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"Effectiveness Of Nutritional Education Intervention On Complementary Feeding To Improve Knowledge Among The Mothers Of Infant At Selected Hospital, Silvassa, Dadra And Nagar Haveli."

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Abstract
Background: *WHO have highlighted that rates of malnutrition among adolescent girls, pregnant and lactating women, and children are alarmingly high in India. The most consistent factors associated with child malnutrition were maternal education, household income, maternal nutritional status, age of the child, availability of sanitation facility at home, size & birth order in the family, and child's birth weight.*
Aim: *The main aim of the study was to evaluate effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant.*
Methodology: *A quantitative research approach and quasi-experimental research design (the pre-test post-test research design) was adopted for this study. The mothers (200 samples) of the infant are selected by using a non-probability convenience sampling technique.*
Results: *The finding of the study reveals that overall mean was15.84 with 3.32 SD in control group pre-test whereas the mean was 15.94 with 3.32 SD in experimental group pre-test. Overall mean was15.89 with 2.90 SD In control group post-test whereas the mean was 26.92 with 2.68 SD in experimental group post-test. The calculated "t" value was 27.90, mean difference was 11.03, p-value p<0.001*** (HS) was less than 0.05. Hence the stated hypothesis (H_{A1}) was accepted. In control group there was a significance association between family income and level of knowledge among the mothers and infant age& in experimental group there was no significant association. Hence that stated hypothesis (H02) was accepted.*
Conclusion: *The present study finding concluded that there was a significant increase in level of knowledge among mothers of infant in experimental group after administration of nutritional education intervention.*
Keyword: *WHO world health organization, SD standard deviation, NEI Nutritional educational intervention.*

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I. Introduction

Background Of The Study

An infant is a human being's extremely young offspring. A set of socially adaptive skills is innate in infants, intended to help them take care of others and eventually increase their chances of surviving. Infants require greater care in order to meet their needs during the first year of life and to ensure healthy growth and development. The growth and development of the earliest years of infant is the fastest. A baby's nutrition must be optimized to promote healthy growth and organ development. (1)

An infant has to eat the right kinds and amounts of food in order to receive an acceptable number of important nutrients. Good nutrition is vital for the growth and development that occurs during an infant's first year of life. A developing baby's health is enhanced when they are fed the right kinds and quantities of food. (2)

Numerous physiological changes that take place during the first year of life enable newborns to eat a wide variety of meals in terms of texture and composition. A newborn's ability to chew and consume a wide range of complementary foods changes as their mouth, tongue, and digestive system develop. Previously, an infant could only suck, swallow, and take in liquid foods like breast milk or infant formula. (2)

Breastfeeding and complementary feeding techniques for neonates and babies will determine the nutritional health of the child. Not only does breastfeeding provide the finest nutrition for infants, but it also provides the best nurturing since it allows for intimate physical touch between mother and child. The greatest diet for a baby's first year is still breast milk, therefore breastfeeding is still a great approach to nourish your

child in the early months. Breastfeeding provides the baby with a full diet since it boosts immunity, allowing the child to fight off diseases and bacteria without being sick first. [4]

A baby that is exclusively breastfed receives only breast milk from their mother, a wet nurse, or an express breast milk maker; they do not receive any other liquids, solids, or even water—not even oral rehydration solution, drops, or syrup, comprising prescription drugs, dietary supplements, or vitamins. [5]

Nursing continues to be the most convenient, healthy, and affordable way to meet an infant's nutritional demands for the majority of newborns. Nonetheless, only 40% of infants globally receive solely breast milk, which is far less than the advised amount. Just 37% of children in middle-class and low-income nations are exclusively breastfed. One of the most important things for an infant's survival and development is exclusive breastfeeding. In addition to adding supplementary foods at six months of age and continuing breastfeeding for at least two years, the WHO and UNICEF advise exclusive breastfeeding (EBF) for six months. [6]

In underdeveloped nations like our own, effective breastfeeding habits have the potential to avert 13% of fatalities in children under five worldwide. Appropriate supplemental feeding (CF) practices may also reduce under-five mortality by 6%. The main causes of malnutrition in the first two years of life are poor feeding habits and high incidence of infectious illnesses. When breast milk is no longer adequate to meet an infant's nutritional needs, the second half of the infant's first year is a particularly sensitive period to begin complementary feeding.

After a baby reaches six months old, the procedure of complementary feeding is introduced. This is because breast milk is no longer enough to cover the nutritional needs of a developing baby on its own. Supplementary feeding, which introduces a variety of nutrient-dense foods in addition to breastfeeding, guarantees the healthy growth and development of children. [7]

Throughout the Complementary feeding phase, the young kid gradually develops a tolerance for eating meals from the family. When breastfed infants reach six months of age, their intake of iron, vitamin A, and calories is deficient. Complementary foods fill this gap. The introduction of CF either too early or too late can result in iron, zinc, calcium, and vitamin shortages. To meet the young child's energy and nutrient demands, CF must be fed in a safe, appropriate, and nutritionally acceptable manner.

For a child's growth and development, the first two years of life are crucial. Any abnormality brought on by dietary inadequacies at this time may result in delayed cognitive development, limited academic success. [8]

Malnourishment, diarrhoea, respiratory infections, and growth and development. Because they do not obtain enough nourishment, 5.6 million babies die each year. [9]

A 2021 World Health Organization (WHO) research states that 38 million children worldwide are overweight, 47 million are wasting, and 144 million children under the age of five are stunted [9]

The under-five mortality rate is 11.2% in Dadra and Nagar Haveli, according to NFHS-5. Of these deaths, 22.3% were stunted, 41.7% were wasting, 38.8% were underweight, and 9.6% were overweight. [10]

A child's growth and development can be most optimally ensured throughout the crucial first two years of life. It is imperative to introduce safe and nutritionally sufficient supplemental foods to a newborn at six months of age to ensure optimal growth and development. Therefore, better nutrition, health, and development in children 0-23 months of age depend on improving newborn and early child feeding practices. [11]

One of the hardest periods to meet a child's nutritional needs is during the supplementary feeding era, which lasts from 6 to 23 months of age. Children are susceptible to growth failure because their stomachs are unable to accommodate large amounts of food and because their nutrient requirements are at an all-time high. Declines in height and/or length for age usually happen during the supplemental feeding phase in most nations. These declines can be attributed to poor feeding practices, higher illness rates, and inadequate first food quality and/or quantity. [12]

In impoverished nations, complementary feeding has been shown to be an effective strategy that can avert nearly one-fifth of the mortality rate for children under five. The youngster requires more nutrition to sustain their rapid development and growth. Malnourished babies may experience worsening of their condition at some point throughout the weaning process, as well as experiencing malnutrition for the first time. When children reach the weaning age, malnutrition and illness are the main causes of their slow growth. This manifests as either low weight gain or, in more severe situations, weight loss on the growth chart. Therefore, the mother's educational attainment has been highlighted as a significant socioeconomic factor of the health of her children. [13]

The health of children under five is significantly influenced by the mothers in the home. Her complementary feeding expertise and mindset determine her child's nutritional status and will have an impact on their long-term growth.

The rate of morbidity, mortality, and several chronic diseases is determined by the nutrition that newborn receives during this time. Above all, early childhood health, safety, and nutrition are written on behalf of moms everywhere. [14]

Many factors affect the mother's decision to provide supplemental feeding. These variables include information, the health and profession of the mother, advertisements for supplemental feeding, healthcare professionals, culture, and socioeconomic status. One such justification for providing supplemental nutrition is job status.

Nutritional interventions to prevent stunting of infants and young children are most often applied in rural areas in low- and middle-income countries (LMIC). Few interventions are focused on urban slums. The literature needs a systematic assessment, as infants and children living in slums are at high risk of stunting. [15]

Mothers lack knowledge about complementary feeding techniques, guidelines, and when to begin a complementary feeding program, the investigator discovered. Thus, there could be a shift in wasting, shunting, malnourishment, and growth retardation. Thus, the goal of the current study is to evaluate mother's level of knowledge about complementary feeding. [15]

Statement Of The Study

"Effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli."

Objectives Of The Study

- To assess the pre-test and post-test level of knowledge on complementary feeding among the mothers of infant in control group and experimental group.
- To determine the effectiveness of nutritional education intervention on complementary feeding to improve level of knowledge among mothers of infant in control group and experimental group.
- To find the association between the pre-test level of knowledge in control group and experimental group with their selected demographic variables among mothers of infant.

Hypothesis

Null hypothesis

H01 –There will be no significant difference between pre-test and post-test level of knowledge score regarding nutritional education intervention on complementary feeding among mothers of infant.

H02– There will be no significant association between the level of knowledge regarding complementary feeding and selected demographic variables among the mothers of infant.

Research hypothesis

HA1 –There will be a significant difference between pre-test and post-test level of knowledge score regarding nutritional education intervention on complementary feeding among mothers of infant.

HA2 – There will be a significant association between the level of knowledge and selected demographic variables among mothers of Infant.

Operation Defintion

- **Effectiveness:** In the present study it refers to the difference in knowledge level score among mothers with use of knowledge questionnaire on nutritional education intervention regarding complementary feeding.
- **Nutritional Education Intervention:** It refers to systematically organized live demonstration method on complementary feeding which include component such general aspects of complementary feeding, principle preparation, frequency and quantity, hygienic practices, problems and food to be avoided during complementary feeding by Using- display of raw vegetable , fruits , grains, cereals, pulses, feeding articles ,cooking demonstration, and uses of chart , flash cards and flip chart .
- **Complementary Feeding:** In the present study it refers to breast milk (mother's milk) alone or exclusive breastfeeding is not adequate for the growth and development of a baby when the baby turns six months. Hence, breast milk should be complemented with feeding semisolid foods to breastfed infants from 6 to 12 months.
- In this study complementary feeding refers to the knowledge among the mothers about complementary feeding.
- **Knowledge:** It refers to information gained by the mothers of infant through nutritional education intervention package.
- **Mothers Of Infant:** It refers to the mothers who have below one year of infant and who are coming to the Paediatric OPD, Immunization clinic and DEIC, and mothers who are admitted in paediatric ward, post natal ward NICU mother area.

II. Research Methodology

Research Approach - Quantitative Research approach
Research Design - Quasi experimental- non randomised research design
• **Independent variable** – Nutritional education intervention
• **Dependent variable** – Level of knowledge among the mothers of infant.
• **Socio- demographic variables**
• **For mother** - Area of residence, religion , type of family, monthly family income, dietary pattern, Age of mother, , marital status, mother's education, mother's occupation, father's education, father's occupation, , previous knowledge regarding complementary feeding, source of information, age of child and sex of child
• **For infant**- age of child and sex of child in Research Setting: Shri Vinoba Bhave Civil Hospital, Silvassa, Dadra and Nagar Haveli.

Population and Sample: Primipara Mothers of infants
Sample: 200 (100 in control group, 100 in experimental group) infants.
Sampling Technique: Non-probability convenience sampling technique.
Inclusion criteria:

In this study inclusion criteria includes
a. Mothers of infant who have given written consent.
b. Mothers of infant who are coming to the paediatric OPD and Immunization Clinic and DEIC, and mother who are admitted in paediatric ward, post natal ward, NICU mother area.
c. Mothers of infant who can understand Hindi, Guajarati and English.
d. Who are willing to participate in the study.

Exclusion criteria:
In this study exclusion criteria includes
a. Multi Para mothers who are visiting paediatric OPD and immunization clinic and DEIC for treatment and mothers who are admitted in paediatric ward, post natal ward, NICU mother area.
b. Mothers of infant who are not willing to participate in the study.
c. Mothers of infant who are working in health care profession.
d. Mothers of infant who are not available at the time of data collection.

Description Of Tool:
The tool had following section to collect data:
Section I: Demographic data of mothers and infant.
Section II: Structured knowledge questionnaires on complementary feeding.

Section I- Demographic Data Of Mothers And Infant:

It consists of selected demographic variables like Area of residence, religion , type of family, monthly family income, dietary pattern, Age of mother, , marital status, mother's education, mother's occupation, father's education, father's occupation, , previous knowledge regarding complementary feeding, source of information, age of child and sex of child

SECTION-II structured knowledge questionnaire on complementary feeding
- general aspect of complementary feeding
- Frequency and quantity of food
- Problems and food to be avoided during complementary feeding
- Preparation and introducing complementary feeding
- Hygienic practices during complementary feeding
- Malnutrition and its prevention

Scoring of the tool:
Structure Knowledge Questionnaire:

All questions had only one corrected answer. Each correct response, score one mark according to the predetermine key and wrong response and omission were given zero. Total possible maximum score for the questionnaire were 30 out of which complementary feeding components includes 6 items.

III. Preparation Of Blue Print

Components	Total Items	Cognitive domains			
		Knowledge	comprehensive	application	Percentage
General aspect of complementary feeding	6	1,2,3	4	5,6	20%
Frequency and quantity of food	9	7,8 ,15	11,12,14	9,10,13	30%
Problems and food to be avoided during complementary feeding	2	16		17	7%
Preparation and introducing complementary feeding	9	18,20,21	22,23,24	19,25,26	30%
Hygienic practices during complementary feeding	1	27			3%
Malnutrition and its prevention	3	28	29,30		10%
TOTAL	**30**	40%	30%	30%	**100%**

IV. Result

Data Analysis And Interpretation

Section I. Description of Demographic variables among the mothers of infant.

Table 1: frequency and percentage distribution of demographic variables. (N=200)

Demographic variables	Experimental group (n=100)		Control group (n=100)	
	f	%	f	%
1.Area of residence:				
Rural	75	75	71	71
Urban	25	25	29	29
Slum	0	0	0	0
Semi-Urban	0	0	0	0
2.Religion:				
Hindu	87	87	88	88
Muslim	7	7	8	8
Christian	6	6	4	4
Others	0	0	0	0
3.Type of family:				
Joint	82	82	72	72.;
Nuclear	17	17	25	25
Extended	1	1	2	2
Single parent	0	0	1	1
4. Family Income:				
Below 5000	2	2	10	10
5001-10000	50	50	49	49
10001-15000	25	25	29	29
Above 15000	23	23	12	12
5.Dietary pattern:				
Vegetarian	61	61	24	24
Non vegetarian	39	39	76	76
6.Age of mothers:				
below 18 years	7	7	5	5
19-24 years	71	71	66	66
25-28 years	19	19	21	21
Above 29 years	3	3	8	8
7. Marital status:				
Married	84	84	88	88
Unmarried	15	15	12	12
Divorced	1	1	0	0
Separated	0	0	0	0
8. Education status of Mother:				
Primary	42	42	39	39
Secondary	34	34	45	45
Graduated	22	22	12	12
Uneducated	2	2	4	4

9. Mother's Occupation:				
Government Job	15	15	8	8
Private Job	8	8	20	20
Business	6	6	2	2
House wife	71	71	70	70
10. Father's education:				
Primary	28	28	23	23
Secondary	42	42	56	56
Graduated	27	27	16	16
Uneducated	3	3	5	5
11.Father's Occupation:				
Government Job	10	10	10	10
Private Job	56	56	71	71
Business	26	26	9	9
Farmer	8	8	10	10
12.Complementary feeding:				
Yes	87	87	86	86
No	13	13	14	14
13.Soure of information:				
From health care personnel	49	49	40	40
From neighbour	8	8	2	2
Mobile phone	7	7	5	5
Others	23	23	39	39
14.Age of the infant:				
0-6 months	64	64	63	63
7-8 months	28	28	27	27
9-10 months	6	6	6	6
11-12 months	2	2	4	4
15.Sex of infant:				
Male	52	52	50	50
Female	48	48	50	50

Section II. Description of pre-test and post-test level of knowledge on complementary feeding among mothers of infant.

Table-2.3: Comparison was found between control group pre and post test to effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli.

Level of knowledge	Control group Pre test			Control group Post test			Mean Difference
	Mean	SD	Mean%	Mean	SD	Mean%	
General aspect of complementary feeding	2.98	1.25	49.7	2.99	1.25	49.8	**0.1**
Frequency and quantity of food	4.79	2.03	53.2	4.82	2.03	53.5	**0.3**
Problems and food to be avoided during complementary feeding	0.83	0.65	41.5	0.84	0.65	42	**0.5**
Preparation and introducing complementary feeding	4.17	1.48	46.3	4.2	1.49	46.7	**0.4**
Hygienic practices during complementary feeding	0.47	0.50	47	0.48	0.50	48	**1**
Malnutrition and its prevention	2.6	0.62	86.7	2.56	0.66	85.3	**1.4**
Overall	**15.84**	**3.02**	**52.8**	**15.89**	**2.90**	**52.9**	**0.1**

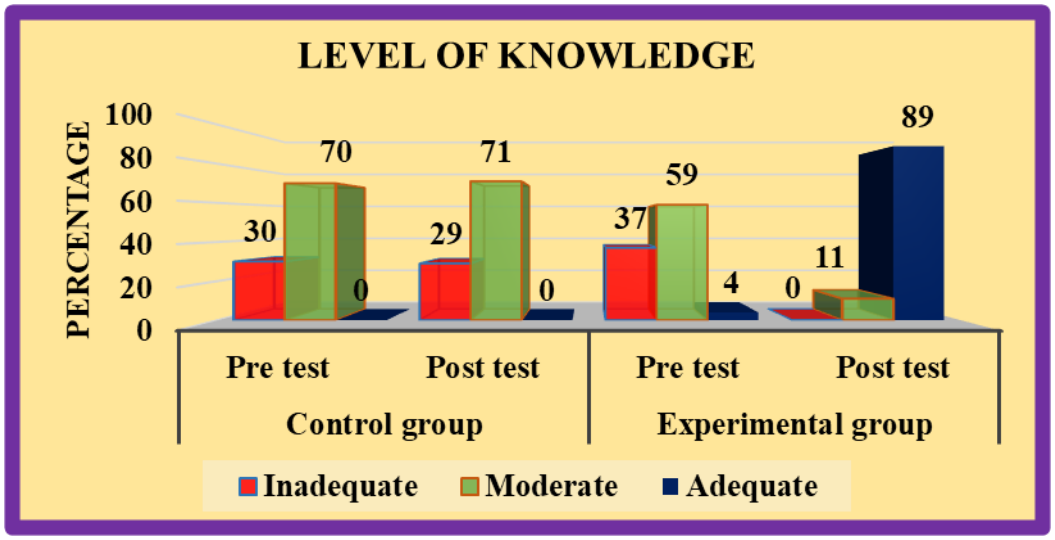
Table-2.6: Comparison was found between experimental group pre and post test to effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli.

Level of knowledge	Experimental group –pre-test			Experimental group-post-test			Mean% difference
	Mean	SD	Mean %	Mean	SD	Mean%	
General aspect of complementary feeding	3	1.26	**50**	5.35	1.26	**89.2**	**39.2**
Frequency and quantity of food	4.88	2.11	**54.2**	8.38	0.84	**93.1**	**38.9**
Problems and food to be	0.82	0.66	**41**	1.72	0.47	**86**	**45**

avoided during complementary feeding							
Preparation and introducing complementary feeding	4.24	1.57	**47.1**	7.66	1.09	**85.1**	**38**
Hygienic practices during complementary feeding	0.41	0.49	**41**	0.95	0.22	**95**	**54**
Malnutrition and its prevention	2.59	0.65	**86.3**	2.86	0.37	**95.3**	**9**
Overall	15.94	3.32	**53.1**	26.92	2.68	**89.7**	**36.6**

Table-2.7: Frequency and percentage wise distribution to effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, Dadra and nagar haveli.

Level of knowledge	Experimental group				Control group			
	Pre test		Post test		Pre test		Post test	
	F	%	f	%	f	%	f	%
Inadequate	**37**	**37**	**0**	**0**	**30**	**30**	**29**	**29**
Moderate	**59**	**59**	**11**	**11**	**70**	**70**	**71**	**71**
Adequate	**4**	**4**	**89**	**89**	**0**	**0**	**0**	**0**
Overall	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**



Section III. Effectiveness of nutritional education intervention on complementary feeding to improve the level of knowledge among mothers of infant.

Table-3.1: Paired "t"-test was found between control pre and post test to effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli.

Level of knowledge	Control group pre test		Control group post test		Mean difference	't'-value	P-value
	Mean	SD	Mean	SD			
General aspect of complementary feeding	2.98	1.25	2.99	1.25	**0.01**	**0.574**	**0.566(NS)**
Frequency and quantity of food	4.79	2.03	4.82	2.03	**0.03**	**1.75**	**0.083(NS)**
Problems and food to be avoided during complementary feeding	0.83	0.65	0.84	0.65	**0.01**	**1**	**0.319(NS)**
Preparation and introducing complementary feeding	4.17	1.48	4.2	1.49	**0.03**	**1.749**	**0.083(NS)**
Hygienic practices during complementary feeding	0.47	0.50	0.48	0.50	**0.01**	**0.332**	**0.740(NS)**
Malnutrition and its prevention	2.6	0.62	2.56	0.66	**0.04**	**1.421**	**0.158(NS)**
overall	15.84	3.02	15.89	2.90	**0.05**	**0.897**	**0.372(NS)**

*-P<0.05, significant and **-P<0.01 &***-P<0.001, Highly significant

Table 3.1 reveals that in control group pre-test the maximum mean was 4.79 with 2.03 standard deviation for Frequency and quantity of food and minimum mean was 0.47 with 0.50 standard deviation for Hygienic practices during complementary feeding. Overall mean was 15.84 with 3.02 standard deviation.

Whereas in control group post-test the maximum mean was 4.82 with 2.03 standard deviation for Frequency and quantity of food and minimum mean was 0.48 with 0.50 standard deviation for Hygienic practices during complementary feeding. Overall mean was 15.89 with 2.90 standard deviation.

Overall, the calculated "t" value was **0.89**, mean difference was **0.05**, p-value p<**0.372(NS)** was more than 0.05.

Table-3.2: Paired "t"-test was found between pre and post test in experimental group to effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli.

Level of knowledge	Experimental group pre test		Experimental group post test		Mean difference	't'-value	p-value
	Mean	SD	Mean	SD			
General aspect of complementary feeding	3	1.26	5.35	1.26	**2.35**	**14.16**	**p<0.001***(HS)**
Frequency and quantity of food	4.88	2.11	8.38	0.84	**3.5**	**16.29**	**p<0.001***(HS)**
Problems and food to be avoided during complementary feeding	0.82	0.66	1.72	0.47	**0.9**	**10.78**	**p<0.001***(HS)**
Preparation and introducing complementary feeding	4.24	1.57	7.66	1.09	**3.42**	**17.22**	**p<0.001***(HS)**
Hygienic practices during complementary feeding	0.41	0.49	0.95	0.22	**0.54**	**9.67**	**p<0.001***(HS)**
Malnutrition and its prevention	2.59	0.65	2.86	0.37	**0.27**	**3.97**	**p<0.001***(HS)**
Overall	15.94	3.32	26.92	2.68	**10.98**	**27.38**	**p<0.001***(HS)**

*-P<0.05, significant and **-P<0.01 &***-P<0.001, highly significant

Table 3.2 reveals that in experimental group pre-test the maximum mean was 4.88 with 2.11 standard deviation for Frequency and quantity of food and minimum mean was 0.41 with 0.49 standard deviation for Hygienic practices during complementary feeding. Overall mean was 15.94 with 3.32 standard deviation.

Whereas in experimental group post-test the maximum mean was 8.38 with 0.84 standard deviation for Frequency and quantity of food and minimum mean was 0.95 with 0.22 standard deviation for Hygienic practices during complementary feeding. Overall mean was 26.92 with 2.68 standard deviation.

Overall, the calculated "t" value was 27.38, mean difference was 10.98, p-value p<0.001*** (HS) was less than 0.05. Hence the stated hypothesis (H_{A1}) was accepted that there is highly significant difference between pre-test and post-test level of knowledge scores regarding complementary feeding among the mothers of infant

Table-3.4: Unpaired "t"-test was found between control and experimental group pre test to **effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli**.

Level of Knowledge	Control group pre test		Experimental group pre test		Mean difference	't'-value	P-value
	Mean	SD	Mean	SD			
General aspect of complementary feeding	2.98	1.25	3	1.26	**0.02**	**0.112**	**0.910(NS)**
Frequency and quantity of food	4.79	2.03	4.88	2.11	**0.09**	**0.306**	**0.759(NS)**
Problems and food to be avoided during complementary feeding	0.83	0.65	0.82	0.66	**0.01**	**0.108**	**0.914(NS)**
Problems and food to be avoided during complementary feeding	4.17	1.48	4.24	1.57	**0.07**	**0.323**	**0.746(NS)**
Hygienic practices during complementary feeding	0.47	0.50	0.41	0.49	**0.06**	**0.852**	**0.395(NS)**
Malnutrition and its prevention	2.6	0.62	2.59	0.65	**0.01**	**0.11**	**0.911(NS)**
Overall	15.84	3.02	15.94	3.32	**0.1**	**0.22**	**0.824(NS)**

*-P<0.05, significant and **-P<0.01 &***-P<0.001, Highly significant

Table 3.4 reveals that in control group pre-test the maximum mean was 4.79 with 2.03 standard deviation for Frequency and quantity of food and minimum mean was 0.47 with 0.50 standard deviation for Hygienic practices during complementary feeding. Overall mean was15.84 with 3.32 standard deviation.

Whereas in experimental group post-test the maximum mean was 4.88 with2.11 standard deviation for Frequency and quantity of food and minimum mean was 0.41 with 0.49 standard deviation for Hygienic practices during complementary feeding. Overall mean was 15.94 with 3.32 standard deviation.

Table-3.5: Unpaired "t"-test was found between control and experimental group post test to effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli.

Level of knowledge	Control group Post test		Experimental group post test		Mean difference	't'-value	P-value
	Mean	SD	Mean	SD			
General aspect of complementary feeding	2.99	1.25	5.35	1.26	**2.36**	**13.29**	**p<0.001***(HS)**
Frequency and quantity of food	4.82	2.03	8.38	0.84	**3.56**	**16.23**	**p<0.001***(HS)**
Problems and food to be avoided during complementary feeding	0.84	0.65	1.72	0.47	**0.88**	**10.97**	**p<0.001***(HS)**
Problems and food to be avoided during complementary feeding	4.2	1.49	7.66	1.09	**3.46**	**18.71**	**p<0.001***(HS)**
Hygienic practices during complementary feeding	0.48	0.50	0.95	0.22	**0.47**	**8.57**	**p<0.001***(HS)**
Malnutrition and its prevention	2.56	0.66	2.86	0.37	**0.3**	**3.96**	**p<0.001***(HS)**
Overall	15.89	2.90	26.92	2.68	**11.03**	**27.90**	**p<0.001***(HS)**

*-P<0.05, significant and **-P<0.01 &***-P<0.001, Highly significant

Table 3.5 reveals that in control group pre-test the maximum mean was 4.82 with 2.03 standard deviation for Frequency and quantity of food and minimum mean was 0.48 with 0.50 standard deviation for Hygienic practices during complementary feeding. Overall mean was15.89 with 2.90 standard deviation

Whereas in experimental group post-test the maximum mean was 8.38 with 0.84 standard deviation for Frequency and quantity of food and minimum mean 0.95 with 0.22 standard deviation for Hygienic practices during complementary feeding. Overall mean was 26.92 with 2.68 standard deviation.

Overall, the calculated "t" value was 27.90, mean difference was 11.03, p-value p<0.001*** (HS) was less than 0.05. Hence the stated hypothesis (H_{A1}) was accepted that there is highly significant difference between pre-test and post-test level of knowledge scores regarding complementary feeding among the mothers of infant

Section IV. Association between the level of knowledge in control group and experimental group with selected demographic variables among mothers of infants.

Table 4.1: Association for level of knowledge in control group and selected demographic data.]

Demographic variables	Inadequate		Moderate		χ2-value	p-value
	f	%	f	%		
1.Area of residence:						
Rural	23	23	48	48	0.956	0.620
Urban	7	7	21	21	(df=2)	NS
Slum	0	0	1	1		
Semi-Urban	0	0	0	0		
2.Religion:						
Hindu	26	26	62	62	5.03	0.081
Muslim	1	1	7	7	(df=2)	NS
Christian	3	3	1	1		
Others	0	0	0	0		
3.Type of family:						
Joint	19	19	53	53	5.97	0.113
Nuclear	9	9	16	16	(df=3)	NS
Extended	2	2	0	0		
Single parent	0	0	1	1		
4. Family Income:						
Below 5000	3	3	7	7	8.86	0.031*

5001-10000 10001-15000 Above 15000	12 7 8	12 7 8	37 22 4	37 22 4	(df=3)	S
5.Dietary pattern: Vegetarian Non vegetarian	 9 21	 9 21	 15 55	 15 55	 0.845 (df=1)	 0.358 NS
6.Age of mothers: below 18 years 19-24 years 25-28 years Above 29 years	 0 23 3 4	 0 23 3 4	 5 43 18 4	 5 43 18 4	 6.87 (df=3)	 0.074 NS
7. Marital status: Married Unmarried Divorced Separated	 24 6 0 0	 24 6 0 0	 64 6 0 0	 64 6 0 0	 2.59 (df=1)	 0.107 NS
8. Education status of Mother: Primary Secondary Graduated Uneducated	 11 15 2 2	 11 15 2 2	 28 30 10 2	 28 30 10 2	 2.07 (df=3)	 0.557 NS
9. Mother's Occupation: Government Job Private Job Business House wife	 3 5 1 21	 3 5 1 21	 5 15 1 49	 5 15 1 49	 0.83 (df=3)	 0.841 NS
10. Father's education: Primary Secondary Graduated Uneducated	 7 16 6 1	 7 16 6 1	 16 40 10 4	 16 40 10 4	 0.72 (df=3)	 0.868 NS
11.Father's Occupation: Government Job Private Job Business Farmer	 4 21 3 2	 4 21 3 2	 6 50 6 8	 6 50 6 8	 1.002 (df=3)	 0.800 NS
12.Complementary feeding: Yes No	 24 6	 24 6	 62 8	 62 8	 1.28 (df=1)	 0.258 (NS)
13.Soure of information: From health care personnel From neighbour Mobile phone Others	 8 0 2 14	 8 0 2 14	 32 2 3 25	 32 2 3 25	 3.62 (df=3)	 0.306 NS
14.Age of the infant: 0-6 months 7-8 months 9-10 months 11-12 months	 25 3 1 1	 25 3 1 1	 38 24 5 3	 38 24 5 3	 7.95 (df=3)	 0.047* S
15.Sex of infant: **Male** **Female**	 15 15	 15 15	 35 35	 35 35	 0 (df=1)	 1 NS

***p<0.05 significant, ** p<0.01 & ***p<0.001 Highly significant.**

Table 4.2: Association for level of knowledge in experimental group and selected demographic data.

Demographic variables	Inadequate		Moderate		Adequate			
	F	%	f	%	f	%	χ2-value	p-value
1.Area of residence: Rural Urban Slum Semi-Urban	 25 12 0 0	 25 12 0 0	 47 12 0 0	 47 12 0 0	 3 1 0 0	 3 1 0 0	 1.773 (df=2)	 0.412 NS

2.Religion:								
Hindu	34	34	49	49	4	4	2.71	0.608
Muslim	1	1	6	6	0	0	(df=4)	NS
Christian	2	2	4	4	0	0		
Others	0	0	0	0	0	0		
3.Type of family:								
Joint	26	26	53	53	3	3	6.75	0.150
Nuclear	10	10	6	6	1	1	(df=4)	NS
Extended	1	1	0	0	0	0		
Single parent	0	0	0	0	0	0		
4. Family Income:								
Below 5000	1	1	1	1	0	0	5.001	0.543
5001-10000	18	18	28	28	4	4	(df=6)	NS
10001-15000	8	8	17	17	0	0		
Above 15000	10	10	13	13	0	0		
5.Dietary pattern:								
Vegetarian	22	22	35	35	4	4	2.66	0.264
Non vegetarian	15	15	24	24	0	0	(df=2)	NS
6.Age of mothers:								
below 18 years	4	4	3	3	0	0	3.48	0.746
19-24 years	26	26	42	42	3	3	(df=6)	NS
25-28 years	5	5	13	13	1	1		
Above 29 years	2	2	1	1	0	0		
7. Marital status:								
Married	30	30	51	51	3	3	2.20	0.698
Unmarried	6	6	8	8	1	1	(df=4)	NS
Divorced	1	1	0	0	0	0		
Separated	0	0	0	0	0	0		
8. Education status of Mother:	16	16	23	23	3	3	3.79	0.705
Primary	14	14	20	20	0	0	(df=6)	NS
Secondary	6	6	15	15	1	1		
Graduated	1	1	1	1	0	0		
Uneducated								
9. Mother's Occupation:								
Government Job	5	5	8	8	2	2	8.53	0.202
Private Job	3	3	5	5	0	0	(df=6)	NS
Business	0	0	6	6	0	0		
House wife	29	29	40	40	2	2		
10. Father's education:								
Primary	7	7	19	19	2	2	12.4	0.054
Secondary	20	20	22	22	0	0	(df=6)	NS
Graduated	9	9	17	17	1	1		
Uneducated	1	1	1	1	1	1		
11.Father's Occupation:								
Government Job	3	3	5	5	2	2	8.75	0.188
Private Job	21	21	33	33	2	2	(df=6)	NS
Business	9	9	17	17	0	0		
Farmer	4	4	4	4	0	0		
12.Complementary feeding:	29	29	54	54	4	4	4.09	0.129
Yes	8	8	5	5	0	0	(df=1)	(NS)
No								
13.Soure of information:								
From health care personnel	17	17	30	30	2	2	8.033	0.236
From neighbour	0	0	7	7	1	1	(df=6)	NS
Mobile phone	2	2	4	4	1	1		
Others	10	10	13	13	0	0		
14.Age of the infant:								
0-6 months	25	25	36	36	3	3	1.07	0.983
7-8 months	9	9	18	18	1	1	(df=6)	NS
9-10 months	2	2	4	4	0	0		
11-12 months	1	1	1	1	0	0		

15.Sex of infant:								
Male	17	17	32	32	3	3	1.509	0.470
Female	20	20	27	27	1	1	(df=2)	NS

V. Discussion

The primary aim of the present study was to evaluate the effectiveness of nutritional education intervention on complementary feeding to improve knowledge among the mothers of infant at selected hospital, silvassa, dadra and nagar haveli. The study finding has been discussed with reference to objectives and hypothesis in the light of studies.

The finding of the study was supported by **Sichalwe MM, et.al. (2023)**, on evaluation of knowledge of mothers and usage of supplemental feeding. The result of the study showed that the approximate 66.8 % of mothers initiated breastfeeding within an hour after childbirth, with 71.1 % knowledgeable about 'breastfeeding and hand washing prior to breastfeeding. Around 64.5 % introduced liquids, and 58.8 % gave semi-solid food to their children before six months. About 41.9 % initiated CF at the recommended age. Associations were observed between maternal education and knowledge of dietary diversification. The findings of the study concluded that insufficient knowledge of infant and child feeding practices necessitates nutritional education for mothers through effective communication packages to promote proper feeding practices.

The finding of the study was supported by **Surve S, et.al. (2022),** on Intervention's effects on the nutritional status of children under five among tribal communities in Maharashtra, India's Palghar District Under-five children's nutritional status needs to be improved by focused treatments. The results of the study revealed that a significant improvement in the prompt commencement of supplemental meals, zero incidences of SAM, stunting, underweight, and severe anemia. This demonstrates the effectiveness of multifaceted nutrition and health education initiatives that may be modified at the programmatic level to lower child mortality and morbidity in children. [(40)]

The finding of the study was supported by **Laditka SB, et.al (2023),** on the timing and contributing elements of supplemental feeding in India. Premature death can be decreased by starting supplemental nutrition at six months. Using data from the Indian Human Development Survey II (n = 11,218 women), investigated the time and contributing aspects of supplemental feeding of the mothers who started supplemental feeding, only 21% did so at 6 months, 42% between 7 and 9 months, and 33% after 10 months. Mothers who had never held a formal job, had no formal education, and had a low income were less likely to start supplemental feeding at six months. The study concluded that women in less advantaged groups are less likely than those in more advantaged groups to start supplemental feeding at the suggested age. [(49)]

VI. Conclusion

The main conclusion drawn from the present study, Experimental group pre-test and post-test level of knowledge among mothers of infant were assessed. The pre-test experimental group 4(4%) mothers had adequate knowledge score 59(59%) mothers had moderate knowledge score 37(37%) mothers had inadequate knowledge score and in the post test 89(89%) mothers had adequate knowledge score 14(14%) mothers had moderate knowledge score and 0(0%) mothers had inadequate knowledge score. These reveals that there was a significant improvement in the level of knowledge on complementary feeding among mothers of infant after providing nutritional education intervention.

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