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Research Article

A Study To Assess The Knowledge Regarding Oral Hygiene Among The Mothers Of Under Five Children

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ABSTRACT

Background of the study: Oral hygiene plays a crucial role in maintaining overall health, especially in early childhood. Mothers, being primary caregivers, significantly influence the oral health practices of their children. This study was conducted to assess the knowledge regarding oral hygiene among mothers of under-five children at Teerthanker Mahaveer University, Moradabad, Uttar Pradesh.

Objectives:-To assess the knowledge regarding oral hygiene among mother of children under five year and find out the association between the knowledge level regarding oral hygiene and selected demographic variables.

Method: The study was conducted in Bagadpur village, Moradabad, Uttar Pradesh. A quasi-experimental design (descriptive research design) was adopted for this study. The sample consisted of 80 mothers of under-five children. Data was collected using a convenient sampling technique. A structured knowledge questionnaire was used as the data collection tool. The collected data was organized in a master data sheet and analyzed using descriptive and inferential statistics, as per the objectives of the study, with the help of SPSS version 20..

Results: The results of the study, analyzed using descriptive and inferential statistics showed that the sample group had a mean score of 15.18 and a median of 15, indicating a relatively balanced distribution. The standard deviation was 1.70, reflecting moderate variability. Scores ranged from 11 to 19, with a total range of 8. The mean percentage was 60.72%, suggesting that overall knowledge levels were moderate. Although the questionnaire allowed for a broader potential score range of 0 to 25, the actual observed scores fell within the range of 11 to 19. .

Conclusion: The study revealed that the majority of mothers of under-five children had moderate knowledge regarding oral hygiene. None of the participants demonstrated an adequate level of knowledge. A significant portion still had inadequate awareness. These findings highlight the need for targeted educational interventions to improve maternal knowledge and promote better oral health practices in young children.

Keywords: knowledge, Under Five Children, Oral Hygiene.

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INTRODUCTION:

Oral health during early childhood is fundamental to overall health, impacting nutrition, growth, and development (World Health Organization [WHO], 2024). Despite advancements in dental care, childhood dental caries remains a significant public health challenge globally and within India, with recent estimates suggesting that approximately 60-70% of children under five are affected by dental caries in various regions, including urban and rural areas (Ministry of Health and Family Welfare **[MoHFW], 2025).**

In India, the prevalence of early childhood caries (ECC) has been rising, with current data indicating that inadequate oral hygiene practices among young children are contributing factors (Kumar et al., 2024). Mothers serve as primary caregivers and play a pivotal role in establishing oral hygiene habits in children; however, their knowledge and awareness levels often vary based on educational background, socioeconomic status, and access to health information (Sharma & Patel, 2024). Studies conducted in different parts of India reveal that a significant proportion of mothers lack comprehensive knowledge about proper oral hygiene practices, which directly influences their children's oral health outcomes (Reddy & Singh, 2023).

In Moradabad, recent surveys highlight gaps in maternal awareness regarding oral health maintenance, underscoring the need for localized assessment to inform targeted educational interventions. Given the projected increase in childhood oral health issues over the next few years, it is imperative to evaluate current knowledge levels among mothers of under-five children. This study aims to assess the knowledge regarding oral hygiene among these mothers in Moradabad, providing data essential for designing effective health education programs to reduce the burden of early childhood dental diseases.

BACKGROUND OF THE STUDY

Oral hygiene during early childhood is pivotal in preventing dental issues such as Early Childhood Caries (ECC), which can have lasting effects on a child's overall health and development. Mothers, as primary caregivers, significantly influence their children's oral health behaviors. However, studies indicate a gap between maternal knowledge and actual oral hygiene practices for children under five years old.

A study conducted by **Kumari (n.d.)** assessed the knowledge and practices of 150 mothers regarding oral hygiene for their children under five.The findings revealed that 52% of mothers had good knowledge, 38% had fair knowledge, and 6.7% had excellent knowledge. Despite this, only 22% exhibited positive oral hygiene practices, while 68.7% followed neutral practices. This discrepancy underscores the need for targeted interventions to bridge the knowledge-practice gap.

Similarly, a study by **Dsouza et al. (2024**) involving 175 mothers found that while 87.9% had adequate knowledge about oral health in children, only 64.9% practiced twice-daily brushing, and 68.4% never massaged their child's gums after brushing. These findings highlight the necessity for educational programs to translate knowledge into consistent practices.

These studies collectively suggest that while maternal knowledge about children's oral health is relatively high, the application of this knowledge in daily practices remains suboptimal. This underscores the importance of developing and implementing effective educational interventions to enhance both knowledge and practices among mothers of children under five years old.

NEED OF THE STUDY

Recent studies highlight persistent gaps between maternal knowledge and actual oral hygiene practices. A survey in Hyderabad (**Khan & Rizvi, 2024)** involving 160 mothers revealed that although 70% understood the importance of primary teeth, only 45% regularly supervised their child's brushing. Similarly, research in Uttar Pradesh (Patel et al., 2024) showed that while 80% of mothers knew about the significance of fluoride, just 30% implemented fluoride toothpaste use consistently. These findings emphasize the need for targeted educational interventions to improve the translation of knowledge into practice, ultimately enhancing children's oral health outcomes.

PUROSES

A Study to Assess the Knowledge Regarding Oral Hygiene among the Mothers of Under-Five Children at Moradabad" is to investigate and evaluate the level of awareness and understanding that mothers in Moradabad have about oral hygiene practices for their children under five years of age. This study aims to identify knowledge gaps, which can inform the development of targeted educational interventions to improve oral health outcomes in this population.

PROBLEM STATEMENT

A Study to Assess the Knowledge Regarding Oral Hygiene among the Mothers of Under Five Children

OBJECTIVES

1. To assess the knowledge regarding oral hygiene among mothers of under five years of children
2. To find out the association between level of knowledge among mothers of under five children with their selected demographic variables.

VARIABLES

1. Dependent variables

In this study Knowledge of the mothers of under five children is dependent variable..

2. Demographic variables

The demographic variables that has been chosen includes the following: Age, Education of mother of under five, education of father of under five, occupation of father of under five, occupation of mother of under five ,monthly family income, religion, dietary pattern

1. Dependent variables

In this study Knowledge of the mothers of under five children is dependent variable..

2. Demographic variables

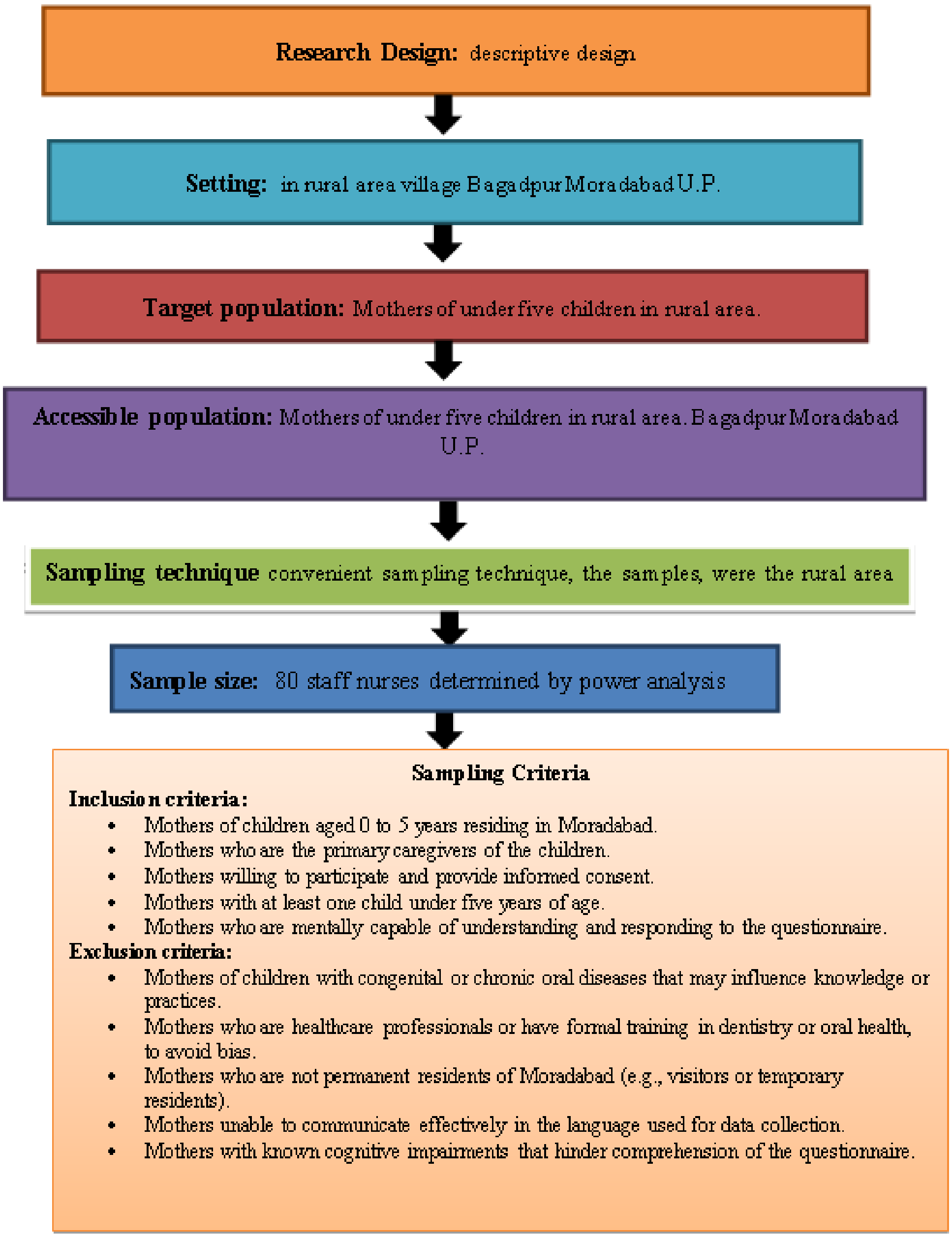
The demographic variables that has been chosen includes the following: Age, Education of mother of under five, education of father of under five, occupation of father of under five, occupation of mother of under five ,monthly family income, religion, dietary patterns and free of disease.

Under Five children; Children who are younger than the age of five years

ASSUMPTIONS

1. It's possible that mothers have some knowledge about Oral Hygiene.
2. It's possible that mothers don't have knowledge about Oral Hygiene.
3. Increased awareness about the oral hygiene among mothers

Figure : - 1 Diagrammatic representative of research design



SECTION A

It dealt with demographic data which consisted of 8 items to collect the sample characteristics, which comprised age of staff nurses, gender, and professional qualification in nursing, monthly income, area of work, total experience, any previous exposure, and source of information.

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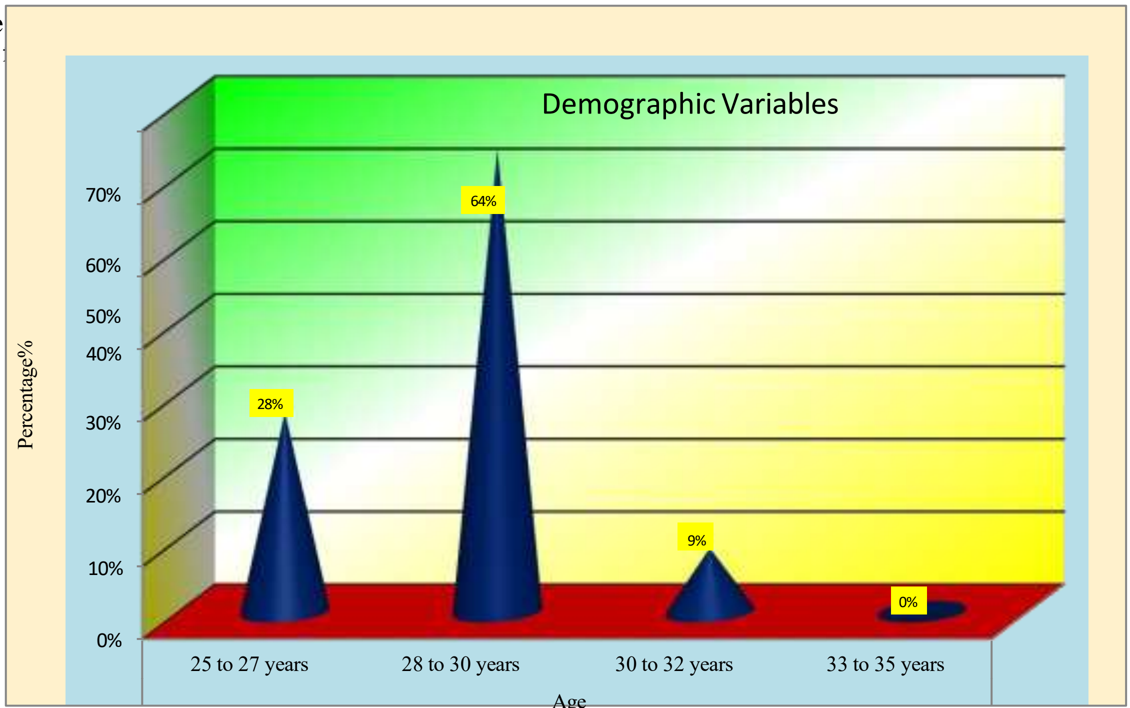

Figure No. 2.1: Conical Shaped diagram showing the percentage distribution according to their Age.

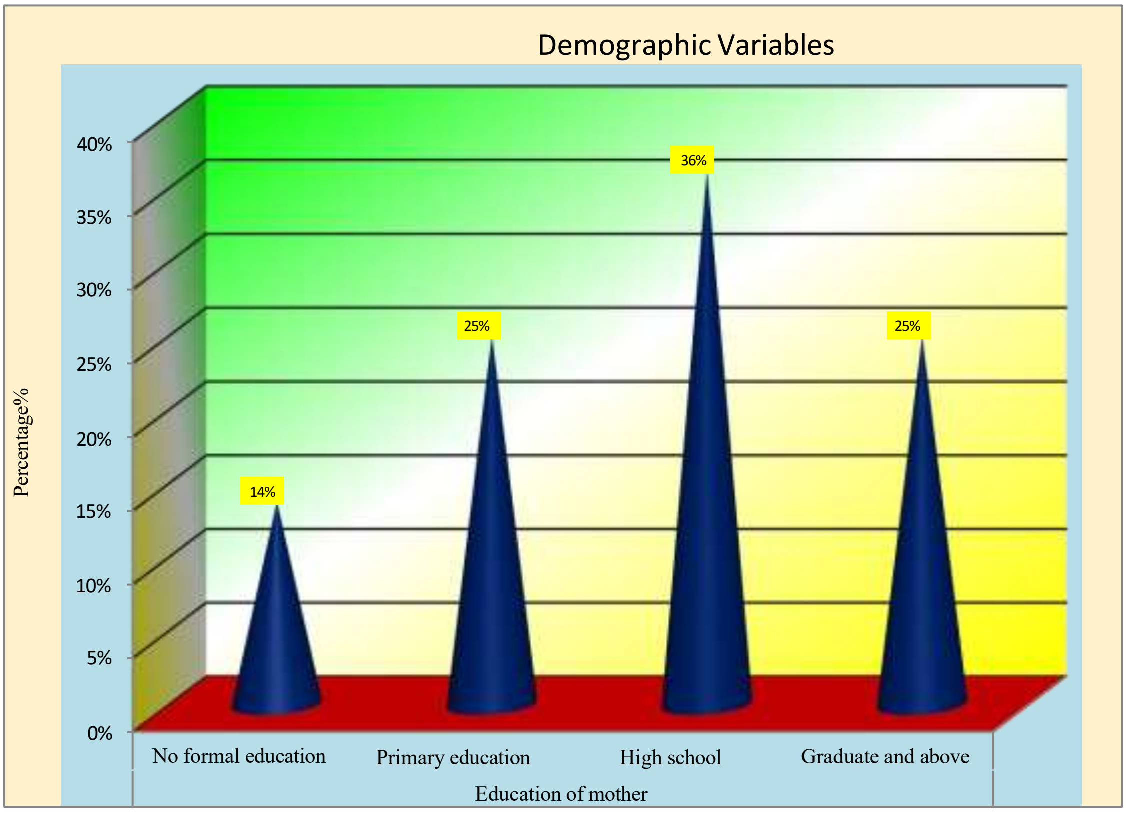

Figure 2.2: Conical Shaped diagram showing the percentage distribution according to their Education of mother.

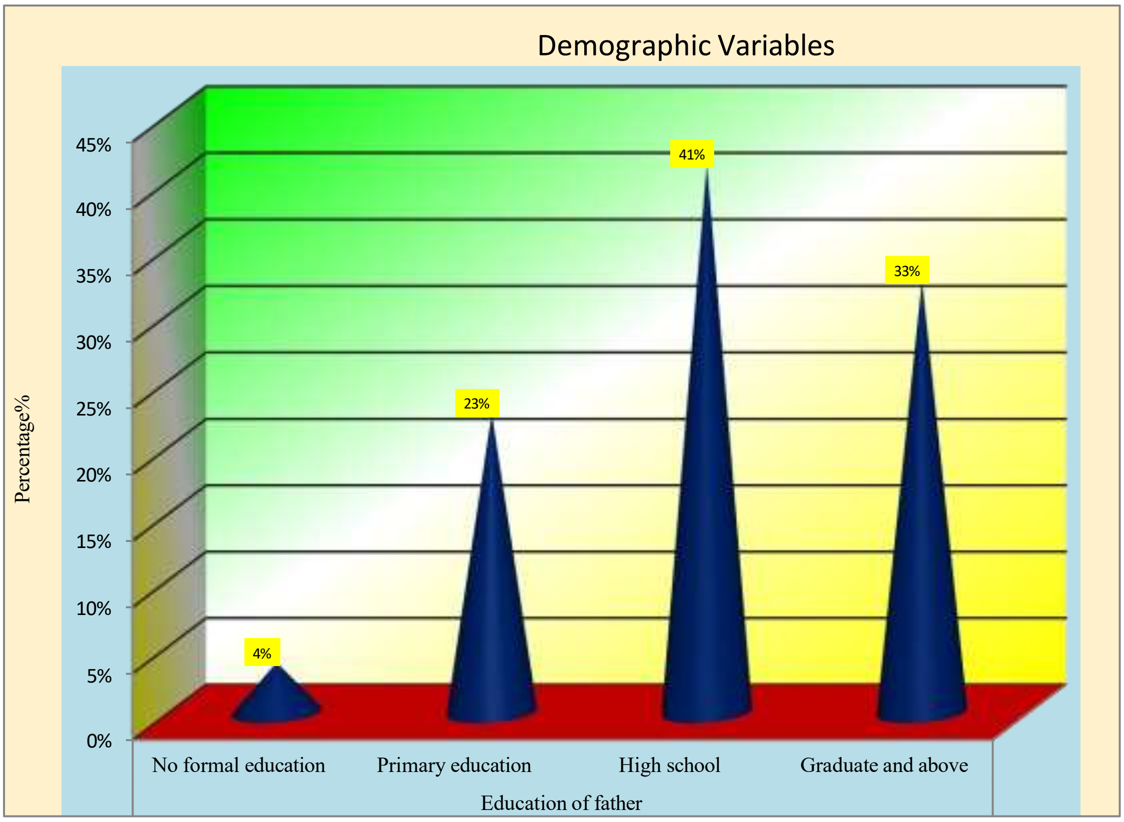

Figure 2.3 : Conical Shaped diagram showing the percentage distribution according to their Education of father.

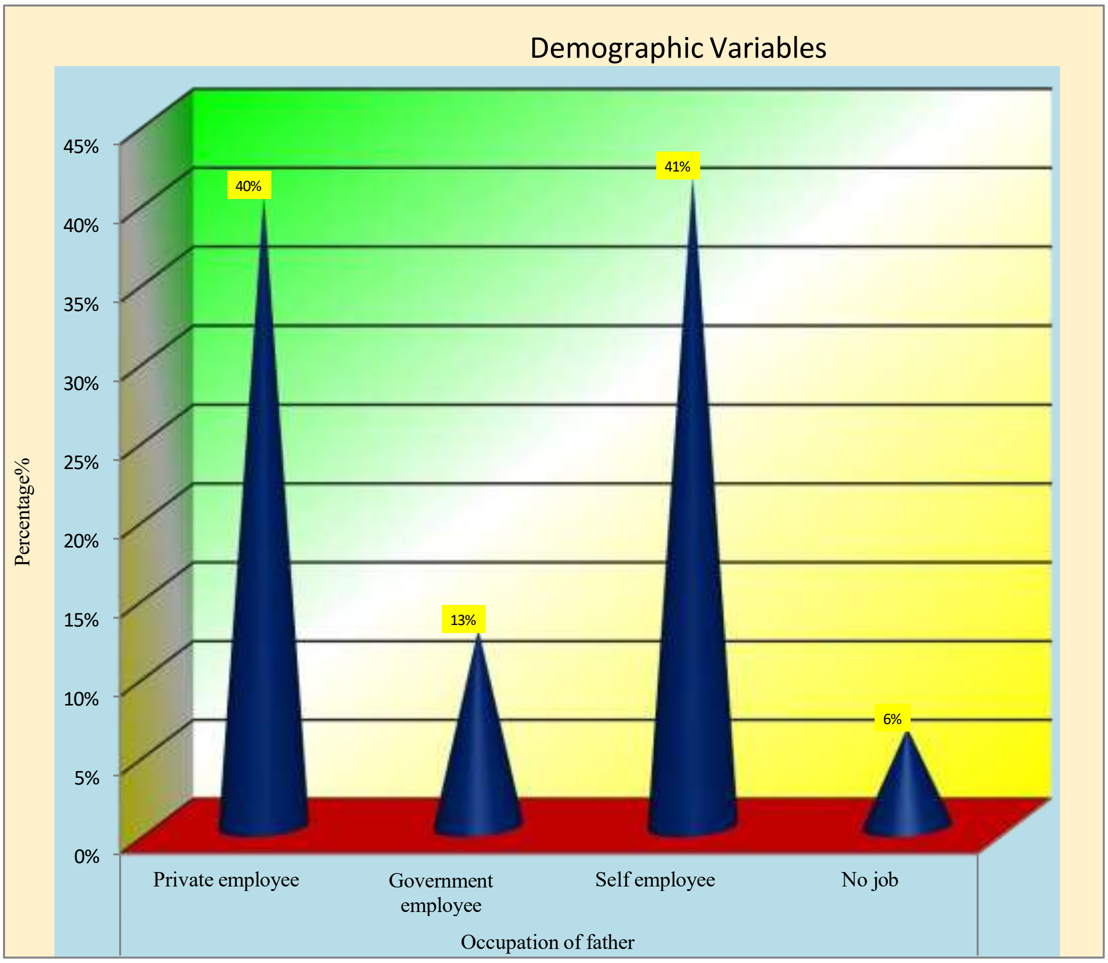

Figure No. 2.4: Conical Shaped diagram showing the percentage distribution according to their Occupation of father.

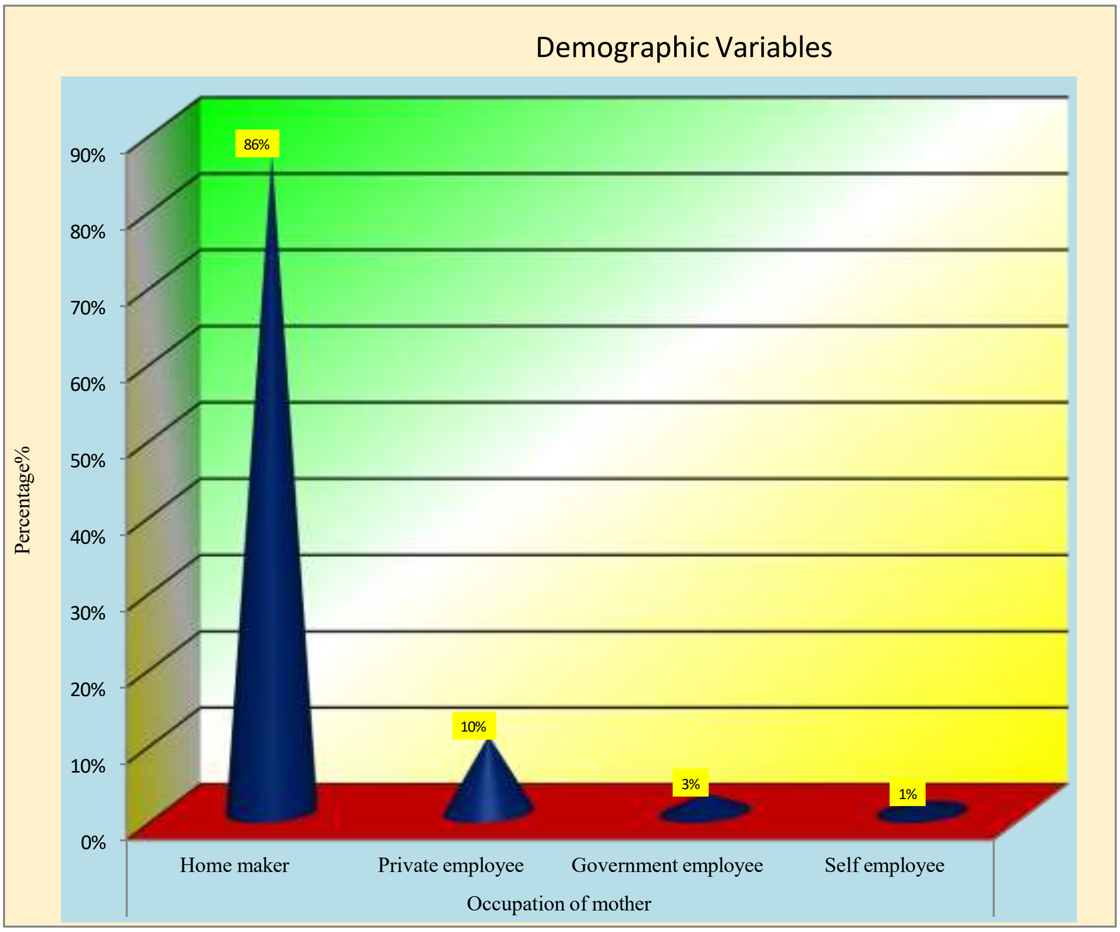

Figure No. 2.5: Conical Shaped diagram showing the percentage distribution according to their Occupation of mother.

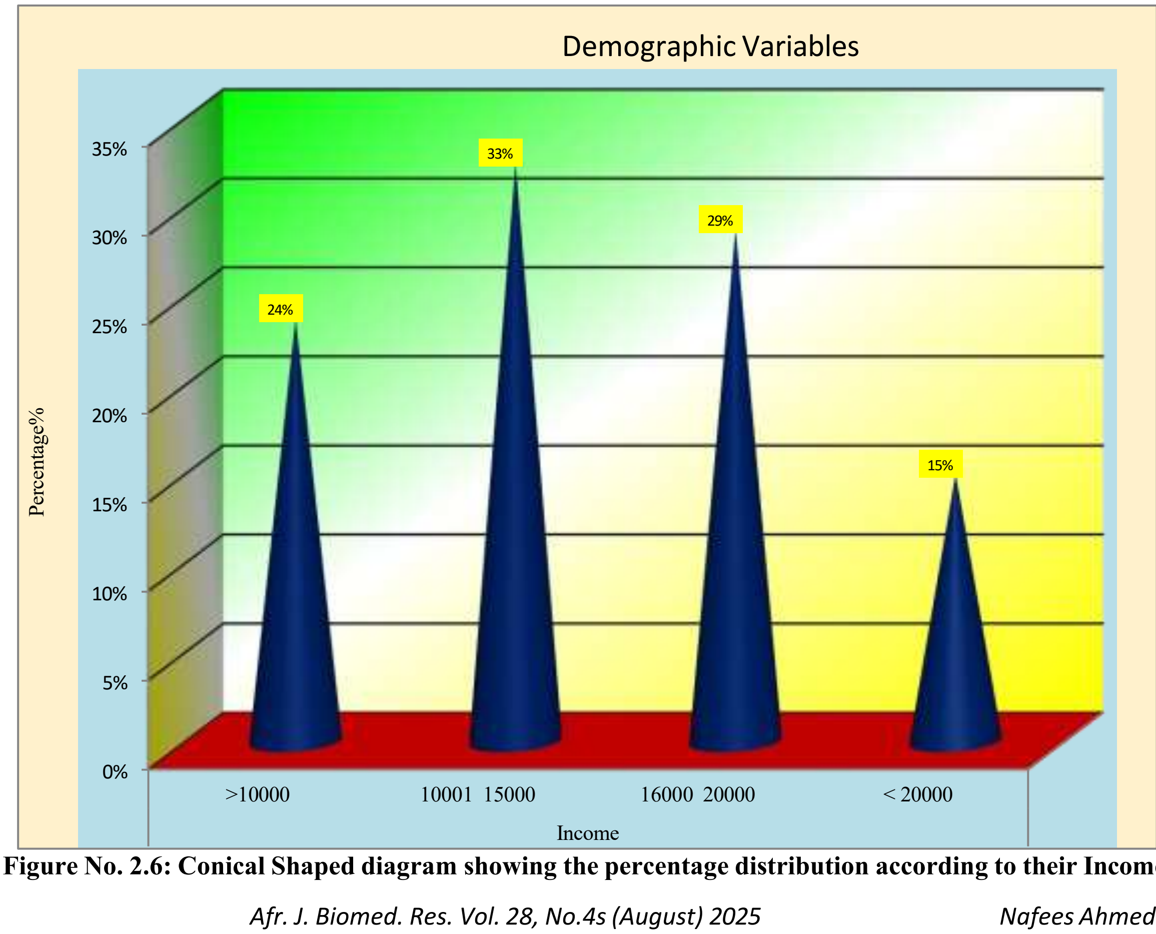

Figure No. 2.6: Conical Shaped diagram showing the percentage distribution according to their Income.

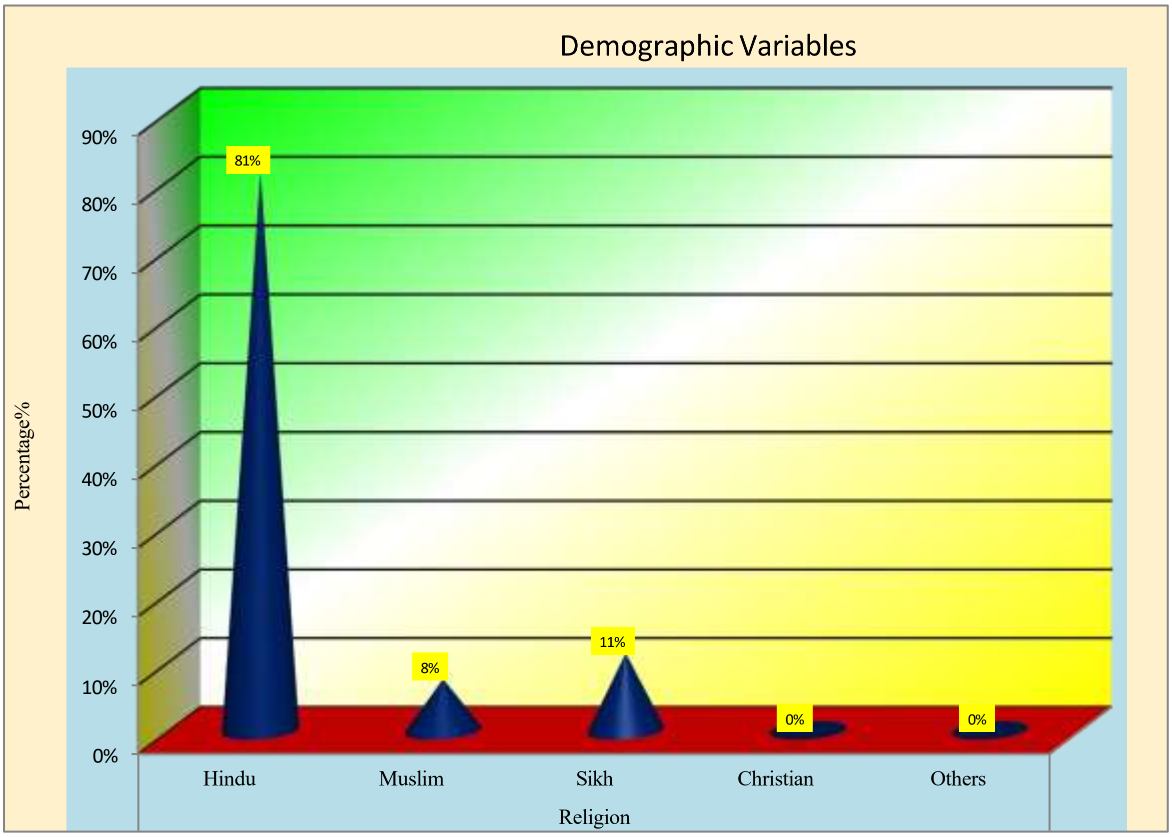

Figure No. 2.7: Conical Shaped diagram showing the percentage distribution according to their Religion.

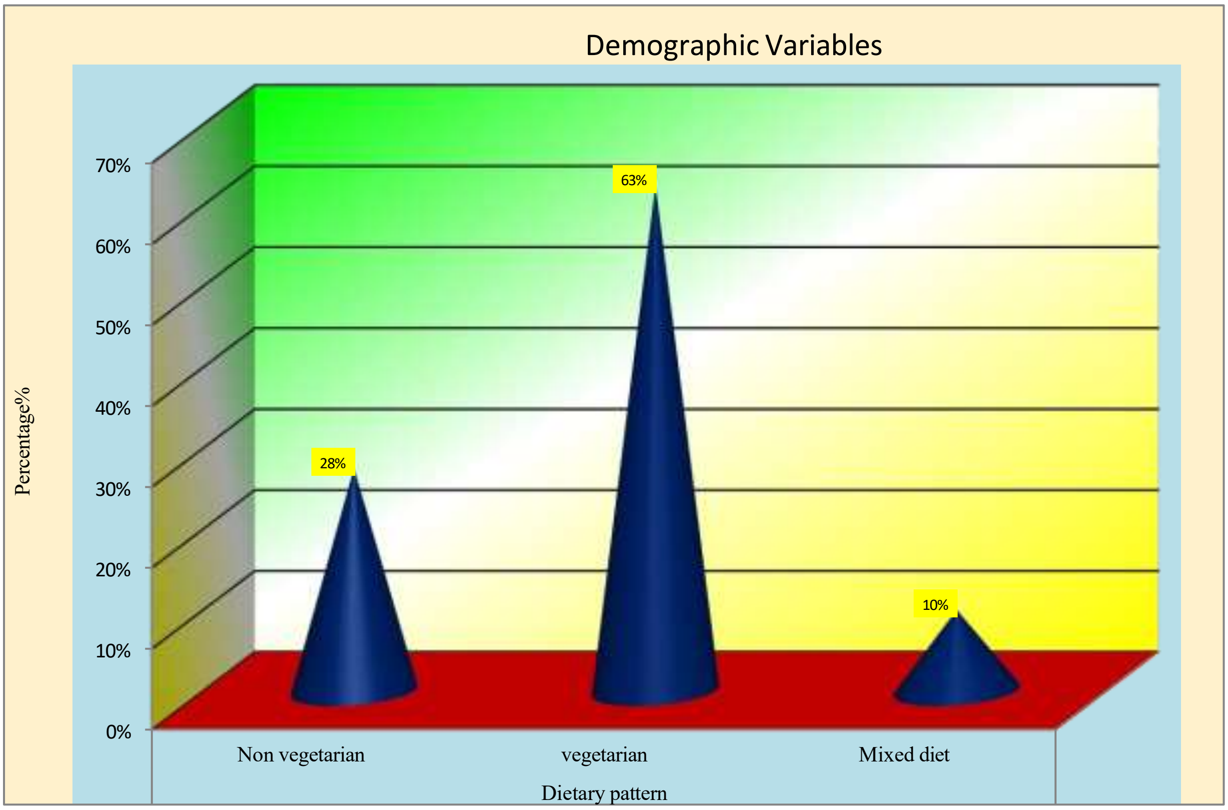

Figure No. 2.8: Conical Shaped diagram showing the percentage distribution according to their Dietary pattern.

Interpretation Frequency and Dispersion of Demographic characteristics of Under five mothers

1. **Age:** The majority of participants (64%) are aged 28-30 years, followed by 25-27 years (28%). Very few (9%) are aged 30-32 years, and none are in the 33-35 years group.
2. **Education of Mother:** Most mothers have a high school education (36%), while 25% each have primary or graduate-level education. Only 14% have no formal education.
3. **Education of Father:** High school education is the

most common (41%), followed by graduate education (33%). Only 4% of fathers have no formal education.
4. **Occupation of Father:** Most fathers are self-employed (41%) or private employees (40%). Only 6% are unemployed.
5. **Occupation of Mother:** The vast majority (86%) are homemakers, with only 10% in private employment and 3% in government jobs.
6. **Income:** The majority of families earn between ₹10,001 and ₹15,000 (33%), followed by ₹16,000 to ₹20,000 (29%). Only 15% earn less than ₹20,000.
7. **Religion:** Hindus form the largest group (81%), with 11% Sikhs and 8% Muslims.
8. **Dietary Pattern:** Most participants are vegetarians (63%), while 28% are non-vegetarians and 10% follow a mixed diet.

SECTION – B

4.1 Main analysis and interpretation of data

Table no 1: Frequency & Percentage distribution level of knowledge.

CRITERIA MEASURE OF KNOWLEDGE SCORE		
LEVEL OF SCORES N= 80	**PERCENTAGE**	**FREQUENCY**
ADEQUATE KNOWLEDGE. (21-25)	0.0%	0
MODERATE KNOWLEDGE. (15-20)	66.3%	53
INADEQUATE KNOWLEDGE. (0-14)	33.8%	27

Maximum =25 Minimum=0

Adequate Knowledge (21-25): 0% (0 participants) – No participants achieved adequate knowledge levels. **Moderate Knowledge (15-20):** 66.3% (53 participants) – The majority of participants fall under the moderate knowledge category. **Inadequate Knowledge (0-14):** 33.8% (27 participants) – A significant portion of participants exhibit inadequate knowledge.

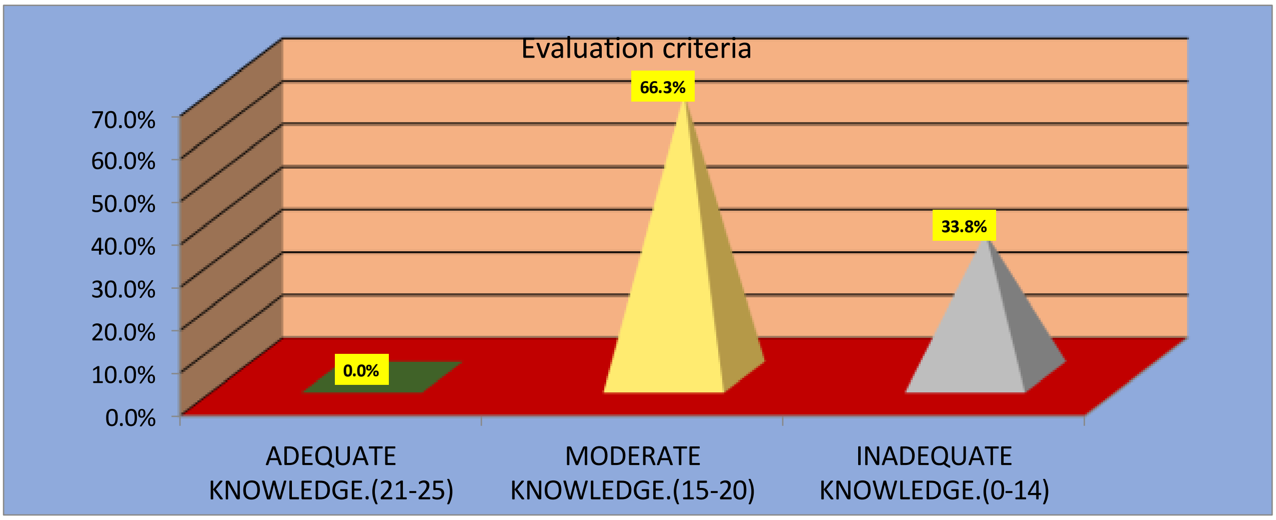

Figure no. 3: Pyramidal diagram showing the percentage distribution level of knowledge

Table No 2: Descriptive statistics of knowledge

					N=	**80**	
DESCRIPTIVE STATISTICS	**Mean**	**Median**	**S.D.**	**Maximum**	**Minimum**	**Range**	**Mean %**
KNOWLEDGE SCORE	15.18	15	1.70	19	11	8	60.72

Minimum= 0
Maximum =25

Knowledge Score: The mean score is 15.18 with a median of 15, indicating a relatively balanced distribution. The standard deviation is 1.70, showing moderate variability. Scores range from 11 to 19, with a range of 8. The mean percentage is 60.72%, suggesting that overall knowledge levels are moderate. The dataset specifies a broader potential range from 0 to 25, but actual observed scores fall within 11 to 19.

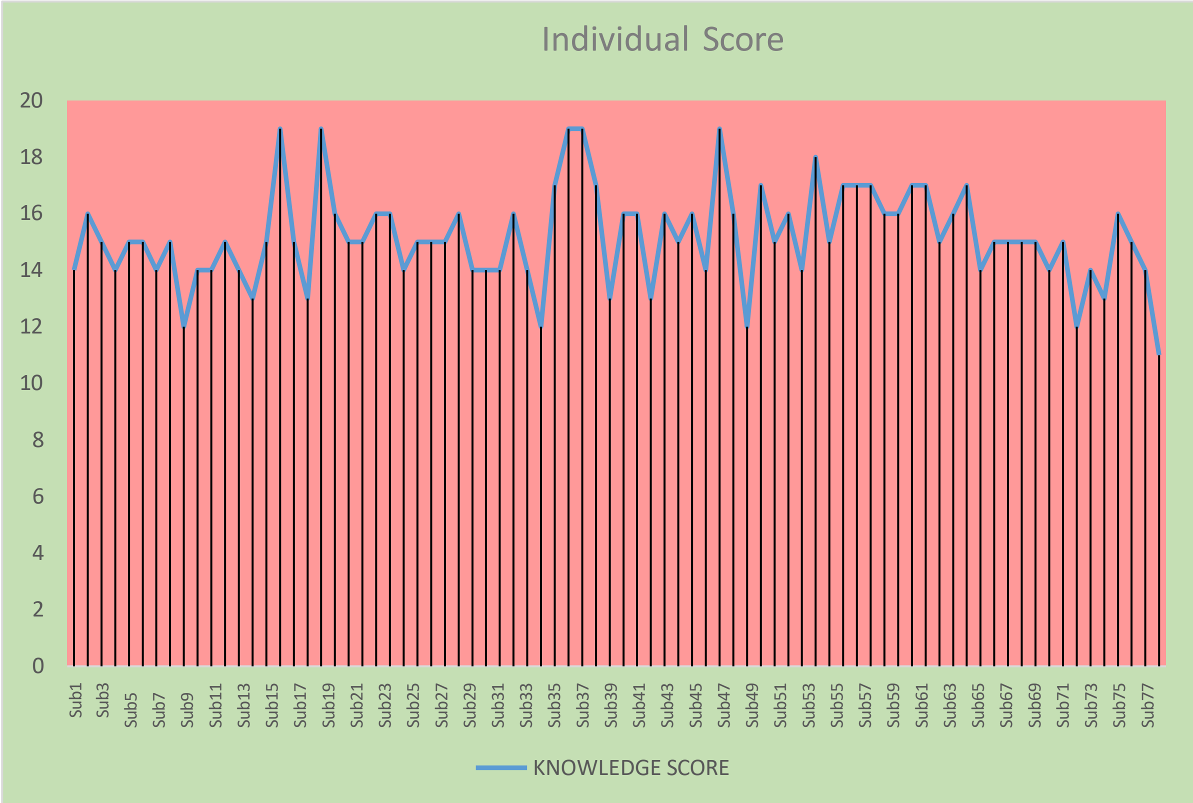

Figure No 4: Line diagram showing Individual Scores

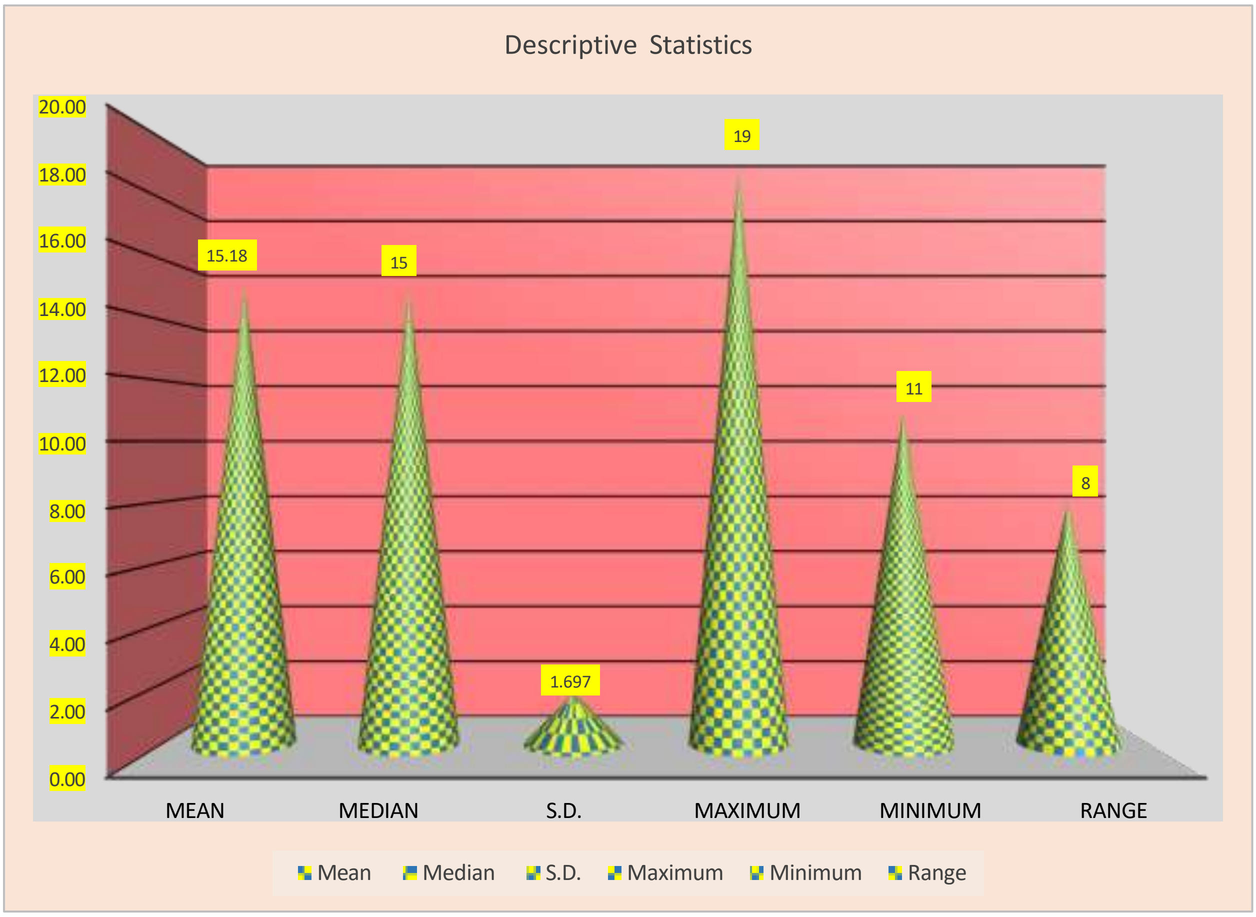

Figure no. 5: Conical Shaped diagram representing descriptive statistics level of knowledge

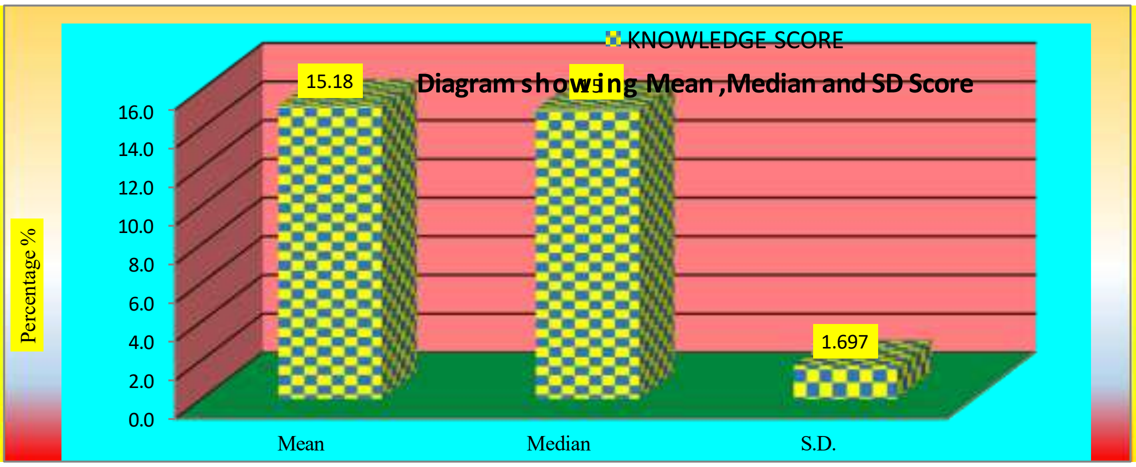

Figure no. 6: Bar diagram representing Mean, Median& SD of knowledge Scores

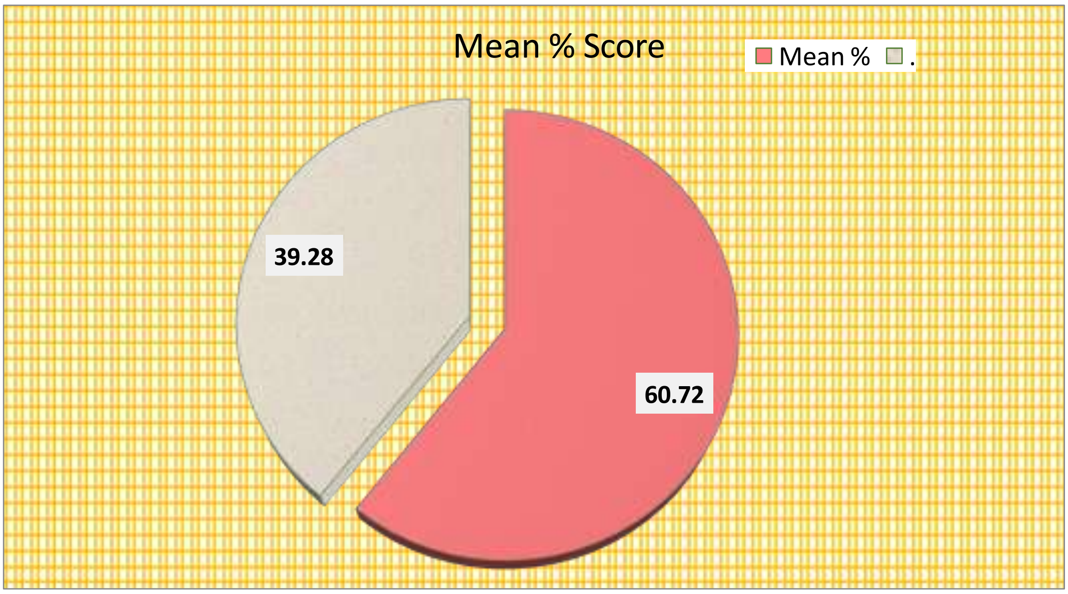

Figure No 7: Diagram Showing Mean Percentage Scores

Table No 3: Table Showing Association of Scores and Demographic Variables

DEMOGRAPHIC DATA		LEVELS OF KNOWLEDGE (N=80)			ASSOCIATION WITH KNOWLEDGE SCORE				
Variables	**Opts**	Adequate Knowledge	Moderate Knowledge	Inadequate Knowledge	**Chi Test**	**P Value**	**df**	**Table Value**	**Result**
Age	25 to 27 years	0	15	7	0.175	0.916	2	5.991	Not Significant
	28 to 30 years	0	33	18					
	30 to 32 years	0	5	2					
	33 to 35 years	0	0	0					
Education of mother	No formal education	0	7	4	0.180	0.981	3	7.815	Not Significant
	Primary education	0	13	7					
	High school	0	19	10					
	Graduate and above	0	14	6					
Education of father	No formal education	0	0	3	8.654	0.034	3	7.815	Significant
	Primary education	0	11	7					
	High school	0	21	12					
	Graduate and above	0	21	5					
Occupation of father	Private employee	0	20	12	2.763	0.430	3	7.815	Not Significant
	Government employee	0	8	2					
	Self employee	0	23	10					
	No job	0	2	3					
Occupation of	Home maker	0	50	19	11.715	0.008	3	7.815	Significant

mother	Private employee	0	2	6					
	Government employee	0	0	2					
	Self employee	0	1	0					
Income	>10000	0	13	6	2.162	0.539	3	7.815	Not Significant
	10001 15000	0	16	10					
	16000 20000	0	14	9					
	< 20000	0	10	2					
Religion	Hindu	0	46	19	9.179	0.010	2	5.991	Significant
	Muslim	0	5	1					
	Sikh	0	2	7					
	Christian	0	0	0					
	Others	0	0	0					
Dietary pattern	Non vegetarian	0	15	7	0.424	0.809	2	5.991	Not Significant
	vegetarian	0	32	18					
	Mixed diet	0	6	2					

1. **Age:** There is no significant association between age and levels of knowledge (p = 0.916). Most participants exhibit moderate knowledge, with no group showing adequate knowledge.
2. **Education of Mother:** No significant association is observed (p = 0.981). Mothers with high school education have slightly higher moderate knowledge levels.
3. **Education of Father:** A significant association is found (p = 0.034). Fathers with a graduate education have the highest moderate knowledge scores, while those with no formal education show inadequate knowledge.
4. **Occupation of Father:** No significant association (p = 0.430). Self-employed fathers show slightly higher moderate knowledge levels.
5. **Occupation of Mother:** A significant association is observed (p = 0.008). Homemakers demonstrate the highest moderate knowledge scores, while private employees show more inadequate knowledge.
6. **Income:** No significant association (p = 0.539). Those earning less than ₹20,000 show slightly higher moderate knowledge scores.
7. **Religion:** Significant association (p = 0.010). Hindus exhibit the highest moderate knowledge levels, while Sikhs show more inadequate knowledge.
8. **Dietary Pattern:** No significant association (p = 0.809). Mixed diet group shows slightly higher moderate knowledge levels.

Table No 4: Representing Item-Wise Analysis level of knowledge Scores.

Area	**Question**	**Correct (%)**	**Incorrect (%)**	**Correct (f)**	**Incorrect (f)**
PART - B –KNOWLEDGE	Qno.1	75.0%	25.0%	60	20
	Qno.2	72.5%	27.5%	58	22
	Qno.3	50.0%	50.0%	40	40
	Qno.4	61.3%	38.8%	49	31
	Qno.5	66.3%	33.8%	53	27
	Qno.6	60.0%	40.0%	48	32
	Qno.7	61.3%	38.8%	49	31
	Qno.8	60.0%	40.0%	48	32
	Qno.9	47.5%	52.5%	38	42
	Qno.10	65.0%	35.0%	52	28
	Qno.11	71.3%	28.8%	57	23
	Qno.12	60.0%	40.0%	48	32
	Qno.13	63.8%	36.3%	51	29
	Qno.14	58.8%	41.3%	47	33
	Qno.15	50.0%	50.0%	40	40

	Qno.16	68.8%	31.3%	55	25
	Qno.17	55.0%	45.0%	44	36
	Qno.18	57.5%	42.5%	46	34
	Qno.19	55.0%	45.0%	44	36
	Qno.20	48.8%	51.3%	39	41
	Qno.21	45.0%	53.8%	36	43
	Qno.22	73.8%	26.3%	59	21
	Qno.23	62.5%	37.5%	50	30
	Qno.24	60.0%	40.0%	48	32
	Qno.25	68.8%	31.3%	55	25

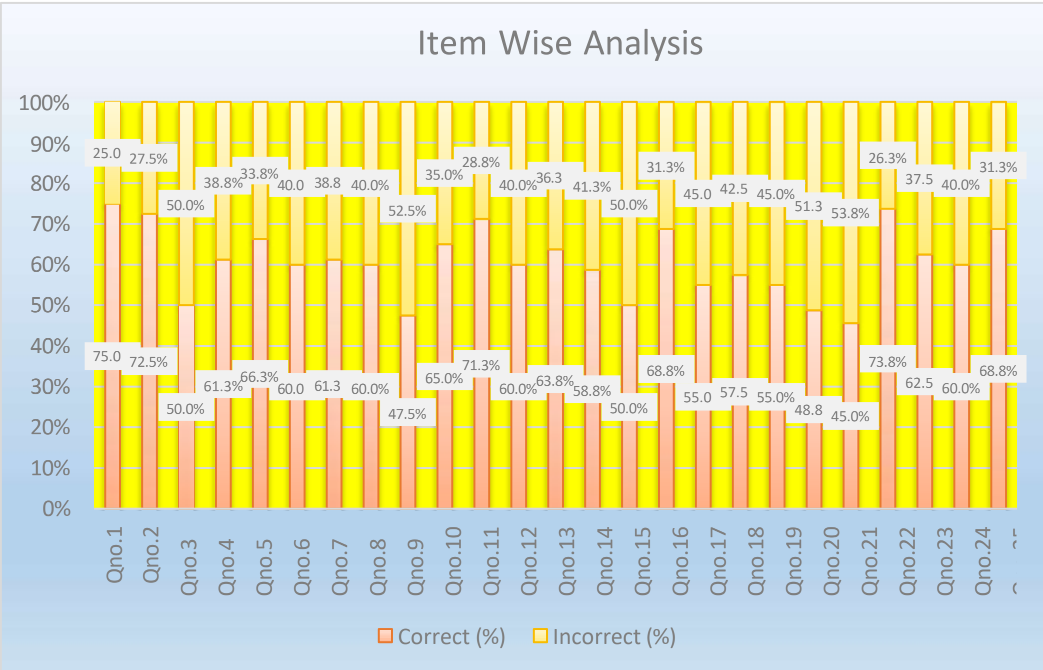

Figure no.16: Bar diagram representing Item wise analysis of level of knowledge

Table No 6: Table Showing Descriptive Stats of Demographic Variables.

Variables	Opts	Mean%	Mean	SD	N
Age	**25 to 27 years**	61.27	15.3	1.91	22
	28 to 30 years	60.08	15.0	1.53	51
	30 to 32 years	63.43	15.9	2.19	7
	33 to 35 years	0.00	0	0	0
Education of mother	**No formal education**	57.82	14.5	1.13	11
	Primary education	58.80	14.7	1.63	20
	High school	61.24	15.3	1.54	29
	Graduate and above	63.40	15.9	2.03	20
Education of father	**No formal education**	56.00	14.0	0.00	3
	Primary education	59.33	14.8	1.47	18
	High school	59.52	14.9	1.58	33
	Graduate and above	63.69	15.9	1.87	26
Occupation of father	**Private employee**	61.00	15.3	2.03	32
	Government employee	62.00	15.5	1.51	10
	Self employee	60.61	15.2	1.48	33
	No job	56.80	14.2	0.84	5
Occupation of mother	**Home maker**	61.39	15.3	1.70	69
	Private employee	55.50	13.9	1.25	8

	Government employee	56.00	14.0	0.00	2
	Self employee	64.00	16.0		1
Income	**>10000**	59.79	14.9	1.47	19
	10001 15000	61.08	15.3	1.71	26
	16000 20000	59.13	14.8	1.65	23
	< 20000	64.33	16.1	1.93	12
Religion	**Hindu**	61.23	15.3	1.78	65
	Muslim	60.67	15.2	1.72	6
	Sikh	56.89	14.2	0.44	9
	Christian	0.00	0	0	0
	Others	0.00	0	0	0
Dietary pattern	**Non vegetarian**	60.73	15.2	1.97	22
	vegetarian	60.48	15.1	1.66	50
	Mixed diet	62.00	15.5	1.20	8

1. **Age:** The highest mean percentage (63.43%) is observed among the 30-32 years age group, while the lowest (0%) is seen in the 33-35 years group. The average across all age groups is 46.20%.
2. **Education of Mother:** Mothers with a graduate education or above show the highest mean percentage (63.40%), while those with no formal education have the lowest (57.82%). The overall average is 60.32%.
3. **Education of Father:** Fathers with a graduate education or above exhibit the highest mean percentage (63.69%), whereas those with no formal education have the lowest (56.00%). The average is 59.64%.
4. **Occupation of Father:** Government employees have the highest mean percentage (62.00%), and those without a job have the lowest (56.80%). The average is 60.10%.
5. **Occupation of Mother:** Self-employed mothers have the highest mean percentage (64.00%), while private employees have the lowest (55.50%). The average is 59.22%.
6. **Income:** The income group earning less than ₹20,000 has the highest mean percentage (64.33%), whereas those earning above ₹10,000 have the lowest (59.13%). The overall average is 61.08%.
7. **Religion:** Hindus have the highest mean percentage (61.23%), and Sikhs have the lowest (56.89%). The overall average is 35.76%.
8. **Dietary Pattern:** Those following a mixed diet have the highest mean percentage (62.00%), while vegetarians have the lowest (60.48%). The average is 61.07%.

Result with major and main finding

The study's demographic data reveal that most participants are aged 28-30 years, predominantly Hindu, with a majority being vegetarians and primarily homemakers. Educational levels vary, with most mothers having high school education and fathers holding graduate degrees; a significant association exists between fathers' education and oral health knowledge. Income levels mostly range between ₹10,001 and ₹15,000. Knowledge assessment shows that none of the participants have adequate knowledge, with the majority (66.3%) falling into the moderate knowledge category and 33.8% exhibiting inadequate knowledge; the overall mean score indicates moderate awareness (60.72%). No significant associations were found between age, occupation, income, or dietary

Pattern and knowledge levels, although factors like fathers' education, mothers' occupation, and religion significantly influence knowledge. These findings suggest a need for targeted oral health education, especially among groups with lower knowledge scores.

5.4 Nursing Implications

Nursing Practice

- Nurses should educate mothers on proper oral hygiene practices for children under five through regular community and clinic-based education sessions.
- Emphasize personalized counseling and interactive sessions.

Nursing Education

- Integrate oral hygiene education modules into nursing curricula.
- Train nursing students to deliver effective oral health education to diverse community groups.

Nursing Administration

- Formulate policies that include mandatory oral hygiene educational programs.
- Provide necessary resources and training opportunities to nursing personnel.

Nursing Research

- Conduct further research exploring longitudinal impacts of educational interventions on oral hygiene practices.
- Investigate culturally specific barriers and facilitators to improving oral health knowledge.

Recommendations

1. Implement targeted oral health educational programs for mothers, especially focusing on groups identified with lower knowledge.
2. Include fathers and other caregivers in oral hygiene education programs to foster a supportive home environment.
3. Leverage community-based interventions using local languages and culturally relevant materials.
4. Develop visual aids and simple guidelines to assist mothers with limited formal education.

5. Regularly evaluate and update educational programs based on continuous research findings.

Limitations

- Study restricted to a small sample size and limited geographic location, impacting generalizability.
- Self-reported data potentially introduced bias.
- Cross-sectional design limits the determination of causality.

Scope for Future Research

- Future studies should include larger, diverse samples across different geographic regions.
- Longitudinal research to evaluate long-term effectiveness of oral hygiene education.
- Comparative studies to assess various educational intervention strategies.
- Qualitative studies to explore in-depth factors influencing mothers' oral hygiene practices.

Summary

This provided a comprehensive summary of the study, including detailed interpretations of demographic profiles, knowledge level analysis, descriptive statistics, and associations with demographic variables. Significant findings were highlighted, particularly the moderate knowledge levels among mothers and the significant associations found with father's education, mother's occupation, and religion. Recommendations were provided for nursing practice, education, administration, and research to enhance oral hygiene knowledge and practices among mothers, ultimately improving oral health outcomes for children under five.

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