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A STUDY TO FIND THE ASSOCIATION OF POST-TEST KNOWLEDGE AND PRACTICE SCORE WITH SELECTED SOCIODEMOGRAPHIC VARIABLES REGARDING WEANING AMONG MOTHERS IN A SELECTED COMMUNITY AREA OF KARNATAKA

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ABSTRACT

Breast milk is considered the most ideal and naturally available source of nutrition for infants. It is readily accessible at all times, served at an optimal temperature, and provides essential nutrients that support the infant's immunity, strength, and overall physical and cognitive development. Moreover, it is free from contamination and is easily digestible, making it the safest and most effective food for neonates. Exclusive breastfeeding for the first six months of life is strongly recommended by health professionals and global health organizations. During this period, no additional food or liquids, including water, should be introduced unless medically indicated. In situations where breast milk is insufficient, age-appropriate formula milk may be given as an alternative, but only under pediatric guidance and in the correct proportions. This study was designed to evaluate maternal knowledge and practices related to breastfeeding. A one-group pre-test and post-test research design was employed to assess the effectiveness of an educational intervention. The study was carried out in a selected community setting, with a target population of mothers who either had infants or were in the late stages of pregnancy. A total of 100 mothers were selected through a convenient sampling technique based on their availability and willingness to participate. Data collection was conducted using structured questionnaires covering topics such as the benefits of exclusive breastfeeding, the correct preparation of formula milk, and pediatric consultation guidelines. Post-intervention findings showed a significant increase in awareness and understanding among mothers regarding proper infant feeding practices. The results emphasize the critical role of community health education in promoting breastfeeding and informed infant nutrition choices, ultimately contributing to the improved health and development of children in the early stages of life. Age, occupation, number of children, education level, income, family type, and prior knowledge significantly influenced post-test weaning practices, with better outcomes observed among educated, working mothers with higher income and prior awareness. These factors enhanced understanding and implementation of weaning practices after the educational intervention.

Keywords: *Exclusive breastfeeding, formula milk, maternal education, infant nutrition, neonatal development, paediatric guidance, community health.*

INTRODUCTION

Breast milk is readily available at all times when required for the child at a suitable temperature. It gives strength to the child, is free from contamination, is easily digestible, and helps in the growth and overall development of neonates. Breast milk should be given exclusively for 6 months without any additional food, if not sufficient for the child, then formula milk which is available in the pharmacy can be given according to the age of the child with correct proportion and with pediatric advice. (Kasthuri SR 2003) Weaning is essential during transitional phase of child life as it is important for their growth and development.(Dorothy R 2007) Weaning is derived from the AngloSaxon word which means, "To being accustomed to something different". WHO and UNICEF have recommended weaning after 6 months of exclusive breast feeding and the reason behind this is as by 6-8 months teeth eruption begin, digestive system become mature enough to digest starch, protein, fat in nonmilk diet and they are able to hold food in their mouth. (Sharma Rimple 2013) In the first year of life, infants undergo periods of rapid growth when good nutrition is crucial. In fact, nutrition in the early years of life is a major determinant of healthy growth and development throughout childhood and of good health in adulthood. Weaning refers to a systematic process of introduction of suitable foods at the age of 4-5 months addition to mother's milk in order to provide needed nutrients to the infants. Weaning could be a traumatic experience for the infants because they have to give up the oral gratification derived from sucking. Weaning should be started at a suitable time. It's easier to get babies accustomed to new foods earlier than when they grow older. However, weaning should

definitely start around 3-4 months. In 1968, Lee Forrest Hill observed that "formula feeding has become so simple, safe, and uniformly successful that breastfeeding no longer seems worth the bother." His comments were intended for physicians and the American middle class, but his words have been overtaken by events. Mothers in poor countries have bottle-fed increasingly, with disastrous results. (Jelliffe DB, Jelliffe EFP,1978) Mothers in industrial nations have breast fed increasingly, permitting clinicians among the well-to-do to rediscover the advantages. (Cunningham AS 1977) Much new research has permitted scientists to discover previously unappreciated benefits of breast-feeding. For example, immunologists and cell biologists have found an increasing range of protective factors in human milk. (Hanson LA et al 1972) When the last decade began, the medical benefits of breast-feeding in the United States and other industrial nations were considered to result mainly from the absence of bacterial contamination and from limited immunologic protection against microbial agents in the gastrointestinal tract. In 1981 the U.S. government commissioned a task force to review the scientific evidence relating infant feeding practices to infant health. Breastfeeding is the best way of providing ideal food for healthy growth and development of infants, and its advantages range from physiological to psychological for both mother and infants.[Batal M et al 2005]

REVIEW OF LITERATURE

Aggarwal, A., Verma, S., Faridi, M.M.A. *et al 2008 conducted a study on* Complementary feeding —Reasons for inappropriateness in timing, quantity, and consistency. Results: Among the 200 children studied, 32(16%) were not started on CF at all, and only 35 (17.5%) received CF from 6 months. Of the 168 who were started CF, the mean age of starting feeds was 13.37 months. Quantity was adequate in 42(25%) and food consistency was thick in 64(38%) cases. Only 7(3.5%) mothers started CF at the proper time, in adequate quantity, and with proper consistency. Knowledge of proper timing was present in 46% of children, adequate quantity in 46.5%, and thick consistency in 25.5%. Only 16(8%) mothers had proper knowledge of all three aspects of CF. Knowledge regarding appropriate timing and consistency varied significantly with maternal education and paternal education (Chisquare P<0.05). On multiple logistic regression only maternal education of graduate level correlated with knowledge of the timing of CF (P=0.089. OR- 3.5, Cl 0.826–15.2). A most common reason for inappropriate practice in 154 mothers who delayed feeds was “tried but did not eat, vomits everything” (52%).

Simondon KB, Simondon F, 1997 conducted a study on Age at introduction of complementary food and physical growth from 2 to 9 months in rural Senegal. Results: Infants complemented at 2-3 months (n = 50) had significantly lower length-for- age (P = 0.014), weight-for-length (P < 0.001) and arm circumference (P < 0.0001) at 2-3 months than predominantly breastfed infants (n = 370), after adjustment for residence, mother's age and education of parents. The growth in weight and length from 2-3 to 9-10 months did not differ. The infants complemented by 4-5 months, but not yet at 2-3 months, (n = 94) had a slightly lower length increment from 4-5 to 6-7 months (1.42 vs 1.53 cm/mo, p < 0.05) compared to infants predominantly breastfed at 4-5 months (n = 276). The infants first complemented by 6-7 months (n = 122) had increments from 6-7 to 9-10 months similar to those of predominantly breastfed infants (n = 154).

Gibson RS, Ferguson EL, and Lehrfeld J, 1998 conducted a study on Complementary foods for infant feeding in developing countries: their nutrient adequacy and improvement. Results: Complementary foods should provide approximately 25-50% of total daily requirements for protein, riboflavin, and copper; 50-75% for thiamin, calcium, and manganese; and 75-100% for phosphorus, zinc, and iron. Most of all appear to meet the estimated daily nutrient needs (per day; per 100 kcal) from complementary foods for protein, thiamin and copper (per day), but not for calcium, iron, and in some cases zinc, even if moderate bioavailability for iron and zinc is assumed. Some of those based on rice are also inadequate in riboflavin (per day; per 100 kcal).

RESEARCH METHODOLOGY

The research design adopted for this study was a one-group pre- and post-test. The study was conducted in a selected community area. In the survey, the accessible population consists of mothers. The sample size was 100. The sampling technique adopted in the present study was a convenient sampling technique.

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DATA ANALYSIS AND INTERPRETATION

Chi-square Association Table (Post-Test Knowledge vs. Sociodemographic Variables)

Sociodemographic Variable	(χ^2)	df	Critical χ^2 ($\alpha = 0.05$)	p-value	Result
Age	6.19	2	5.991	0.045	**Significant**
Education Level	3.44	2	5.991	0.179	**Not Significant**
Occupation	8.51	2	5.991	0.014	**Significant**
Monthly Income (INR)	4.83	2	5.991	0.089	**Not Significant**
Type of Family	2.77	1	3.841	0.096	**Not Significant**
Number of Children	7.23	2	5.991	0.026	**Significant**
Previous Knowledge on Weaning	9.12	1	3.841	0.003	**Significant**
Source of Information	5.38	2	5.991	0.068	**Not Significant**

Analysis of Results

- **Age**: Statistically significant (p = 0.045). Indicates that knowledge varies across different age groups of mothers. Likely, younger or more aware age groups had better post-test scores.
- **Education Level**: Not significant (p = 0.179). Suggests that, surprisingly, education level did not strongly influence knowledge gains in this study—possibly due to the effectiveness of the teaching program across all levels.
- **Occupation**: Significant (p = 0.014). Working mothers may have had more exposure to health education or resources compared to homemakers.
- **Monthly Income**: Not significant (p = 0.089). Indicates that income did not have a strong association with knowledge—implying access to information may not be income-dependent in this context.
- **Type of Family**: Not significant (p = 0.096). The type of family (nuclear/joint) did not play a significant role in knowledge levels post-intervention.
- **Number of Children**: Significant (p = 0.026). Mothers with more children may have more practical experience and interest in weaning practices.
- **Previous Knowledge on Weaning**: Highly significant (p = 0.003). Mothers who had prior knowledge showed better learning uptake—highlighting the value of pre-existing awareness.
- **Source of Information**: Not significant (p = 0.068). Although the source of prior knowledge may have varied, it did not significantly affect post-test knowledge levels.

Chi-square Association Table (Post-Test Practice vs. Sociodemographic Variables)

Sociodemographic Variable	Chi-square (χ^2)	df	Critical χ^2 ($\alpha = 0.05$)	p-value	Result
Age	4.12	2	5.991	0.127	**Not Significant**
Education Level	7.46	2	5.991	0.024	**Significant**
Occupation	3.09	2	5.991	0.213	**Not Significant**
Monthly Income (INR)	6.55	2	5.991	0.038	**Significant**
Type of Family	4.09	1	3.841	0.043	**Significant**
Number of Children	2.88	2	5.991	0.237	**Not Significant**
Previous Knowledge on Weaning	8.63	1	3.841	0.003	**Significant**
Source of Information	3.17	2	5.991	0.205	**Not Significant**

Analysis of Results

- **Age**: Not significant (p = 0.127). Post-test practice scores were consistent across age groups, suggesting the intervention was equally effective regardless of age.
- **Education Level**: Significant (p = 0.024). Educated mothers possibly adopted and understood weaning practices better after the session.
- **Occupation**: Not significant (p = 0.213). Employment status didn't significantly impact post-test practices, indicating practice improvement was uniform.
- **Monthly Income**: Significant (p = 0.038). Higher-income mothers may have had better access to resources, facilitating better practice.
- **Type of Family**: Significant (p = 0.043). Mothers in nuclear families might be more directly responsible for childcare, influencing better practice scores.

- **Number of Children**: Not significant (p = 0.237). The number of children did not majorly influence post-test practice scores—possibly because all participants gained equally from the training.
- **Previous Knowledge on Weaning**: Highly significant (p = 0.003). Mothers with prior knowledge likely found it easier to adapt good weaning practices after intervention.
- **Source of Information**: Not significant (p = 0.205). The effectiveness of the structured program possibly equalized the impact of previous information sources.

DISCUSSION

In our study, we analyzed the association between post-test knowledge scores on weaning and various sociodemographic variables among 100 mothers. The Chi-square test revealed significant associations between post-test knowledge scores and variables such as age ($\chi^2 = 6.19$, $p = 0.045$), occupation ($\chi^2 = 8.51$, $p = 0.014$), number of children ($\chi^2 = 7.23$, $p = 0.026$), and previous knowledge on weaning ($\chi^2 = 9.12$, $p = 0.003$). Conversely, variables like education level ($\chi^2 = 3.44$, $p = 0.179$), monthly income ($\chi^2 = 4.83$, $p = 0.089$), type of family ($\chi^2 = 2.77$, $p = 0.096$), and source of information ($\chi^2 = 5.38$, $p = 0.068$) did not show significant associations.

These findings are in line with a study conducted by Ambike et al. (2017) in a rural hospital-based pediatric outpatient clinic in Maval Taluka, Maharashtra. Their cross-sectional study assessed the awareness of weaning practices and the determinants affecting them among 304 respondents. The study found that unawareness regarding weaning was a significant reason for not starting complementary feeding at 6 months in 21.1% of respondents. Furthermore, the study highlighted that incorrect weaning practices, withholding breastfeeding, and improper feeding during illnesses were major deterrents to proper weaning techniques, contributing to malnutrition. While the study did not employ Chi-square analysis, it emphasized the influence of sociodemographic factors on weaning practices, corroborating our findings that certain demographic variables significantly impact mothers' knowledge and practices regarding weaning.

In our study, we analyzed the association between post-test weaning practice scores and various sociodemographic variables among 100 mothers. The Chi-square test revealed significant associations between post-test practice scores and variables such as education level ($\chi^2 = 7.46$, $p = 0.024$), monthly income ($\chi^2 = 6.55$, $p = 0.038$), type of family ($\chi^2 = 4.09$, $p = 0.043$), and previous knowledge on weaning ($\chi^2 = 8.63$, $p = 0.003$). Conversely, variables like age ($\chi^2 = 4.12$, $p = 0.127$), occupation ($\chi^2 = 3.09$, $p = 0.213$), number of children ($\chi^2 = 2.88$, $p = 0.237$), and source of information ($\chi^2 = 3.17$, $p = 0.205$) did not show significant associations.

These findings align with those reported by Jose and colleagues (2016) in their comparative study on factors leading to early weaning among urban and rural mothers in Mangalore. The study found that early weaning practices were more prevalent among mothers from nuclear families and those with lower education levels. Specifically, 78.6% of urban and 80% of rural mothers who practiced early weaning belonged to nuclear families, and a significant proportion had only completed high school education. The study concluded that sociodemographic factors such as family structure and education level significantly influence weaning practices. Our findings corroborate these results, emphasizing the impact of education and family type on weaning practices.

CONCLUSION

Age, occupation, number of children, and previous knowledge on weaning were found to be statistically significant, suggesting that these variables played a meaningful role in shaping the effectiveness of the educational program. Younger or more informed mothers, working women, those with more children, and those with prior exposure to weaning concepts demonstrated greater improvements in knowledge. The evaluation of factors influencing post-test weaning practices revealed that education level, monthly income, type of family, and previous knowledge on weaning had a statistically significant impact. Educated mothers and those with higher income likely had better comprehension and access to resources, which contributed to improved practices. Additionally, mothers from nuclear families may have shown greater responsibility in implementing weaning practices, leading to higher post-test scores. Prior knowledge also played a critical role, as those already familiar with weaning concepts adapted more effectively following the intervention.

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