

Impact of an Educational Program Regarding Cleft Palate on Mother's Awareness and Their Infants Feeding Pattern

Marwa Ashour Ragab 1, Hekmat Ebrahim Abed-El-kreem², Mohamed Fathy Mohamed³, Nagat Farouk Abolwafa 4

1. Departments of Pediatric Nursing, Faculty of Nursing, Minia Universities, Egypt
2. Department of Pediatric Nursing, Faculty of Nursing, Assiut University, Egypt
3. Department of Pediatric Surgery Faculty of Medicine, Minia Universities, Egypt
4. Departments of Pediatric Nursing, Faculty of Nursing, Minia Universities, Egypt

Abstract

Background: Cleft lip and palate (CLP) is one of the most common congenital craniofacial abnormalities in the world, genetic and environmental factors play a significant role in its etiology. Pre-operative nursing education to mothers of cleft palate infants is directed toward improving infants feeding. **Aim of the study:** The aim of the current study was to evaluate the impact of an educational program regarding cleft palate on mother's awareness and their infants feeding pattern. **Research design:** Quasi-experimental research design (pre-posttest) was used in the current study. **Setting:** The current study was conducted at out-patient surgery unit at Minia university hospital for obstetric and pediatric, which located in Minia city. **Subjects:** A purposeful sample of 60 mothers of children with cleft palate was participated in the study: 30 for study group and 30 for control group. **Research tools:** Tool (I): A structured interview questionnaire: it covered sociodemographic data of mothers and data of infants and mothers' knowledge about cleft palate; Tool (II): Feeding pattern mothers' practice assessment checklist; Tool (III): Observational checklist about bottle feeding preparation; Tool (IV): Egyptian Growth Curve Chart (EGCC). **Results:** It was found that there were highly statistically significant differences between the study and control groups of mothers' knowledge regarding cleft palate in pre, post and follow up-test P-value at 0.000001. As well as almost of the mothers in the post-test in the study group had appropriate level of practice in regarding feeding infants with cleft palate. The results of the current study showed that there is a positive correlation between the total score of mothers' knowledge and their practices in pre and post-test, and follow up test **Conclusion:** The study concluded that the preoperative instructions for mothers of cleft palate infants were effective in the improvement of mothers knowledge, practices and infant weight and feeding pattern. **Recommendation:** The study recommended that developing continuous training session to pediatric surgical nurses and educational sessions for mothers about cleft palate and feeding infants with cleft palate would improve mothers' knowledge, practices and their infants feeding pattern.

Keywords: Cleft palate, Mothers, Knowledge, Practices, and feeding pattern.

Introduction

Craniofacial anomalies (CFA) are a heterogeneous group of structural birth defects resulting either from disturbances in craniofacial development or as a secondary feature to other congenital conditions (multiple congenital anomalies). CFA can be classified based on etiological criteria as disruptions in normal development (oral clefts) (Junaid et al., 2022).

A cleft palate is a craniofacial malformation that occurs during the embryonic stage of life, also described as occurring when "the roof of the mouth is not joined completely. This can range from just an opening at the back of the soft palate to a nearly complete separation of the roof of the mouth (soft and hard palate)" (Desai et al., 2019). This type of opening can cause many problems with the infant's feeding and swallowing. Sometimes, infants are born with a cleft lip and palate (i.e., cleft lip + palate). This type of cleft extends from the lip to the hard or soft palate (Shetty & Khan, 2016).

Cleft lip and palate (CLP) is one of the most common congenital craniofacial abnormalities in the world, which has an incidence of 1 in 700–1000 births, with regional variances (Çınar, Ay, Boztepe, & Gürten, 2021). Cleft lip and palate (CLP) are congenital malformations which affect the lip, palate, or both. It occurs due to errors in the facial fusion process during embryonic life due to alterations in the normal development of the primary and/or secondary palate (Shahin & Abdelsalam, 2016) A number of causative factors

are related to the etiology of CL/P and CP, including genetics, teratogen exposure, environmental factors, and maternal and paternal age. Despite the number of identifiable contributing factors, etiology of most clefts is multifactorial, complex, and remains to be completely delineated. (Desai et al., 2019). Multiple environmental factors have also been linked with CLP. Risk factors include smoking, pregestational and gestational diabetes, alcohol abuse, and certain anticonvulsants. Specific nutritional deficiencies that may contribute to the risk of clefting include inadequate folate and vitamins B6 and B12 (Worley, Patel, & Kilpatrick, 2018)

Feeding in the cleft lip and palate is a major, continued challenge that faces caretakers and surgeons. The mother-child bond usually developed during the process of feeding time. In addition, the infant also develops the complex oral-motor skills required for future complex feeding accommodation and speech development. Thus, adequate feeding is of most importance for infant development and growth (Shahin & Abdelsalam, 2016)

Children born with an orofacial cleft often have complex medical and dental conditions, necessitating the need for care from healthcare teams involving multiple specialists. Common conditions that occur in children with orofacial clefts are hearing difficulty, speech and language disorders, middle ear abnormalities, psychosocial issues, and dental abnormalities. (Geneser & Allareddy, 2019)

The also suffer from numerous problems since birth, among which the most common and the most significant one

is the difficulty experienced during feeding, which may lead to insufficient nourishment, further to malnutrition and even death in certain cases. Having an infant born with CLP when a healthy child was expected to be born may cause negative emotions in the parents, such as shock, guilt, sadness, grief, fear, anxiety, confusion and anger, which are coupled with impairment to the family routines (Çinar & Koc, 2020).

Furthermore, the parents of such infants may also worry regarding the extent to which the disease and the treatment would affect the daily life, development and the well-being of the infant. Being the parent with the greatest responsibility for childcare, mothers in particular experience caring difficulties and emotional problems, and therefore, require sufficient support (Aslan et al., 2018).

Infants with CL/P often require specialized feeding approaches due to their anatomic differences, ranging from positional modifications to use of specialty bottle systems to ensure milk extraction. This may also require alterations to the planned feeding method, due to the inability to directly breastfeed, causing additional stress. Mothers who attempt breastfeeding report challenges with the baby getting milk and latching as well as difficulties with weight gain. Barriers with pumping are also reported potentially limiting the duration of breast milk provision, even when this is the mother's primary goal. Even with appropriate bottles and caregiver education, feeding is often not immediately effective or efficient (Lauren L Madhoun, Crerand, O'Brien, & Baylis, 2021).

Different methods are available to resolve feeding problems in children with oral clefts. Along with breastfeeding, supplemental feeding has been recommended for these infants to meet their nutritional requirements. There are different feeding resources such as feeding bottles, tubes, spoons. Combinations of feeding interventions also have positive impacts on children with cleft lip and palate (Lauren L Madhoun, Merrell, Smith, Snow, & Cherosky, 2020).

Although feeding instructions are provided in hospitals, understanding, and adaptation of that information by parents greatly depends on their level of education and it may affect the nutritional status of the child. It is commonly believed that the higher the level of mother's education, will increase the acceptance and adherence of feeding information (Wijekoon, Herath, & Mahendran, 2019).

Mothers need to know everything about their infant with a cleft lip/cleft palate. They are needed to learn the technique of breastfeed their infant and will most likely to require some helped strategies and additionally lactation techniques. The mothers can express breast milk given by a special cup or feeder, a nipple shield, or a combination of these (Nasar, Amer, & Aly, 2018).

Pediatric nurses should upgrading the mother's knowledge, raising awareness about the importance of follow up care with craniofacial team for promoting their children's health condition and periodical meetings are to be held with all mothers having cleft lip and palate children to discuss feeding problem, assess growth and development of infant, prevention methods and early detection of problems associated with the defect and different ways of management (Nasar, Amer, & Aly, 2018).

The presence of a clinical nurse specialist within the multidisciplinary cleft team has become commonplace with an aim to improve the quality of nursing care in this patient group. The role of the clinical nurse specialist may commence in the antenatal period, progress through birth and infancy, and extend into childhood in concurrence with the surgical

procedures. The initial focus is on early feeding advice and management, and the provision of support to facilitate the exploration of feelings and anxieties in relation to the cleft (Lauren L. Madhoun, O'Brien, & Baylis, 2021).

1.3. Aim of the Study

The aim of the current study was to evaluate the effect of an educational program regarding cleft palate on mother's awareness and their infants feeding pattern.

Research Hypotheses:

- H1- Health education program will enhance mother's knowledge toward feeding pattern of their children with cleft palate on posttest than pretest.
- H2- Health education program will enhance mother's attitudes toward feeding pattern of their children with cleft palate on posttest than pretest.
- H3- Health education program will enhance mother's practice toward feeding pattern of their children with cleft palate on posttest than pretest.

Research Design:

A Quasi- experimental research design was utilized to meet the aim of this study.

2- Subjects and Methods

2.1 Subjects:

A purposive sample of 60 mothers and their infants, who diagnosed as isolated CP or associated with CL up to one year of age (30 infant as control group and 30 infant as study group).

2.2 Setting of the study:

This study was conducted at pediatric surgery departments & pediatric surgery out-patient clinic in Minia University Hospital for obstetrics & pediatrics.

2.3 Tools of data collection:

Data were collected through four tools which are:

Tool I: A structured interview questionnaire sheet in an Arabic language it was designed by the researcher after reviewing of the related literature. Tool I consists of four parts:-

Part (1): infant's personal characteristics, as: age, gender, birth order, infant weight and clinical diagnosis.

Part (2): Mothers' socio demographic data as: age, level of education, occupation, sibling number, income, residence.

Part (3): Medical history and family history of cleft lip and palate.

Part (4): Mother's knowledge assessment sheet: it developed by the research investigator to assess: Mothers' knowledge regarding CLP and related preoperative care such as (definition of CLP, causes, types etc. Knowledge about nutrition methods used for cleft lip and palate) (Hockenberry, Rodgers, & Wilson, 2021).

Tool II :- Feeding pattern mothers' practice assessment checklist: it was developed by the research investigator to assess self-reported practice of mothers regarding (feeding position, method of feeding their children, time of feeding...etc.) (Appleton et al., 2018).

Tool III: Observational checklist was developed by the researcher about bottle feeding preparation

Tool IV: Egyptian Growth Curve Chart (EGCC) (2002):- Standardized tool adopted from Cairo University. to assess the weight gain of the children (birth to 36 months) by plotting weight of the child on the chart for both genders by the research investigator to evaluate the effect of mothers' practice regarding care on their infant's weight.

Scoring system

Mothers' knowledge regarding CLP and related care; each correct response take "2" scores, The incomplete one take "1" score and the wrong response or not known take zero. The total scores will be converted to 100%, and then categorized as follows: the total score less than 40% is considered as unsatisfactory, while a score of 60% and more is considered as satisfactory level. For mothers' self-reported practice regarding CLP feeding; each corrects response take "1" scores, and the wrong response or not known take zero. The total score will be converted to 100%, and then categorized as follows: the total score less than 60% is considered as unsatisfactory, while a score of 60% and more is considered as satisfactory level.

Scoring system for mother's practice will be calculated as the following:

Done practice scored as 2, and not done practice scored as 1. The level of practices is classified as total practice score of less than 40% considered as unsatisfactory. While score of 60% and more considered as satisfactory, the effect of mothers' practice will be evaluated by the weight of the child, which is the best indicator for proper growth of the child.

2.4 Validity:

The tool was tested for content validity by a jury of five experts in the field of pediatric nursing and necessary modifications were done. The tool was tested for internal consistency after developing the tools.

2.5 Reliability:

Reliability of the tools was performed to confirm its consistency by using Cronbach's alpha test.

2.6 Pilot study:

A pilot study was carried out on 10% (n= 6) of the expected sample size to test the content validity and applicability of study tools and to estimate the time needed to fill the questionnaire. Some questions and items were omitted, added or rephrased and then the final forms were developed experts reviewed the tools for clarity, comprehensive and simplicity. The pilot sample was included in the study.

2.7 Ethical Consideration:

A written initial approval was obtained from the research ethical committee of the faculty of nursing, Minia University. Oral informed consent was obtained from the mothers who participated in this study. Each assessment sheet was coded and mother's name was not appear on the sheets for the purpose of anonymity and confidentiality, The researcher explained the purpose and nature of the study through direct

personal communication before starting their participation in the study. These data were confidential and were used for the research only. The study followed the common ethical consideration to participate in clinical research, and privacy was assured during data collection. Anonymity and privacy were assured through coding the data, and mother has the right to refuse participation in the study without any rationale. The researcher also informed the mothers about their rights to withdraw from the study at any time without giving any reason and without any effect on the care of their children.

2.8 Educational program:

The education program was designed by the researchers, based on the results obtained from the assessment phase. It was designed to improve mothers awareness regarding cleft palate and their infants feeding pattern. The intervention consisted of details about cleft palate, infant feeding, feeding technique skills include preparation, positioning and technique of bottle and breast feeding

2.9 Field Work

An official permission to conduct the proposed study was obtained by the researcher from the manager of Minia University, directors of Minia University for pediatrics & obstetrics Hospital. Also, verbal consent was obtained from mothers participated in the study. Clarification of the nature and purpose of the study was done on initial interview with mothers.

Different teaching methods were used such as lecture, group discussion, pictures, feedback, sharing experience, poster, demonstration and re-demonstration to easily understand. Motivation and reinforcement were by praising and recognition to encourage the mothers to participate in the program.

Limitation of the study:

1. The nursing staff does not have enough information about number of infant with cleft palate in outpatient clinic.
2. Some mothers refused to participate in the study.
3. Some mothers discontinue proceeding in the current study due to their refrain from follow-up appointments.
4. Some mothers don't have an infant's weight scale in health center of their village

Statistical analysis:

Data were collected, revised, verified, coded, then entered PC for statistical analysis done by using IBM SPSS statistical package version 20. Data were analyzed and expressed using descriptive statistics, for qualitative data: number (N) and percentage (%), for quantitative data: mean (\bar{X}) and standard deviation (SD) and Kolmogorov- Smirnov for normality test was used to differentiate between parametric data and non-parametric data. inter-group comparison of categorical data was performed by using Wilcoxon signed-rank test (Z, P-value), using spearman correlation coefficient test was used P value ≤ 0.05 was consider statistical significant difference and P value ≤ 0.001 was considered highly significant difference in all analyses.

Results:

Table (1): Comparison between the study and control groups of mothers regarding their socio-demographic characteristics (n= 60)

Socio demographic characteristics of mothers	Groups				Test of Significance	
	Study (n=30)		Control (n=30)		χ ²	P. value
	N	%	N	%		
Age / years						
Less than 20 yrs.	10	33.3	10	33.3	0.36	0.835 NS*
20-30yrs.	19	63.3	18	60		
31-40yrs.	1	3.4	2	6.7		
Mean ± SD	22.73± 4.54		22.96± 4.36			
Residence						
Rural	25	83.3	20	66.7	2.22	0.11 NS
Urban	5	16.7	10	33.3		
No of children						
1-3 children	20	66.7	21	70	0.07	0.50 NS
4-6 children	10	33.3	9	30		
Consanguinity of mothers						
Yes	8	26.7	9	30	0.08	0.50 NS
No	22	73.3	21	70		
Degree of Consanguinity						
1 st degree	8	26.7	9	30	-	-
2 nd degree	0	0.00	0	0.00		
3 rd degree	0	0.00	0	0.00		
4 th degree	0	0.00	0	0.00		
Chronic illness of mothers						
Yes	7	23.3	11	36.7	1.27	0.19 NS
No	23	76.7	19	63.3		

NS*= Not Significant

Table (1): Founded that, 63.3% of mothers' age in the study group ranged between 20-30 years old while the age of 60% of the mothers in the control group ranged between 20-30 years old and the means of their age was 22.73± 4.54 and 22.96± 4.36, respectively. The same table revealed that, the majority of mothers in study group and control group (83.3% ,67.7%); respectively came from rura area.In addition, 66.7% of mothers in the study group and 70% in control group had 1-3 children. Regarding to consanguinity of mothers in the study and control groups (73.3% and 70%); respectively didn't have consanguineous marriage

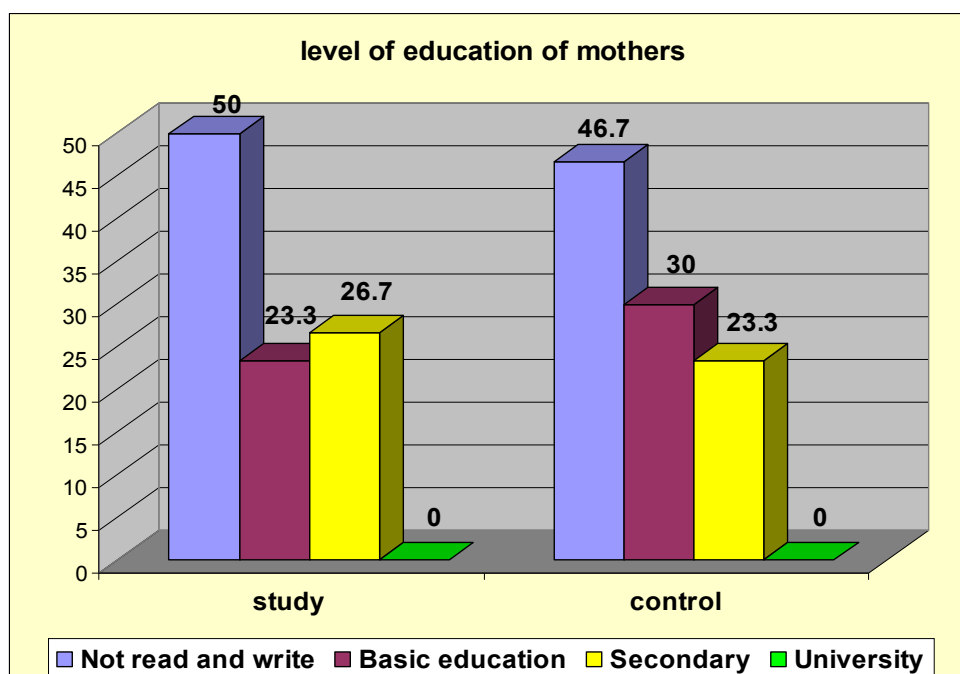


Figure (1): Comparison between the Study and Control Groups regarding mother's level of education n=60.

Figure (1): Showed that, mothers' level of education, it was found that, 50%, 46.7% of the mothers in the study and control groups, respectively did not read or write

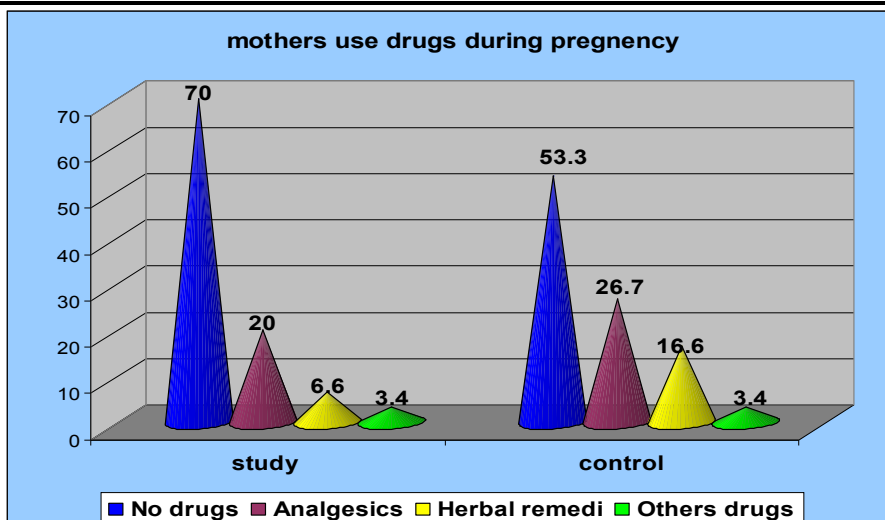


Figure (2): Comparison between the study and control groups regarding to their use of drugs during pregnancy n=60

Figure (2): Founds that, 70%, 53.3% in the study and control groups respectively, didn't use drugs during pregnancy

Table (2): Comparison between study and control groups in pre and post-test of infants regarding their weight for age (n= 60).

Weight for age	Pre-test Group				Post-test Group				Pre-test X ² P. value	Post-test X ² P. value
	Study (n=30)		Control (n=30)		Study (n=30)		Control (n=30)			
	N	%	N	%	N	%	N	%		
Normal	13	43.3	18	60	22	73.3	13	43.3	X ² = 1.66 0.15	X ² = 5.55 0.01*
Below normal	17	56.7	12	40	8	26.7	17	56.7		
Over weight	0	0.00	0	0.00	0	0.0	0	0.00		
Mean of weight in pre and post-test ±SD/kg.	9.48±1.56				8.85±1.22					

Table (2): Shows that, 56.7% of study group infants were below normal weight for age, and 60% of control group infants were normal weight for age in pre-test, while in post-test in study group infants 73.3% were normal weight for age, and 56.7% control group infants were below normal weight for age and the means of weight in pre and post-test ±SD/kg. were (9.48±1.56, 8.85±1.22); respectively

Table (3): Total score of mothers' level of Knowledge in Pre / Post Test and follow up test of study and control groups (n= 60)

Total score of mothers' knowledge in pre/post and follow up test after 6months	Study (n=30)				Control (n=30)				X ²	P. value
	N	%	N	%	N	%	N	%		
Definition and signs and symptoms in pre-test										
Satisfactory	0	0.00	0	0.00	-	-				
Unsatisfactory	30	100	30	100						
Definition and signs and symptoms in immediate post-test										
Satisfactory	29	96.7	0	0.00	56.12	0.000**				
Unsatisfactory	1	3.3	30	100						
Definition and signs and symptoms in follow up after 6 months										
Satisfactory	23	76.7	0	0.00	37.29	0.000**				
Unsatisfactory	7	23.3	30	100						
Causes and Risk factors of cleft palate in pre-test										
Satisfactory	0	0.00	0	0.00	-	-				
Unsatisfactory	30	100	30	100						
Causes and Risk factors of cleft palate in immediate post-test										
Satisfactory	27	90	5	16.7	60.0	0.000**				
Unsatisfactory	2	10	25	83.3						
Causes and Risk factors of cleft palate in follow up after 6 months										
Satisfactory	25	83.3	0	0.00	42.8	0.000**				
Unsatisfactory	5	16.7	30	100						
Total knowledge pre- test										
Satisfactory	0	0	0	0.00	-	-				
Unsatisfactory	30	100	30	100						
Total knowledge in immediate post-test										
Satisfactory	27	90	5	16.7	65.8	0.000**				
Unsatisfactory	3	10	25	83.3						
Total knowledge in follow up after 6 months										
Satisfactory	23	76.7	0	0.00	37.29	0.000**				
Unsatisfactory	7	23.3	30	100						

**A highly statistical significant difference (P < 0.001)

Table (3): Clears that, there were a highly statistically significant difference between the study and control groups of mothers knowledge in pre, post and follow up-test regarding definition and signs and symptoms in immediate post- and follow up test with (P-value at 0.000, 0.000); respectively. Regarding Causes and Risk factors of cleft palate in post-test and follow up test were ahightly statistically significant differences (P. value at 0.000, 0.0000); respectively. Total knowledge in immediate post and follow up-test were ahightly statistically significant differences (P. value at 0.000, 0.0000); respectively

Table (4): Total score of mothers’ practices Pre / Post Test and follow up test of Study and Control Groups (n= 60)

Total score of mothers’ practices in pre/post and follow up test after 6months	Study (n=30)		Control (n=30)		X2	P. value
	N	%	N	%		
Feeding of infant with cleft palate pre-test						
Satisfactory	0	0.00	0	0.00	-	-
Unsatisfactory	30	100	30	100		
Feeding of infant with cleft palate in immediate post-test						
Satisfactory	29	96.7	4	13.3	56.12	0.000**
Unsatisfactory	1	3.3	26	86.7		
Feeding of infant with cleft palate in follow up after 6 months						
Satisfactory	22	73.3	0	0.00	34.73	0.000**
Unsatisfactory	8	26.7	30	100		
Preparation of bottle feeding for infant with cleft palate in pre-test						
Satisfactory	0	0.00	0	0.00	-	-
Unsatisfactory	30	100	30	100		
Preparation of bottle feeding for infant with cleft palate in immediate post-test						
Satisfactory	30	100	3	10	60.0	0.000**
Unsatisfactory	0	0.00	27	90		
Preparation of bottle feeding for infant with cleft palate in follow up after 6 months						
Satisfactory	30	100	0	0.00	60.0	0.000**
Unsatisfactory	0	0.00	30	100		
Total practices pre- test						
Satisfactory	0	0.00	0	0.00	-	-
Unsatisfactory	30	100	30	100		
Total practices in immediate post-test						
Satisfactory	30	100	7	23.3	60.0	0.000**
Unsatisfactory	0	0.00	23	76.7		
Total practices in follow up after 6 months						
Satisfactory	23	76.7	0	0.00	37.29	0.000**
Unsatisfactory	7	23.3	30	100		

**A highly statistical significant difference (P < 0.001)

Table (4): Clears that, there were a highly statistically significant difference between the study and control groups of mothers’ practices in pre, post and follow up test regarding feeding of infant with cleft palate in immediate post and follow up test with (P-value at 0.000, 0.000); respectively. Regarding Preparation of bottle feeding for infant with cleft palate in post-test and follow up test were a highly statistically significant difference (P. value at 0.000, 0.0000); respectively. Total practices of mothers in immediate post and follow up-test were a highly statistically significant difference (P. value at 0.000, 0.0000); respectively

Table (5): Correlation between the total mean scores of the Mothers’ Knowledge and Practice in Pre/Post and follow up Test for Study and Control Groups (n= 60).

Groups	Total Knowledge scores		Study group			Control group		
			Total Practice scores			Total Practice scores		
			Pre- test	Post-test	Follow up	Pre-test	Post-test	Follow up
Study	Pre- test	R	0.044	0.122	0.132	0.024	0.154	0.154
		P – value	0.04*	0.16	0.12	0.21	0.3 9	0.3 9
	Post-test	R	0.164	0.456	0.034	0.055	0.043	0.043
		P – value	0.12	0.001**	0.12	0.12	0.16	0.16
	Follow up	R	0.025	0.176	0.321	0.087	0.189	0.057
		P – value	0.07	0.42	0.05*	0.67	0.76	0.60
Control	Pre- test	R	0.023	0.145	0.156	0.234	0.236	0.236
		P – value	0.31	0.24	0.30	0.05*	0.18	0.18
	Post-test	R	0.054	0.034	0.045	0.045	0.089	0.324
		P – value	0.15	0.17	0.08	0.92	0.02*	0.51
	Follow up	R	0.036	0.165	0.826	0.167	0.324	0.087
		P – value	0.36	0.13	0.55	0.65	0.08	0.050

Table (5): illustrate that, there were a positive statistical significant correlation between mothers’ knowledge and their practices for the study group in post-test and follow up test with statistically significant differences (P. value at 0.04, 0.001, 0.05) while in the control group the statistically significant positive correlation was found between the total score of mothers’ knowledge and their practices in pre and post-test, and follow up test (P. value at .02, 0.05, and 0.05); respectively

Discussion

The present study was conducted at the pediatric outpatient clinics at Minia university hospital for obstetric & pediatric on 60 mothers of children with cleft palate. The present study aimed to evaluate the impact of an educational program regarding cleft palate on mother's awareness and their infants feeding pattern.

The aim of the current study is to evaluate the Effect of an educational program regarding cleft palate on mothers awareness and their infants feeding pattern., through assess mothers knowledge, and practice regarding cleft palate, design and implement educational program for mothers' knowledge, and practice regarding infant feeding pattern and evaluate the effect of educational program for mothers' knowledge, and practice.

In the present study, more than one third of mothers 'age in the study and control group ranged between 20-30 years old and the means of their age was 22.73 ± 4.54 and 22.96 ± 4.36 , respectively, this result is agreed with (Alaswad, Ahmed, Mohamed, Mohamed, & Aboul-Hassan) who conducted a research about feeding patterns among infants with CL and /or CP, they found that mothers age mean were 28 years old, while less than two thirds of the mothers' in control group aged from 30 to less than 40 years old with mean age 29.7 ± 5.25 years old (Alaswad et al.). and the results of the current study also consistent with (Kapos, White, Schmidt, Hawes, & Starr, 2021) in his study about Risk of non-syndromic orofacial clefts by maternal rural-urban residence and race/ethnicity and found that the majority of mothers of infants with orofacial cleft age range from 20-34 years old.

Concerning place of residence (Alaswad et al.) in his research about effect of supportive care for mothers on weight gain of their children with cleft palate indicated that the majority of cleft patients were from rural areas and this results agreed with the current study which revealed that more than two third of the study and control group was from rural areas. This results was contradicted with (Kapos et al., 2021) in his study which revealed that the majority of mothers of infants with orofacial cleft were from urban areas.

Regarding to consanguinity of mothers in the study and control groups (73.3% and 70%); respectively didn't have consanguineous marriage, this results were agreed with (Desai et al., 2019) in his research about correlative causative factors in cleft lip and palate patients who revealed that less than one quarter of patients had consanguineous marriage, while the results of the current study were incongruent with the study of (Jahanbin, Jamalinasab, & Niazi, 2021), about variations in orofacial clefts who indicated that more than half of parents had consanguineous marriage. Also the results of the current study were not consistent with (Saeed et al., 2019) in his study about The Influence of Consanguinity on familial clefting among Palestinians who found that more than half of mothers had consanguineous marriage.

The results of the present study revealed that half of study group and less than half of control group don't read or write and less than one third of mothers of the study and control group have secondary education

The results of the current study agreed with (Kruppa, Krüger, Vorster, & der Linde, 2022) in his study about Risk factors of non-syndromic orofacial clefts in Sudan he found that about one third of study group compared with less than one quarter of control group had primary and secondary education.

Hence, these results is not consistent with (Alaswad et al.) who assured that half of the study group and two fifths of the control group had a secondary school (high school). and also the results of the current study disagreed with (Wijekoon et al., 2019) in his study about awareness of feeding, growth, and development among others of infants with cleft lip or palate who found that more than half of mothers of cleft lip and palate children had high education.

Regarding mothers use of drugs during pregnancy the present study assured that two third of the study group and more than half of the control group didn't use drugs during pregnancy, this results were consistent with (Hong, Xu, Lian, & Chen, 2021) in his study about Environmental Risk Factors for Non syndromic Cleft Lip and/or Cleft Palate and revealed that more than one third of mothers having children with cleft palate didn't take drugs during pregnancy.

This results were incongruent with the study of (Desai et al., 2019) in his research about correlative positive factors in cleft lip and palate patients who revealed that there is an association between incidence of cleft palate and drugs used during pregnancy. And also with (Saif et al., 2020) in his study about Gender-based association between consequences and maternal health factors of children suffering from cleft lip and cleft palate who found that 58% of mothers of children with cleft lip or plate had drugs such as anti-anxiety drugs during pregnancy.

Regarding infants weight the current study revealed that more than half of study group infants were below normal weight for age in pre-test. These results were consistent with (Lauren L Madhoun et al., 2021) in his study about feeding an growth of infants with cleft lip or palate who found that Infants with cleft palate had lower average weight gain (13 ± 15) than controls group (weight 36 ± 23)

Second time measurement of body weight about three quarter of the study group infants were normal weight for age, while more than half of control group infants were below normal weight for age in the second time of weight measurement. This result is supported by (Alaswad et al.) in their study about the effect of using feeding protocol on feeding performance of children with CL/CP in Egypt this study indicated that additional maternal support by a clinical nurse specialist can both improve weight gain outcomes and facilitate referral to the appropriate services.

Concerning mother's knowledge mothers' Knowledge in Pre / Post Test and follow up test of Study and Control Groups it was found that there were a highly statistically significant differences between the study and control groups of mothers knowledge in pre, post and follow up-test regarding definition and signs and symptoms in immediate post- and follow up test with (P-value at 0.000, 0.000); respectively. Regarding Causes and Risk factors of cleft palate in post-test and follow up test were a highly statistically significant differences (P. value at 0.000, 0.0000); respectively. Total knowledge in immediate post and follow up-test were a highly statistically significant differences (P. value at 0.000, 0.0000); respectively. These results are consistent with (Eltayeb, Satti, & Babiker, 2022) who studied Mothers' knowledge and experience concerning presurgical orthopedic management for infants with cleft lip and palate they found that more than one third of the mothers provided an incomplete or improper definition of the anomaly and about one quarter of them claimed that they know the cause of the anomaly.

The results of the current study also consistent with (Hakim, Zakizadeh, Saki, & Haghhighizadeh, 2021) in his study about the effect of combined education on the knowledge and care and supportive performance of parents with children with cleft lip and palate who found that there were significant increase in knowledge of the parents in the intervention group, as compared to the control group.

Regarding to mother's practice regarding feeding infant of cleft palate there were a highly statistically significant difference between the study and control groups of mothers practices in pre, post and follow up test and these results was consistent with (Çınar & Koc, 2020) who studied The Effect of Nursing Care Provided to Turkish Mothers of Infants Born With Cleft Lip and Palate on Maternal Attachment and Self-efficacy and he found that The provision of nursing care to the mothers of the infants born with CLP in accordance with the requirements of the mothers may be able to prevent potential problems in the infants, thereby facilitating a normal growth and development process. In the first follow-up home visits conducted for the intervention group and in the first follow-up home visits to the mothers of the intervention group, "imbalanced nutrition" was identified in approximately four of every five infants (81.3%) And according to (Kuttenberger, Ohmer, & Polska, 2010) who studied Initial counseling for cleft lip and palate: Parents' evaluation, needs and expectations Found that 63% of mothers of cleft palate children wished to receive information regarding feeding as Providing mothers with information may minimize the feelings of guilt, and decrease the difficulties experienced while performing the role of a caregiver.

The results of the current study showed that there is a positive correlation between the total score of mothers' knowledge and their practices in pre and post-test, and follow up test. In the researcher point of view that could prove the importance of the supported care given to the mothers in which was prominent in the difference between pre-test and post- test after receiving supportive care and strengthen the researcher's hypothesis about the effect of mothers' knowledge on the infants feeding pattern .The study result can be supported by (Ekata & Chanu, 2017) in his study about Effectiveness of Structured Teaching Program (STP) on Knowledge and Practice of post-operative care among parents of children with cleft lip and cleft palate who found that there was a statistical significant positive correlation between mothers' knowledge and practice in which affect directly on feeding performance

Conclusion:

Based on the findings of the present study it was concluded that: the majority of mothers in the study group had satisfactory level of knowledge of cleft palate compared to minority in control group with highly statistically significant differences P-value at 0.000 between pre and post-test. As well as almost of the mothers in the post-test in the study group had appropriate level of practices in relation to bottle preparation and feeding practice. Which reflect the effectiveness of educational program regarding cleft palate on mothers awareness and their infants feeding pattern .And also, there were no statistically significant correlation between mothers' knowledge and their demographic characteristics, except for age .The infants in the study group had normal weight for age in post test.

Recommendations: Based on the findings of the present study the following is recommended:

- Continuous training for pediatric surgical nurses about the importance of teaching for the mothers about cleft palate and feeding practice.
- Raising awareness of pediatric surgical nurses about the supportive care for mothers of children with CP and its positive effect on the children body weight that can be done through periodic training sessions.
- integrating well trained nurses in a multidisciplinary team of craniofacial anomalies
- pediatric surgical nurses should provide mothers with alternative methods of feeding infants with left palate and how to deal with feeding difficulties.
- Educational sessions for mothers about feeding practice should be developed, implemented and evaluated by multidisciplinary team to maintain better growth and weight gain of infants.
- The pediatric surgery unit should maintain continuing education and orientation programs for all health care team dealing for infants with cleft palate and lip.
- Spreading awareness about cleft palate care and methods of feeding of infants with cleft lip or palate through mass communication in pediatric surgery unit by utilizing posters, banners, local cable channels... etc.
- establishing a website for mothers of children with CP contain information and images and details concerned with the congenital anomaly and related surgical procedure and prognosis with the available services for support and guidance
- application of the supportive care immediately after detection of the congenital anomaly to get the best outcomes for mothers and their children.

References:

1. Alaswad, N. K., Ahmed, E. M., Mohamed, A. R., Mohamed, S. A.-R., & Aboul-Hassan, M. EFFECT OF SUPPORTIVE CARE FOR MOTHERS ON WEIGHT GAIN OF THEIR CHILDREN WITH CLEFT PALATE.
2. Appleton, J., Laws, R., Russell, C. G., Fowler, C., Campbell, K. J., & Denney-Wilson, E. (2018). Infant formula feeding practices and the role of advice and support: an exploratory qualitative study. *BMC pediatrics*, 18(1), 12. doi: 10.1186/s12887-017-0977-7
3. Aslan, B. I., Gülsen, A., Tirank, S. B., Findikcioglu, K., Uzuner, F. D., Tutar, H., & Üçüncü, N. (2018). Family functions and life quality of parents of children with cleft lip and palate. *Journal of Craniofacial Surgery*, 29(6), 1614-1618.
4. Çınar, S., Ay, A., Boztepe, H., & Gürten, E. (2021). "Unexpected event": Having an infants with cleft lip and/or palate. *Congenital Anomalies*, 61(2), 38-45.
5. Çınar, S., & Koc, G. (2020). The Effect of Nursing Care Provided to Turkish Mothers of Infants Born With Cleft Lip and Palate on Maternal Attachment and Self-efficacy: A Quasi-Experimental Study. *Journal of Pediatric Nursing*, 53, e80-e86. doi: <https://doi.org/10.1016/j.pedn.2020.02.032>
6. Desai, B. B., Patel, D. P., Sinha, S. V., Jain, M., Patel, R. N., & Bhanat, S. T. (2019). Correlating causative factors in cleft lip and palate patients: An epidemiological study. *Journal of Cleft Lip Palate and Craniofacial Anomalies*, 6(1), 11.
7. Ekata, S., & Chanu, S. (2017). Effectiveness of Structured Teaching Program (STP) on Knowledge and Practice of post-operative care among parents of children with cleft lip and cleft palate. *Pediatr Ther*, 7(321), 2161-0665.
8. Eltayeb, A., Satti, A., & Babiker, H. E. (2022). Mothers'

- Struggle and Knowledge Towards Feeding a Child with a Cleft Lip and Palate. *Acta Scientific Dental Sciences* (ISSN: 2581-4893), 6(1).
9. Geneser, M. K., & Allareddy, V. (2019). 5 - Cleft Lip and Palate. In A. J. Nowak, J. R. Christensen, T. R. Mabry, J. A. Townsend & M. H. Wells (Eds.), *Pediatric Dentistry* (Sixth Edition) (pp. 77-87.e72). Philadelphia: Elsevier.
 10. Hakim, A., Zakizadeh, Z., Saki, N., & Haghhighizadeh, M. H. (2021). The effect of combined education on the knowledge and care and supportive performance of parents with children with cleft lip and palate: A clinical trial study. *Global Pediatric Health*, 8, 2333794X211022238.
 11. Hockenberry, M. J., Rodgers, C. C., & Wilson, D. (2021). *Wong's essentials of pediatric nursing-e-book*: Elsevier Health Sciences.
 12. Hong, Y., Xu, X., Lian, F., & Chen, R. (2021). Environmental risk factors for nonsyndromic cleft lip and/or cleft palate in Xinjiang Province, China: a multiethnic study. *The Cleft Palate-Craniofacial Journal*, 58(4), 489-496.
 13. Jahanbin, A., Jamalinasab, A., & Niazi, A. E. (2021). Variations in Orofacial Clefts. *Journal of Craniofacial Surgery*, 32(2), e179-e182. doi: 10.1097/scs.0000000000007027
 14. Junaid, M., Slack-Smith, L., Wong, K., Bourke, J., Baynam, G., Calache, H., & Leonard, H. (2022). Association between craniofacial anomalies, intellectual disability and autism spectrum disorder: Western Australian population-based study. *Pediatric Research*, 1-10.
 15. Kapos, F. P., White, L. A., Schmidt, K. A., Hawes, S. E., & Starr, J. R. (2021). Risk of non-syndromic orofacial clefts by maternal rural-urban residence and race/ethnicity: A population-based case-control study in Washington State 1989-2014. *Paediatric and Perinatal Epidemiology*, 35(3), 292-301.
 16. Kruppa, K., Krüger, E., Vorster, C., & der Linde, J. v. (2022). Cleft Lip and/or Palate and Associated Risks in Lower-Middle-Income Countries: A Systematic Review. *The Cleft Palate-Craniofacial Journal*, 59(5), 568-576.
 17. Kuttenger, J., Ohmer, J. N., & Polska, E. (2010). Initial counselling for cleft lip and palate: Parents' evaluation, needs and expectations. *International Journal of Oral and Maxillofacial Surgery*, 39(3), 214-220. doi: <https://doi.org/10.1016/j.ijom.2009.12.013>
 18. Madhoun, L. L., Crerand, C. E., O'Brien, M., & Baylis, A. L. (2021). Feeding and Growth in Infants With Cleft Lip and/or Palate: Relationships With Maternal Distress. *The Cleft Palate-Craniofacial Journal*, 58(4), 470-478.
 19. Madhoun, L. L., Merrell, L. C., Smith, A., Snow, E., & Cherosky, K. M. (2020). Beyond the Bottle: Interdisciplinary Cleft Feeding Care. *Perspectives of the ASHA Special Interest Groups*, 1-7.
 20. Madhoun, L. L., O'Brien, M., & Baylis, A. L. (2021). Infant-Driven Feeding Systems: Do They "Normalize" the Feeding Experience of Infants With Cleft Palate? *The Cleft Palate-Craniofacial Journal*, 58(10), 1304-1312. doi: 10.1177/1055665620984351
 21. Nasar, F. S. M., Amer, S. A. M., & Aly, H. M. A. (2018). Feeding Protocol for Mothers Having Infant with Cleft Lip and Cleft Palate. *American Journal of Nursing*, 7(3-1), 62-71.
 22. Saeed, O. B., Moore, M. G., Zawahrah, H., Tayem, M., Kavoosi, T., & van Aalst, J. A. (2019). The influence of consanguinity on familial clefting among Palestinians. *The Cleft Palate-Craniofacial Journal*, 56(8), 1072-1079.
 23. Saif, F., Khalid, S., Bashir, S., Naveed, M., Saifullah, N., & Qureshi, I. S. (2020). Gender-based association between consequences and maternal health factors of children suffering from cleft lip and cleft palate. *The Annals of Research*, 1, 12-16.
 24. Shahin, M., & Abdelsalam, Y. (2016). Comparative Study Between Nasogastric (Ryle) Feeding and Oral Feeding Post-Cleft Palate Repair. *Al-Azhar Dental Journal for Girls*, 3(4), 257-264.
 25. Shetty, M. S., & Khan, M. B. (2016). Feeding considerations in infants born with cleft lip and palate. *APOS Trends in Orthodontics*, 6(1), 49-53.
 26. Wijekoon, P., Herath, T., & Mahendran, R. (2019). Awareness of feeding, growth and development among mothers of infants with cleft lip and/or palate. *Heliyon*, 5(12), e02900. doi: <https://doi.org/10.1016/j.heliyon.2019.e02900>
 27. Worley, M. L., Patel, K. G., & Kilpatrick, L. A. (2018). Cleft Lip and Palate. *Clinics in Perinatology*, 45(4), 661-678. doi: <https://doi.org/10.1016/j.clp.2018.07.006>