Knowledge and Practices of Mothers' regarding Weaning of Children and their Relation with Socioeconomic Variables in Aseer Region, Saudi Arabia

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Abstract

Background: Weaning refers to transitioning an infant's diet from breast milk or formula to other foods and fluids. When the infant stops receiving breast milk, it is considered fully weaned.

Aims: To assess the knowledge, and practices of mothers on child weaning in the Aseer region.

Methods: A cross-sectional descriptive study was conducted among 189 mothers in Aseer Region, using a self-administered online questionnaire.

Results: Nearly two-thirds of the participants were aware of the terms: weaning, diet, or complementary food (65.1%). Most of the participants (87.3%) knew the nutritional requirements for weaning their infants. There was a non-significant relationship between knowledge of mothers and their sociodemographic characteristics (e.g., their level of education, and socioeconomic condition). More than two-thirds of the participants (71.4%) preferred breastfeeding their children associated with semi-solid food during the 6– 9-month period. The majority of the participants (74.6%) initiated weaning with thin-consistency food. There was a significant relationship between the reason for supplementary feeding before six months and mothers' socioeconomic condition (P <0.05).

Conclusions: Mothers' knowledge and practices were good. There were no significant relationships between mothers' knowledge level with weaning and socioeconomic characteristics. There was a significant relationship between the reason for supplementary feeding before six months and the socioeconomic condition.

Keywords: Knowledge, practice, mothers, weaning, Aseer region, Saudi Arabia.

Introduction

The word "weaning" is derived from the Anglo-Saxon verb "*wenian*", which means *"to become used to something new."* A child's growth includes the normal and unavoidable period of weaning from the breast. It is a multifaceted process including changes to one's diet, immune system, biochemistry, and mental state [1]. Weaning can mean the complete cessation of breastfeeding (an "abrupt" or definitive weaning) or, as described here, a gradual process of introducing complementary foods into the infant's diet while breastfeeding continues. Formula feeding, by definition, marks the beginning of weaning. Babies were generally breastfed longer in antiquity [2].

In 2002, the World Health Organization (WHO) modified toddlers' feeding guiding principles by extending the advocated length of distinct breastfeeding from 4–6 months to six months [3]. In turn, this intended that the advocated age for beginning complementary ingredients became additionally elevated to 6 months [4]. The WHO recommended a gradual weaning period from 6 months to 2 years to allow children to receive the benefits of breastfeeding, while also consuming the necessary nutrients from the complementary foods [5].

Both traditional, spoon-feeding and baby-led weaning methods are in agreement that children require the capacity to sit upright with very little support as a prerequisite to secure their feeding. In addition, the capacity to show readiness for feeding is a crucial developmental sign. Infants show readiness through awareness of their mouth , by bringing their hand to their mouth and imitating parents and through the use of cutlery... In addition to the advice to start solids at or around 6 months of age, signs and symptoms of toddler readiness have to be taken into consideration with the aid of the mother and father through first introducing strong foods, as stated in the United Kingdom toddler feeding recommendation and the Australian guidelines [6].

The weaning process can be divided into four stages, consistent with age and the kind of complementary food accepted by the child, starting at 4– 6 months. Initially, food should be pureed [7].

At 7–9 months, finger foods like bread, fruits, and clumps of different things are often introduced because the child will be able to eat larger lumps in their food. From the age of 9 months, the aim is to slowly move children onto similar meals as the remainder of the family. The baby must be encouraged to feed itself and be provided with different styles of tasty and healthy meals [7].

Factors affecting weaning children

Weaning age in which the child is fully weaned (or no longer breast fed), varies from mother to mother and can be prompted by many factors, such as the mother's physiology, endemic issues or willingness to breastfeed. Additional issues are the mothers' awareness (i.e., modernization), and the mother's monetary status (i.e., relative empowerment, poverty), sociocultural influences, and the child's willingness to surrender breastfeeding [8].

Less knowledge among mothers about weaning leads to poor quality of weaning and incorrect weaning practices predispose toddlers to malnutrition, increased retardation, infection, sicknesses, and excessive mortality [9]. Less knowledge also leads to excessive incidence of dietary contamination in babies and malnutrition because incorrect weaning will boost the mortality and morbidity rate. Hence, it is vital to enforce the right interventions to instillthe right weaning practices. There are mothers who are unaware of proper weaning practices or techniques, which require intervention[10].

Knowledge and practices of mothers regarding weaning their children in KSA has appeared in past research; additionally following the practice of other mothers does not necessarily provide effective methods. [11].

Doctors and fitness care educators provide better methods and inspire mothers to follow those rather than practices inside the community.

This study aimed to identify the knowledge and practices of mothers in Aseer Region regarding child weaning and to identify the relationship between mothers' socioeconomic level and their knowledge and practices of weaning children.

Methodology

This study followed a cross-sectional descriptive design in Aseer Region, Saudi Arabia. The study population included mothers of children aged between 6 to 12 months. A non-probability convenience sampling method was used to include 189 mothers.

Data were collected using an online self-administered questionnaire adapted from a similar study [9]. It was distributed using WhatsApp. The study questionnaire included three main parts, as follows:

- ***Sociodemographic Characteristics of Mothers:*** Age, working status, level of education, monthly income, number of children, and sources of information on knowledge and weaning practices.
- ***Knowledge on weaning:*** Eight knowledge statements concerning weaning, and diet.
- ***Weaning practices:*** 11 statements.

Scoring and grading

Participants' responses regarding their knowledge, and weaning practices were scored, with (0) for an incorrect knowledge response, or incorrect practice, and (1) for a correct knowledge response or correct practice. Therefore, the total knowledge score for participants ranged from 0 to 8.

Participants who attained a total knowledge score of >4, were considered to have a good knowledge grade about weaning, while those who attained knowledge scores <4 were considered to have a poor knowledge grade about weaning.

Participants who attained a total practice score of >6 were considered to have a good practice grade about weaning, while those who attained practice scores <5 were considered to have a poor practice grade about weaning.

Moreover, participants' socioeconomic conditions (i.e., level of education, and monthly family income) were adapted according to Wani [12], as follows

Socioeconomic score	Socioeconomic level
1	Lower
2	Upper lower
3	Lower middle
4	Upper middle
5	Upper

Statistical analysis

Collected data were analyzed using the Statistical Package for Social Sciences (IBM, SPSS, version 28). Descriptive statistics (frequency and percentage) were applied. Correlation coefficients between participants' scores were calculated. P-values less than 0.05 were considered statistically significant.

Results

Table (1) shows the distribution of Sociodemographic characteristics among the study participants. Almost half of the participants were aged between 20 to 30 years (47.6%). More than two-thirds of the participants (66.7%) were not employed. Around half of the participants (51.3%) had completed a bachelor's degree. Nearly two-thirds of the participants (61.9%) belonged to a family with a monthly income of 5000-7000 SR. Almost half of the participants (42.3%) had more than three children. The primary source of information for the participants was their experience (47.1%).

Table (2) indicates that nearly two-thirds of the participants were aware of the term "weaning diet" or "complementary food" (65.1%). Most of the participants (87.3%) had knowledge of the nutritional requirements, including energy, protein, vitamins, and other essential nutrients. More than two-thirds of the participants (72.0%) did not believe that feeding water, honey, and other semi-solid foods before 4 months enhances health. Additionally, around 70% of the participants (69.8%) were aware that introducing weaning foods before 6 months could cause diarrhea symptoms. More than half of the participants (52.4%) received health education programs on weaning. Nearly two-thirds of the participants (64.0%) fed their babies with eggs during the weaning period. The majority of the participants (66.7%) reported that education helped them choose appropriate weaning patterns. Around 67% of the participants continued breastfeeding along with complementary foods for up to 24 months. Finally, more than half of the participants (58.2%) believed that nutritious food was expensive.

Table (3) shows that around 46.6% of the participants reported not having enough milk to feed the baby as the main reason for introducing solid foods before 6 months. Additionally, more than two-thirds of the participants (71.4%) preferred feeding their children with breast milk along with solid food during the 6–9-month period. The majority of the participants (74.6%) initiated weaning with thin-consistency food. Almost half of the participants (48.1%) were unaware of how many food groups to offer their children. The data also showed that more than half of the participants (51.3%) introduced "Khichri" (a ish with a rice basis) as the first weaning food, and the majority (56.6%) preferred cooking weaning food using the same food that was prepared for the family. Finally, half of the participants (50.3%) preferred a particular utensil for a weaning spoon.

Figure (1) shows that almost two-thirds of participant mothers had a good knowledge level about weaning.

Figure (2) shows that more than half of participant mothers had a good practice level about weaning.

Table (4) shows that participants' knowledge scores did not correlate significantly with their educational level or monthly income.

Table (5) shows a significant correlation between the reason for feeding before six months and the family monthly income (P=0.013).

Table 1: Distribution of Socio-demographic characteristics among the participants in the study (n=189)

Socio-demographic characteristics		No.	%
Age	• 20 – 30 years	90	47.6
	• 31 – 40 years	59	31.2
	• 41 – 50 years	28	14.8
	• > 50 years	12	6.3
Employment status	• Employed	63	33.3
	• Unemployed/Housewife	126	66.7
Level of education	• School	64	33.9
	• University graduate	97	51.3
	• Postgraduate	12	6.3
	• Illiterate	16	8.5
Family monthly income (in SR)	• 5000 – 7999	117	61.9
	• 8000 – 10000	34	18.0
	• More than 10000	38	20.1
Number of children	• One	43	22.8
	• Two	43	22.8
	• Three	23	12.2
	• More than three	80	42.3
Main source of information	• The internet	32	16.9
	• Experience	89	47.1
	• Others	68	36.0

Table 2: Factors showing mother's knowledge concerning weaning diet

Factors	No.	%
I know the term weaning diet or complementary food	123	65.1
I am aware of the nutritional requirements (energy, protein, vitamins, etc.)	53	87.3
I believe that water, honey, and other foods before 4 months enhance health	132	28.0
Giving weaning food before 6 months causes diarrhea symptoms	99	69.8
Have 'take away' health education program on weaning	121	52.4
Feeding babies with eggs during the weaning period	126	64.0
Education helped you in choosing weaning patterns	127	66.7
Continued breastfeeding should continue with complementary food for up to 24 months	110	67.2
Believe nutritious food is expensive	123	58.2

Table 3: Participant mothers' practices

Practices	No.	%
Reason for feeding before 6 months		
• General pattern	59	31.2
• Does not have enough milk to feed.	88	46.6
• Illness	10	5.3
• Work	32	16.9
Preference during 6-9 months		
• Formula food only	15	7.9
• Breast milk only	38	20.1
• Breast milk with semi-solid food	135	71.4
• Solid food only	1	0.5
Frequency of feeding at the start of weaning		
• Random.	45	23.8
• When the baby cries	54	28.6
• After every 2-3 hours	47	24.9
• Twice daily	43	22.8
Frequency of feeding during 10-12 months of weaning		
• Random.	74	39.2
• When the baby cries	39	20.6
• After every 2-3 hours	41	21.7
• 2 times	35	18.5
Consistency of weaning food at the starting		
• Thick	26	13.8
• Thin	141	74.6
• Semi-solid	20	10.6
• Solid	2	1.1
Consistency of weaning food during 10-12 months		
• Thick	60	31.7
• Thin	64	33.9
• Semi-solid	65	34.4
Type of food group		
• Three food group	46	24.3
• Four food group	39	20.6
• Five food group	13	6.9
• Not aware	91	48.1
First weaning food		
• Rice, pulse water	29	15.3
• Soup	28	14.8
• Khichri	97	51.3
• Does not remember	35	18.5
Preference for cooking weaning diet		
• Ready-made food	6	3.2
• Separately homemade food	27	14.3
• Same food made for the family	107	56.6
• Not specific.	49	25.9
Utensil preferred for weaning		
• Bottle	4	2.1
• Cup	14	7.4
• Spoon	95	50.3
• Not specific	76	40.2

Figure 1: Participants' knowledge levels about weaning

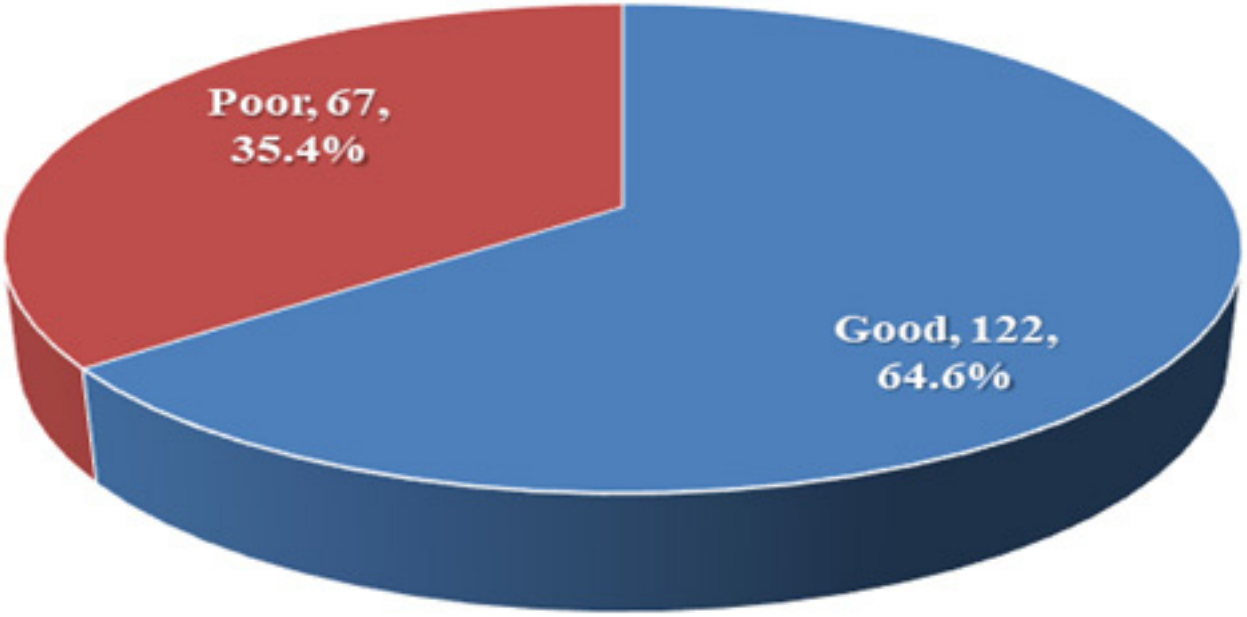

Figure 2: Participants' practice levels about weaning

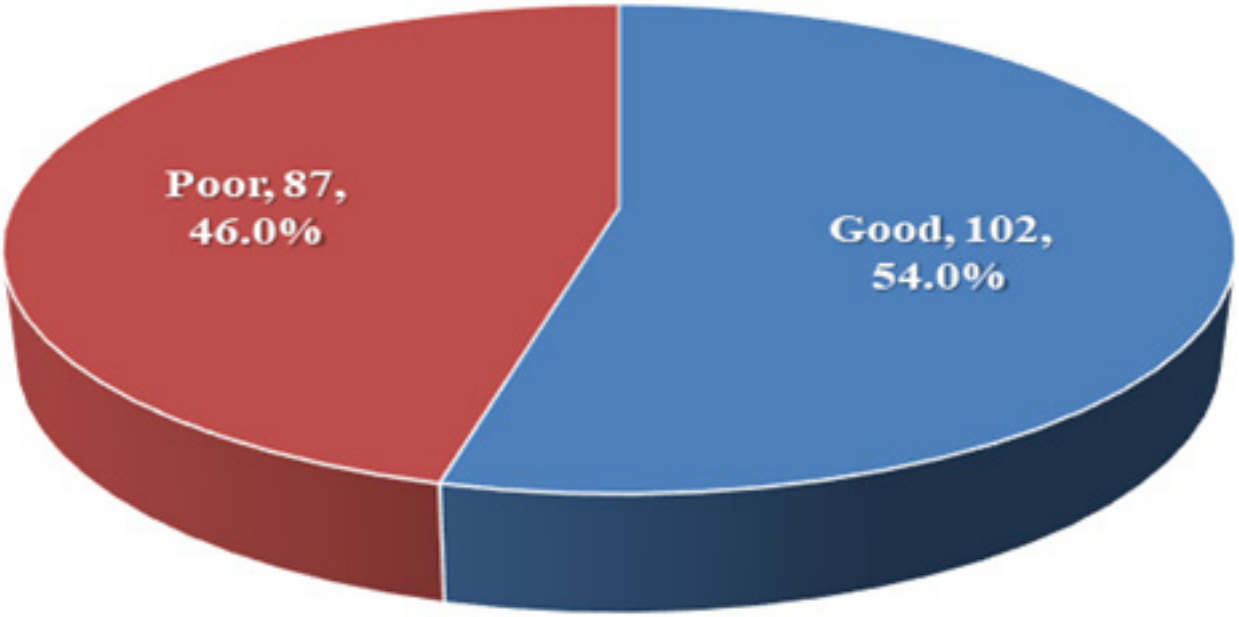

Table 4: Correlation between mothers' knowledge scores and their socioeconomic condition (Level of education, and monthly income)

Knowledge Factors	Level of education		Family Monthly income	
	r	P-value	r	P-value
Know the term weaning diet or complementary food	0.270	0.141	0.042	0.260
Source of information about weaning	0.207	0.055	0.400	0.538
Aware of the nutritional requirements (energy, protein, vitamins, etc.)	0.374	0.141	0.403	0.253
Believe that feeding water, honey, and other solid food before four months enhances health	0.910	0.024†	0.042	0.561
Giving weaning food before six months shows diarrhea symptoms	0.145	0.130	0.073	0.055
Take away health education program on weaning	0.110	0.302	0.440	0.560
Feed babies with eggs during the weaning period	0.230	0.825	0.470	0.511
Education helped you in choosing weaning patterns	0.172	0.592	0.125	0.795
Continued breastfeeding along with complementary food for up to 24 months	0.125	0.007	0.070	0.404
Believe nutritious food is expensive	0.154	0.310	0.397	0.183

† Statistically significant ($p<0.05$)

Table 5: Correlation between mothers' practice scores and their socioeconomic condition (Level of education, and monthly income)

Practice Factors	Level of education		Family Monthly income	
	r	P-value	r	P-value
Reason for feeding before 6 months	0.015	0.140	0.830	0.013†
Preference during 6-9 months	0.021	0.651	0.115	0.195
Frequency of feeding at the start of weaning	0.050	0.516	0.154	0.093
Frequency of feeding during 10-12 months of weaning	0.038	0.063	0.173	0.162
Consistency of weaning food at the starting	0.002	0.480	0.093	0.249
Consistency of weaning food during 10-12 months	0.073	0.645	0.004	0.617
Type of food group	0.006	0.149	0.042	0.151
First weaning food	0.089	0.398	0.010	0.509
Preference for cooking weaning diet	0.129	0.108	0.056	0.371
Utensil preferred for weaning	0.051	0.639	0.030	0.615

† Statistically significant ($p<0.05$)

Discussion

Our results showed that nearly two-thirds of the participants were aware of the terms: “weaning”, “diet”, or “complementary food”. Moreover, most participants knew the nutritional requirements, including energy, protein, vitamins, and other essential nutrients.

These results agreed with those of Alam Eldin et al. [13], who found that more than two-fifths of participant mothers said that weaning can start at the age of 4-6 months, and most of the mothers reported provision of nutrients needed in the first six months. Our results also matched with those of Rasheed et al. [35], who reported that most mothers knew about weaning and its starting time. Furthermore, the current study agreed with those of Tasrrufoon and Tulasi’s [15], who showed that the meaning of weaning was correctly reported by most participants.

However, our results contradict the findings of Manisha and Khan [9], who revealed that less than one-third of participants knew the meaning of weaning and were aware of the nutritional requirements (e.g., energy, protein, vitamins, etc.). Moreover, Maiti et al. [5] found that supplementary feeding has been started before the age of four months by almost two-fifths of mothers, and a minority had initiated feeding in infants after six months of age. These results may be due to the poor knowledge among the participants in the Manisha and Khan [9] and Maiti et al. [5] studies.

In the current study, more than two-thirds of the participants (72%) did not believe feeding water, honey, and semi-solid foods before four months enhances health. Parallel to these findings, Rasheed et al. [14] found that most mothers think cow milk is not good for infants during their 1st month. However, these findings disagreed with Manisha and Khan’s [9] study, which revealed that one-fifth of mothers believed that giving water, honey, and solid foods before the age of four months would enhance their health. Naher et al. [16] reported that most participants agreed to introduce foods other than breast milk before six months.

These differences may be attributed to decreased knowledge among the participants in the studies by Manisha and Khan [9] and Naher et al. [16].

The current study revealed that more than two-thirds believed that introducing weaning foods before six months could cause diarrheal symptoms. These results were in line with those of Manisha and Khan [9], who found that less than one-third of participants answered that giving their children weaning foods before the age of six months is frequently associated with diarrheal symptoms. These results also matched those of Alsufyani et al. [17], who found that most participants replied that weaning before three months of age will not make the infant healthy.

More than half of the participants in the current study received health education on weaning, and more than two-thirds reported that education helped them choose appropriate weaning patterns. These results were similar to those of Manisha and Khan [9], who revealed that about one-half of mothers said that receiving health education helped them choose weaning patterns properly.

In contrast, Rasheed et al. [14] noted that most mothers learned about weaning from their grandparents and got help from studying weaning-related books. These results may be due to the poor health education of the participants.

Results of the current study revealed that almost two-thirds of the participants fed their babies with eggs during the weaning period. These results matched those by Naher et al. [16], who found that most respondents agreed that a protein diet must be added to weaning, such as meat, fish, and eggs. However, these results contradicted those by Manisha and Khan [9], who reported that most participants replied that babies cannot have eggs at all during the weaning period. This may reflect the poor health educational levels of their participants.

Our study results found that more than two-thirds of the participants continued breastfeeding with complementary foods for up to 24 months. These results agreed with those by Manisha and Khan, 2021 [9], who reported that more than two-thirds continued breastfeeding with complementary food for up to 24 months. These results are also in accordance with those of Alsufyani et al. [17], who revealed that more than two-thirds of the participants replied that after beginning weaning, it is necessary to continue breastfeeding because the infant will not be satisfied with other foods. Similarly, Tasrrufoon and Tulasi [15] showed that more than one-half of the participants replied that continuation of breast milk should be given along with the weaning.

In contrast, Gohal et al. [18] reported that among those who continued breastfeeding, less than two-thirds eventually stopped after their infants were six months old. Moreover, Maiti et al. [5] found that less than one-fifth continued breastfeeding after the initiation of supplementary feeding. These may be attributed to the poor health education levels among the participants in both Gohal et al. [18] and Maiti et al. [5] studies.

The current study documented that more than half of the participants believed that nutritious food was expensive. These results were in line with the Manisha and Khan [9] study which revealed that two-fifths believed that highly nutritional foods are usually expensive.

It is to be noted that the knowledge level of almost two-thirds of participants in the present study about weaning was good. Similarly, Manisha and Khan [9], in India, revealed that about two-thirds of mothers had good knowledge regarding weaning. These results also matched with those of the study by Alsufyani et al. [17], in Makkah Al-Mokarramah, Saudi Arabia, which found that the knowledge regarding weaning was high in one-half of the participants. In contrast, Al-Gashanin and Ghazwani [11], in Najran, Saudi Arabia, revealed that knowledge levels about weaning were poor among most participants.

The current study documented that almost half of the participants reported not having sufficient milk to breastfeed their infants, hence, early start of solid foods before six months. Moreover, more than two-thirds of the participants preferred feeding their children breast milk with solid food during a 6 to 9-month period. These results were also in accordance with those of Manisha and Khan [9], who found that about one-half of the respondents started weaning at six months due to the lack of sufficient breast milk. Moreover, most participants preferred breast milk with solid food during 6-9 months.

The study found that almost three-quarters of the participants initiated weaning with thin-consistency foods. These results matched those of Manisha and Khan [9], in India, who showed that less than two-thirds of the mothers fed their infants thin food. The results also agreed with those of Alam Eldin et al. [13], in Aseer Region, Saudi Arabia, who found that most mothers reported feeding their infants crushed and easy-to-chew foods.

These results also agreed with those of Alsufyani et al., [17] in Makkah Al-Mokarramah, who reported that more than half of participants fed their children fortified foods, as a first food when they began the weaning, while less than one-third reported mashed foods, such as potatoes and bananas.

However, these results are incongruent with those of Kostecka et al. [19], in Poland, who reported that most respondents stated that the first solid foods introduced to their infants' diet at six months were vegetables, such as carrot puree, and fruits, followed by apple puree, gluten-free pudding, juice, and soup.

Gohal et al. [18], in Jazan, Saudi Arabia, reported that more than one-half of the participants started with liquid components and later switched to solid foods. Opposite to the study results, Rasheed et al. [14] showed that more than one-half introduced solid foods to their babies after six months and first introduced rice and cereals to babies. These results may be a return to the poor practice of the participants toward weaning.

Our study revealed that almost one-half of the participants were unaware of how many food groups to feed their children. This finding matches those of Manisha and Khan [9], who showed that almost one-third of mothers preferred five food groups, but one-half of mothers were unaware of how many food groups to feed their children.

The results showed that more than half of the participants introduced "Khichri" as the first weaning food. This finding agreed with that reported by Manisha and Khan [9], that rice/pulses water was the first weaning food chosen by one-half of the participants, while less than one-third chose Khichri. These results are in line with a study conducted by Alam Eldin et al. [13], which revealed that less than two-thirds of respondents listed crushed vegetables and fruits, in addition to fluids by more than one-half.

Al-Gashanin and Ghazwani [11] found that more than half of the participants used homemade foods, and more than two-thirds used mixed food. These results agreed with Tasrrufoon and Tulasi [15] who showed that regarding the foods selected for weaning preparations, one-half stated that they used easily digestible and palatable foods.

Our study found that more than half of the participants preferred cooking the weaning foods using the same foods prepared for the family members, and more than half of the participants preferred a particular utensil for weaning, such as a little spoon.

These results matched those by Manisha and Khan [9], who showed that about two-fifths preferred cooking weaning food using the same food prepared for the family, and all the participants preferred using special cups and spoons for providing the weaning foods to their children. Also, Alsufyani et al. [17] revealed that almost one-third of the participants used a cup and dish and a small spoon. Similarly, Al-Gashanin and Ghazwani [11] found that most mothers, including those well-educated, used to follow local customs in their choice of weaning methods. In contrast, Maiti et al. [5], in India, reported that most participants bought outside food. This difference may be attributed to their reluctance to cook or their decreased knowledge about weaning foods.

The present study revealed that mothers' knowledge and practices toward weaning among the participants were good. These results agreed with those by Manisha and Khan [9] and Alsufyani et al. [17], who revealed that mothers' knowledge and weaning practices were high in more than two-fifths of the participants.

Our study found that there were non-significant relationships between factors of knowledge regarding weaning and participants' socioeconomic characteristics. On the other hand, there was a significant correlation between the reason for feeding before six months and the family monthly income. However, there were non-significant correlations between other factors of mothers' practices with their socioeconomic characteristics.

These results are in accordance with those of Manisha and Khan [9], who also reported a non-significant relationship between participants' knowledge concerning weaning against their socioeconomic condition. However, these results are incongruent with those of Gohal et al. [18], who reported that married mothers, those belonging to middle-income families, and housewives were significantly likelier to have higher odds of good weaning practices. Also Manisha and Khan [9] showed that there were significant correlations between practice factors of weaning, (such as their preferences for foods during 6-9 months, frequency of feeding at the starting, and frequency of feeding during 10-12 months) with mothers' educational qualification. Moreover, Naher et al. [16] found significant relationships between older mothers, having more than one baby, and an older child, higher educated, and period of weaning with the weaning practices.

In conclusion, the present study indicated that mothers' knowledge and practice about weaning of their children are good. There are non-significant relationships between factors of knowledge regarding weaning and socioeconomic characteristics (mothers' levels of education monthly income). There is a significant relationship between the reason for feeding before six months and the mothers' monthly income.

The present study recommends conducting comprehensive educational programs about weaning practice. Moreover, health education about proper weaning practices should be included in the college education curricula to dispel any misconceptions about weaning. Detailed discussions of weaning practices with undergraduate students, is necessary to impart the correct knowledge and practices. Moreover, healthcare professionals should provide community-based health education to the public to enhance their knowledge and practices about weaning.

However, since this study was carried out in only one area, i.e., Aseer Region, on a limited sample of mothers, its results cannot be generalized to mothers in different regions in Saudi Arabia. Therefore, further studies on larger study groups are strongly suggested.

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