps contract the uterus after Childbirth	189	92.2	16	7.8
Breastfeeding reduces the incidence of breast and ovarian cancer	195	95.1	10	4.9

From table (8) it can be seen that the level of knowledge of breast milk among female health students at Umm Al-Qura University is high. That illustrated in the following graph:

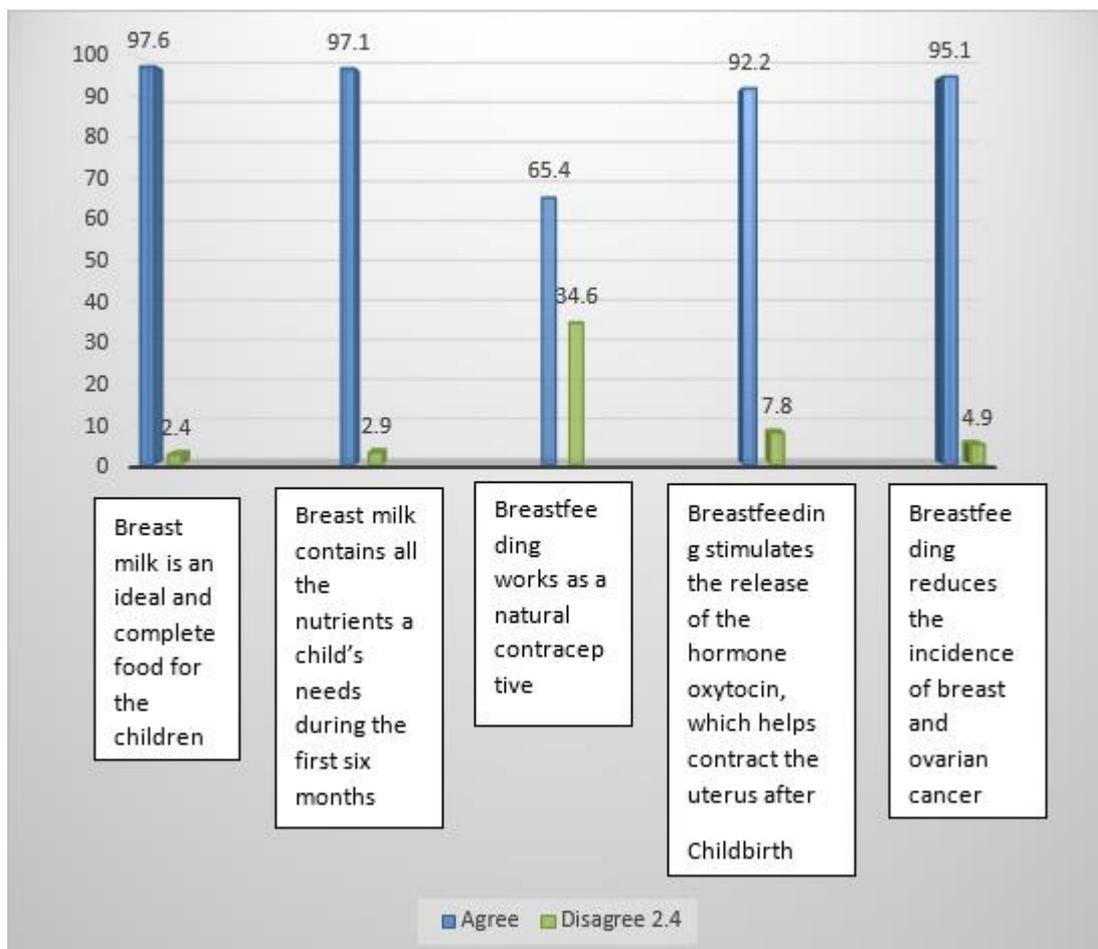


Figure 1. The level of knowledge of breast milk among female medical students

### **Discussion:**

Majority of the participants have no children, while a few percentages of participants have children .<sup>18</sup> It was clear that more than one third of them practiced breastfeeding for a duration of 6 months or less, while the other percentages of participants practiced breastfeeding for a duration of 3 months or less, 12 months or less and two years or less, whereas a previous study of Gewa, C.A., Chepkemboi, J. in rural Kenya have found a relationship between the knowledge and the duration of breastfeeding<sup>19</sup>, this study shows that there's no statistically significant relationship as P value correlation was insignificant at (0.961). It means that the duration of practicing breastfeeding does not depend on the level of knowledge of breastfeeding's importance.<sup>20</sup> This could be related to other factors that affect the duration of practicing breastfeeding such as insufficient milk, health concerns, nipple soreness, and a working mother.<sup>21</sup>

Also, there is no statistically significant relationship between preferences of artificial breastfeeding and practicing it among lactating health students, since the p-value were respectively 0.264 and 0.422.

In addition, there was no correlation between age and duration of breastfeeding since P value correlations were insignificant at (1.00) (0.867) (0.717), a similar result found in United States, explain the relationship between maternal age and breastfeeding duration in US mothers<sup>11</sup>.

Study clarified that there was no correlation between having children and duration of breastfeeding where P value correlation was insignificant at (0.572), means that having children among participants does not mean increase in the duration of breastfeeding.<sup>22</sup>

The study showed there was no correlation between preference of artificial feeding and freezing breast milk for female health students, since the p-value are respectively 0.607 and 0.378. Also, there was no correlation between practicing among lactating respondents and their perception on artificial milk as a healthy choice, since the p-value are respectively 0.136 and 0.058.<sup>23</sup> The Study showed that participants have a high level of knowledge regarding breast milk , this result disagree with the study of Yang, SF., Salamonson, Y., Burns, E. et al. J 13, 8 (2018)<sup>24</sup>

The high level of knowledge could be due to the female health students being exposed to active participation in formal and non-formal educational activities such as classroom instructions, seminars, workshops, exhibitions etc .<sup>25</sup> and whereby all these activities provide female health students chances for integrating with breastfeeding topics that leads to provide them with trusted information and construct intimate emotion between female students and breastfeeding topics.

### **Conclusions and Recommendations**

#### **Conclusion:**

It's clear, that the level of students' knowledge about breastfeeding was relatively high but there is still a room for improvement as some students intend on artificial feeding as an alternative, it's necessary to address these beliefs by focusing on academic and non-academic activities effectively to contribute to better promotion and practicing for breastfeeding as female health students are being future health professionals who have a role in promoting breastfeeding and raising awareness about it to mothers and they could be future mothers themselves.

#### **Recommendations:**

1. More researches are required to identify reasons for why Female health students have a high level of knowledge, good perception and attitudes about importance of breastfeeding, but there no effect on the actual practices among lactating respondents, more efforts is needed to overcome the problem which may affect the health of coming generations
2. Female medical students could be trained and educated on how to apply the knowledge and information's they have about breastfeeding to support lactating mothers.
3. The medical faculties should blend a variety of appropriate teaching methods and strategies for increasing the level of female students' breastfeeding knowledge and attitude towards breastfeeding.

4. Breastfeeding topics should be enriched with non-formal educational activities and implemented effectively.
5. Private rooms in public areas for lactating mothers should be offered to breastfeed their children.

#### Availability of data and materials

All data generated or analyzed during this study are available.

#### Conflict of interest

Conflict of interest declared none

#### Research Limitations

The weak participation of medical students and the limited period of time had a negative impact on the study as they resulted in an insufficient sample size, in addition to that most of the target group were non-married and lack of recent local previous studies related to the topic were major limitations.

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