

# Assess the Weaning Knowledge of University Students' Mothers in the Eastern Region, Saudi Arabia

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## ABSTRACT

**Background:** Feeding practices like early breastfeeding initiation, exclusive breastfeeding, good weaning practices, hand washing at the time of feeding, and child vaccination are factors associated with childhood diarrhea. Among all, Weaning is an essential process to meet the nutritional demand of the growing infant. **Objectives:** A study to assess the knowledge of mothers who enrolled in the college and university regarding weaning process in Eastern region Saudi Arabia. **Methodology:** A cross-sectional study was conducted among 125 Female students who enrolled in the college and university selected through stratified random sample method. A semi-structured self-administrated method was used to collect demographic information and questions regarding knowledge of weaning process. **Results:** Current study showed that mothers' age range of 25-35 years. Majority (80.5%) of them stated that they began in the month of 10-12months. Regarding the sources of information regarding weaning process the current study observed that 56% of them consult from family and friends, followed by health care providers, previous experience, and Internet (44%, 38.4% and 32%). Current study observed that mother select more than one food to start (either fluid / liquid and semi solid also crushed vegetables and fruits) to start weaning. Another study also mentioned that as for kind of food introduced during breast feeding, (81.3%) of the mothers reported crushed and easy to chew food, (61.8%) reported crushed vegetables and fruits while fluids were reported by 57.3% of the mothers. The majority (60.80%) of them have poor knowledge while only 4% of them have excellent knowledge. There is a significant difference between knowledge of weaning and number of visits to the hospital ( $p \leq 0.05$ ). 55.6% of the mother would like to gain knowledge about the weaning process in different topics. **Conclusions:** The findings highlight more effort should be paid to improve mother's awareness in weaning process mainly starting time and kind of food to be started.

**Keywords:** Breast feeding, weaning, feeding practices, knowledge, Saudi Arabia.

## 1. Introduction

Learning is the addition of new knowledge and experience. Teaching and learning are an integral part of nursing. Nurses are responsible for educating clients related to many aspects and keeping themselves updated. Various teaching strategies are used to increase knowledge, such as lecturing, demonstration, discussion, and self-education. [1] Hence good nutrition is essential to keeping current and future generations healthy across the lifespan. A healthy diet helps children grow and develop properly and reduces their risk of chronic diseases. Most reviews have concluded that "exclusive breastfeeding" for the first six months of life provides sufficient nutrients for infants for around six months, and then appropriate "complementary foods" should be introduced with continued breastfeeding, preferably until around two years of age or longer. Both breastfed and infant formula fed infants should be introduced to safe and nutritious "complementary foods" at around six months to prevent retardation of growth and to minimize the risk of nutrient deficiencies. [2] Research evidence suggested that improved

complementary feeding ranked to be the third effective preventive actions for reducing under-five mortality and is estimated to have the potential to prevent 6% of all deaths. [3] Childhood diarrheal disease among children less than two-year aged children is a result of the interactions of many factors; socio-economic, environmental, behavioral factors, and child feeding practices. Literature shows that child feeding practices had a direct link with childhood diarrhea. [4]

Study conducted with the sample of 396 mothers concluded that 61.1% of the mothers started breastfeeding within an hour of giving birth. In addition to breast milk, 5.1% gave fluids to their children on the first day of birth. About 66.4% started complementary feeding at 6 months, 22.0% breastfed for 24 months or beyond, while 40.4% fed their children on-demand. [5] Another study was conducted among 175 mothers who have one child at least under age 5 in Al Madinah Munawara reported that 29.1% of the participants continued breastfeeding for one-two years and regarding weaning process the findings shows that 47.7% of the participants mothers introduced complementary feeding before 6

months. The conclusion of the study indicates poor understanding and practice regarding breastfeeding and weaning process.<sup>[6]</sup>

A quantitative cross-sectional study was done in Asser reign, southern Saudi Arabia, to assess mother’s awareness regarding weaning practice with the sample of 803 mothers whose educational level was in the university level. The result of the study shows poor knowledge regarding the weaning process in Asser reign, and the main source of the mothers’ information was based on personal experience.<sup>[7]</sup>

Finally, we found the importance of increasing the mothers’ awareness regarding the weaning process especially for the new mothers who are probably at the college level. This study aims to assess the knowledge of mothers who enrolled in the college regarding weaning process in Eastern region as there is a few previous studies in in this topic in the Eastern region, and to prepare a health educational material based on the participants need and the research findings.

## 2. Objectives

- To assess the knowledge of mothers regarding weaning
- To detect the mean age of children on time of waning started
- Correlation between number of children and knowledge regarding weaning process
- Relationship between knowledge of weaning process and number of hospital visits

## 3. Materials And Methods

A cross-sectional study was conducted among 125 Female students who enrolled in the college and university. A stratified random sample method was used considering the students' acceptance and convenience. Semi – structured self – administrated method was used to collect demographic information and questions regarding knowledge of the weaning process.

### The inclusion criteria for the sample:

- Mothers who enrolled currently in the college (Bachelor, Master and Ph. D)
- Mothers who have baby 2 years and less within the last 3 years

- Mothers who feed/fed breastfeeding and bottle feeding

### The exclusion criteria for the sample:

- Mother who is not enrolled currently in the college

- Mothers who have baby more than 2 years

### Study tools

The data was collected by using a Semi – structured self – administered questionnaire. Questionnaire was prepared both Arabic and English language inconsideration of all levels of students. In developing the tool, the researcher reviewed the research and non-research literature, had discussions with experts in the field of doctors in Gynecology and obstetrics and in the nursing field. Tool is organized into Part -1 and Part II. Part I consists of 6 questions with demographic variables. Part II consists of 8 questions regarding Variables.

### Statistical analysis

Data were analyzed using Jamovi statistical program (version 2.3). The researchers described the characteristics of the participants using frequency and percentage. The participants' knowledge of breastfeeding weaning was described using the mean (M), standard deviation (SD), median, and Inter Quartile Ratio (IQR). Furthermore, all parametric test assumptions were tested for normality, and the data were not normally distributed. Kruskal-Wallis' test (one way ANOVA - nonparametric) was used to compare groups.

## 4. Results

A total of 125 participants responded to the questionnaire. The demographic characteristics of the participants are shown in Table (1). The majority of the participants are under the age of 35 (70%). Most of the participants (69 %) hold a bachelor’s degree. 40% of the sample has only one child, and 60% have two or more children. Most of them (66%) fed their children using two methods (breastfeeding and artificial feeding). More than a third of the participants (37%) continued breastfeeding for more than 12 months compared to 24% who discontinued breastfeeding within the first four months.

**Table1: Demographic participants’ characteristics.**

Variables	n	%
Age	<25 years	27.2
	25-30 years	25.6
	31-35 years	16.8
	>35 years	30.4
Educational level	Diploma	16.8
	BSc	68.8
	Master	14.4
Number of Children	One child	40.0
	Two Child	28.0
	Three Child	16.8%
	Above three children	15.2
Breast feeding	Breast feeding	25.6
	Artificial feeding	8.8
	both	65.6
Duration of Breast feeding	No breast feeding	2.4
	First 4 Months	24.0
	first 8 months	20.0
	first 12 months	16.8
	More than 12 months	36.8

Table (2) displays the sources of information that the mothers obtained during their infants weaning. Approximately half of the participants (53%) used only one source of information during weaning, while the other half (47%) used multiple sources. For the

mothers, family and friends were the most important sources of information (56%) followed by health care providers (44%), and previous experiences (38%).

**Table 2: Sources of information about weaning that are used by mothers.**

Variables		n	%
No. of sources of information that used by mothers	Use one source	66	52.8
	Use two sources	35	28.0
	Use three sources	16	12.8
	Use four sources	8	6.4
Source of information	Previous Experience	48	38.4
	family and friends	70	56.0
	Internet	40	32.0
	Health Care Provides	55	44.0

The mothers' understanding about weaning is shown in Table (3). According to the findings, majority of the mothers (80%) believed that 10-12 months is the appropriate age to begin weaning. At the start of weaning, many mothers (71%) gradually discontinued breastfeeding. Crushed vegetables and fruits were the major food the mothers have

been chosen to fed their infants during weaning (81%), followed by fluid/ liquid food (65 %), then semi-sold food (45%). Most of them (65%) their infants had received 2-4 meals rather than when being weaned. Additionally, approximately half of them (46 %) gave their child a regular diet while the child was between ages of 13 and 24 months.

**Table 3: Participants' knowledge about weaning process.**

Variables		n	%
Appropriate age to start weaning	< 4 months	1	0.8
	4-6 months	6	4.9
	7-9 months	17	13.8
	10-12 months	99	80.5
Pattern of breast feeding at the beginning of weaning	Stop breastfeeding gradually	89	71.2
	Stop breastfeeding directly	8	6.4
	Same frequency of feeding / no change	28	22.4
*Appropriate food to start weaning	Fluid / liquid food	81	65.3
	Semi sold food	56	44.8
	Solid food	19	15.3
	Crushed vegetables & fruits	101	80.8
	Egg	24	19.2
	Meat	17	13.6
	Nuts	0	0
No. of meal / day during weaning	One meal/day	18	14.4
	2-4 meals/day	81	64.8
	5-8 meals/day	25	20
	> 9 meals / day	1	0.8
Child age to eat regularly food	6-8 months	8	6.4
	9-12 months	15	12
	13-24 months	57	45.6
	Above 2 years	45	36.0

\*Multiple responses

Table (4) lists the most common health problems the infants of the participants' infants experienced during weaning. The majority of them (69%) said there were no health issues for their infants during weaning, and 14% reported stomach pain/colic pain was the most common problem for their infants

during this period. Furthermore, the table shows that only 12% of mothers visited the hospital during the weaning period, while most mothers (75%) did not visit the hospital at all during the weaning period.

**Table 4: Most common health problems during weaning and the No. of hospital visits.**

Variables		n	%
*Common health problem	No health issue	85	69.1
	Diarrhea and vomiting	9	7.2
	Stomach pain/ Colic	18	14.4
	Other	19	15.2
No. of hospital visits	No visit	93	75
	Rare visit	16	12.9
	Frequent visit	15	12.1

\*Multiple responses

The purpose of this study is to assess mothers' knowledge of weaning and to test the relationship

between mothers' age, level of education, number of children, and number of hospital visits.

**Table 5: Distribution the Weaning Knowledge**

Weaning Knowledge	n	%
Poor	76	60.80
Average	44	35.20
Excellent	5	4

As can be seen from Table 5, the distribution of weaning knowledge among mothers. The total knowledge score of mothers ranged from (1 to 8) in the category of poor, average and excellent. Majority

(60.80%) of them has poor knowledge whereas only 4% of them have excellent knowledge

**Table 6: Test the normality. Shapiro-Wilk**

	N	Missing	Mean	Median	SD	Minimum	Maximum	Wp
Total knowledge score	125	0	3.21	3	1.64	1	8	0.926 < .001

According to table (6), the total knowledge score of mothers with a median of 3 ( $M= 3.21, SD \pm 1.64$ ). Shapiro-Wilk test is used to determine the normality of the data. The test shown that p-value is < 0.05 (0.001) which indicated that the data was not normally distributed.

Kruskal-Wallis is used to compare the total score of knowledge for the mothers.

**Table 7a: Comparison between the mothers' total knowledge score and their age.**

	Age	n	Mean	SD	SE
Total knowledge score.	<25 years	34	3.44	1.58	0.271
	26-31 years	32	3.03	1.58	0.279
	31-35 years	21	3.24	1.26	0.275
	>36 years	38	3.13	1.93	0.314

There is no statistically significant difference ( $\chi^2= 2.02, p<0.567$ ) between the mothers' total knowledge score and their age.

**Descriptive statistics**

**Kruskal-Wallis**

	$\chi^2$	df	p	$\epsilon^2$
Total knowledge score	2.02	3	0.567	0.0163

Total knowledge score	Number of children	n	Mean	Median	SD	Minimum	Maximum
	One child	50	3.08	3.00	1.37	1	7
	Two Children	35	3.49	3	1.87	1	8
	Three Children	21	3.52	3	1.69	1	7
	Above three Children	19	2.68	2	1.73	1	7

**Kruskal-Wallis**

	$\chi^2$	df	p	$\epsilon^2$
Total knowledge score	4.20	3	0.240	0.0339

**Table 7d: Comparison between the mothers' total knowledge score and the number of hospital visits**

There is no statistically significant difference ( $\chi^2= 5.81, p<0.055$ ) found between the mothers' total knowledge score and the number of hospital visits. Besides, in pairwise comparisons, there is only a statistically significant difference in mothers' total knowledge score between those who did not visit

**Table 7b: Comparison between the mothers' total knowledge score and their level of education.**

There is no statistically significant difference ( $\chi^2= 0.271, p<0.873$ ) existed between the mothers' total knowledge score and their level of education.

**Descriptive statistics**

	Education level	n	Mean	SD	SE
Total knowledge score	Diploma	21	3.38	1.96	0.428
	Bachelor	86	3.15	1.61	0.173
	Master	18	3.28	1.45	0.341

**Kruskal-Wallis**

	$\chi^2$	df	p	$\epsilon^2$
Total knowledge score	0.271	2	0.873	0.00219

**Table 7c: Comparison between the mothers' total knowledge score and the number of their children**

There is no statistically significant difference ( $\chi^2= 4.20, p<0.240$ ) found between the mothers' total knowledge score and the number of their children

**Descriptive statistics**

the hospital at all and those who frequently visited the hospital during their infants' weaning ( $p<0.040$ ).

**Descriptive statistics**

	No. of Hospital visits	n	Mean	SD	SE
Total knowledge score	No visit	93	3.02	1.50	0.155
	Rare visit	16	3.25	1.91	0.479
	Frequent visit	15	4.27	1.91	0.492

**Kruskal-Wallis**

	$\chi^2$	df	p	$\epsilon^2$
Total knowledge score	5.81	2	0.055	0.0472

## Pairwise comparisons - total knowledge score

		W	p
No visit	Rare visit	0.396	0.958
No visit	Frequent visit	3.432	0.040
Rare visit	Frequent visit	2.176	0.273

**Table 8: percentage of mothers need more information and the topics.**

Table (8) indicates the percentage of mothers who needs more information about the weaning, as well as the most requested topic. 55.6% of the mother would like to gain knowledge about the weaning process in different topics, among those 34.6% of mothers would like to know about the weaning process, 31.4% wants to know the type of food to be selected and 27.41% wants to know the exact time to start weaning and least 6.45% of mothers would like to know about the health issues at the time of weaning.

Variables	n	%	
Percentage of mothers who required more knowledge	Yes	69	55.6
	No	55	44.4
	Not answer	01	0.8
Topics requested by mothers	Time to start feeding	34	27.41
	Weaning process	43	34.6
	Types of food	39	31.4
	Health issues at the time of weaning	08	6.45

## 5. Discussion

The current study aimed to determine the knowledge level on weaning process. We investigated a sample of one hundred twenty-five mothers who enrolled in the college or university in Eastern province of Saudi Arabia. Breastfeeding without any supplementation (infant formula, water, and solid foods) is recommended for the first six months after birth. [8] The United Nations Children's Fund (UNICEF) has estimated that exclusive breastfeeding in the first six months of life can reduce under-five mortality rates in developing countries by 13%. [9] According to the WHO, exclusive breastfeeding for the first 6 months of life and continued breastfeeding with the addition of complementary feeding for up to 2 years of age and beyond is sufficient form maintaining a child's health status. [10] Current study showed that mothers' age range of 25-35 years. Other maternal characteristics included in the current study were maternal educational level, number of children, types of feeding and duration of breast feeding. Majority of the mothers have one child (40%). The study results have implicated that the most commonly used pattern of feeding among participants is mixed feeding (both breastfeeding and artificial feeding), by a percentage of 65.6% of all sample population.

Unfortunately, bottle feeding is quite popular in developing nations; recent estimates amount to 77% engaging in such feeding practice. [11] That is clearly against the recommendations of healthcare professionals, of whom only over 3% advocated for baby-led weaning using bottle feeding. [12]

Regarding the duration of Breast Feeding, our study has demonstrated that 24% of mothers breastfed their children for 4 months, while mothers that continue more than first year a percentage of 36.8%. Weaning refers to the period during which an infant gradually becomes accustomed to food other than milk. Weaning means addition or introduction of semi-solid foods along with continuation of breast feeding as long as possible. The term 'Weaning' describes the process by which baby moves or shifts from having breast milk to consuming semi-solid or solid foods with a gradual reduction in the intake of breast milk and /or baby formula. [13]

In Bangladesh there were 87.90 % children are suffering various degree of malnutrition due to late weaning. [14] This correlate with current study which states that 80.5% of them stated that they began at the month of 10 -12months.

Regarding the sources of information about weaning process the current study observed that 56% of them consult from family and friends, followed by health care providers, previous experience, and Internet (44%, 38.4% and 32%) respectively. This result reflect the study conducted by Musalli Ali Al-Gashanin, Eisa Yazeed Ghazwani(2022) that most participants would consult other mothers (26.5%), followed by reliance on their own experience (21.3%). [15]

Current study demonstrated that 71.2% of the mother stop breast feeding gradually at the beginning of the weaning practice. This results supported by Awareness Level of Mothers Regarding Child Weaning Practice conducted by Mustafa, A. E. M. (2021). Among (87.9%) of the participants reported that breast feeding during weaning stop gradually. [16]

Current study observed that mother select more than one food at the beginning of the weaning (either fluid / liquid and semi solid also crushed vegetables and fruits). Another study also mentioned that as for kind of food introduced during breast feeding, (81.3%) of the mothers reported crushed and easy to chew food, (61.8%) reported crushed vegetables and fruits while fluids were reported by 57.3% of the mothers. [17]

Current study mentioned that 64.8% of the mother replied that the number of meal during the weaning was 2- 4times / day. This result was supported by another study done by Rao, S., Swathi, P. M., Unnikrishnan, B., & Hegde, A. (2011). According to that study the appropriate number of meals of complementary foods should be provided 2-3 times per day at 6-8 months of age and 3-4 times per day at 9-11 and 12-24 months of age [16]. Also, WHO currently recommends two to three meals a day with complementary foods for breastfed infants between 6 and 8 months of life and three to four meals a day

for those between 9 and 24 months, with additional nutritious snacks (pieces of fruit or bread, homemade cake, cassava) once or twice a day at 12 months (PAHO/WHO,2003).<sup>[18]</sup>

The total knowledge score of mothers ranged from (1 to 8), with a median of 3 (M= 3.21, SD ± 1.64). In our study the statistical analysis shows that there is significant among the knowledge score of weaning with hospital visit. Current study showed that 55.6% of the mother wants to gain knowledge about weaning in different topics. Among 34.6% prefer to know the proper technique on weaning process whereas 31.4% of them desires to know about the types of food to be started.

Though the current study did not show association between Knowledge score and mother's age, level of education, number of children and number of hospital visits.

There are several points of strength for the current study. However, the cross-sectional design and social desirability bias remain potential limitations to be taken on board before any generalization of the results to be made.

## 6. Conclusions

Our study reveals that there are still mothers unaware of the knowledge of weaning or techniques good for child health and better development. Improving maternal care strategies throughout the prenatal and postnatal periods is necessary.

## 7. Limitations of the Study

Firstly, self-administered data collection tool was applied that might add social desirability bias. Secondly, the nature of self-perceived reporting might have resulted in recall bias and over/under-reporting of some variables. This cross-sectional study may serve as an insight for further studies to be conducted in this area with all the mothers and increase the sample size that should adopt more rigorous designs to address the correct technique of weaning process.

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### Conflict of interest

Authors declared that there was no conflict of interest.

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