**Effect of Intensive Education Intervention on maternal Knowledge on Infant and Young Child Feeding, Child care and Hygiene**

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| --- |
| **Abstract:**  **Background-** Food insecurity, unhygienic condition and frequent infection are the main problem among poor families living in slum. Effective communication for behavioral change is necessary for ensuring optimal growth of the children.**Objective-** Study was planned with the objective to improve the knowledge and behaviour of mothers relating to child feeding, care and practices regarding hygiene and sanitation through 2 months intensive educational intervention. **Material and methods-**Study was conducted in the selected slum area of Jaipur city. Mothers of 50 malnourished children were selected for the study. Knowledge was assessed before intervention. Counseling for 60 days on importance of age-appropriate infant and young child feeding, caring practices during sickness of child, hygiene and sanitation was given through lecture, demonstration and group discussion by using teaching aids such as posters, charts, leaflets, pamphlets and models. Counseling was given at Anganwadi centers of selected slum area. Post test data was collected to assess the gain in knowledge of mothers in both the groups after intervention. **Results-**Results showed that after counseling the knowledge of mothers increased significantly (P<0.000). Results pointed out the fact that after educational intervention, knowledge on all the aspects improved significantly. **Conclusion-**Nutritional counseling has significant effect on knowledge especially in food insecure populations and it should be recommended for the prevention of malnutrition in infants and young children.  |

*Keywords: [Intensive Education, knowledge, counseling, Hygiene]*

1. INTRODUCTION

Globally, children under the age of five are more susceptible to many issues and health related problems, especially associate with nutrition. Effect of under nutrition is more on children than on any other age group. Global overview on child malnutrition shows that 22.3% (148.3 million) children are stunted, 6.8% (45 million) are wasted (UNICEF, WHO, World Bank Group, 2023). In India the prevalence of malnutrition remains high. Data of NFHS-5 reported that in India 35.5% children under the age of five are stunted, 19.3% are wasted, and 32.1% are underweight (NFHS-5, 2019-2021).

Poor health, low nutritional status of children under the age of five is caused by many different environmental, socioeconomic, demographic, and cultural variables (Sunday et al., 2024). Appropriate nutrition is essential for a child's optimal development and growth (UNICEF, WHO, World Bank Group, 2023). The nutritional status of children under the age of 24 months is to a great extent influenced by feeding patterns. Proper breastfeeding and complementary feeding practices are required to maintain optimal health and development among children (Prasad et al., 2023).

Poor Water, Sanitation and Hygiene (WASH) practices are the primary determinant of under nutrition. Inadequate sanitation facilities, poor access to clean water and inadequate hygiene behaviour significantly contribute to increase the prevalence of diarrheal diseases and environmental enteropathy, which creates a pathway to malnutrition (Cumming et al., 2016). These diarrheal diseases cause recurrent infection and malabsorbtion of nutrients, which further impair child’s growth (Checkly et al., 2008).

Data of NFHS-5 on hygiene and sanitation high lightens the need of educational intervention on improved hygienic behaviour. According to NFHS-5, only 49.8% household practice safe disposal of child excreta, and 58.6% have access to good sanitation facilities. Furthermore only 60.6% household practice hand washing with water and soap after critical conditions (NFHS-5, 2019-2021).

A large number of child deaths can be prevented by following proper water sanitation and hygiene practices (Kuddus et al., 2022). According to Sahiledengle et al., 2022, environmental sanitation has an important role to reduce the incidences of infections and breaking the vicious cycle of infection, thus reduce the chances of malnutrition (Sahiledengle et al., 2022). Hand washing, water treatment, sanitation and hygiene are the key elements for the reduction of child malnutrition.

Attention should be given on practices related to food hygiene such as safe handling, storage, cooking, serving of food, environmental hygiene and sanitation with the main focus on disposal of waste from household safely (Adams et al., 2008). This highlighted the urgent need for interventions, targeted to address the leading causes of malnutrition.

Reduced appetite during illness causes inadequate nutrient absorption. Child need appropriate care and feeding during illness and recovery period.

Counseling circulates information on age appropriate feeding practices as well as on hygiene and sanitation practices. Knowledge on age appropriate feeding practices expands information on dietary diversity, thus fulfill the dietary requirements (WHO, 2014).

The most important strategy for raising awareness and managing growth-related concerns in children is counseling, which is being practiced for long time. All areas have an abundance of nutrient-dense food, but because of ignorance, the caregivers do not know how to use the food's contents or how to create an age-appropriate meal for the children who are at risk and have poor nutritional status. Counseling is therefore necessary to raise awareness among the population (Asworth and Ferguson, 2009). Additional education such as home visits, group meetings and cooking demonstrations of food is the key factor in counselling.

In order to help children to overcome growth and health related issues counseling should emphasize age-appropriate feeding, energy dense meals, proper care during sickness and emphasizing the benefits of proper WASH practices.

The first few years of life are quite sensitive and growth of child is speedy. Various nutrients, such as energy, protein, iron, and calcium, are required in high quantity. Breast milk and supplemental feeding help children meet these requirements. So, if new-born and young child feeding practices are not suitable, such as not feeding on time or inappropriate quantity or quality, inadequate nutrition will certainly result in malnutrition and irreversible changes in nutritional status. Apart from that, the slum area's unsanitary circumstances cause infection. Lack of essential family facilities and an unsanitary environment raise the risk of infection, which adds to malnutrition among slum children. With this aim the study was planned to assess the effect of educational intervention on knowledge enhancement of mothers.

2. material and methods

###### **2.1 Locale of the study:** Study was carried out at Jawahar Nagar slum area of Jaipur city, Rajasthan.

**2.2 Study design and sampling:** To explore the effect of counseling on mother’s knowledge regarding IYCF, care seeking seeking and hygiene and sanitation, a community based descriptive study was carried out on mothers of under five children at a slum area of Jaipur city of Rajasthan district. Out of 5 Integrated Child Development Service (ICDS) projects in Jaipur urban, 1 project (Project IV) was selected by simple random sampling techniques. Every project has 5 sectors, among these 5 sectors, slum area of Jawahar Nagar sector was selected through purposive sampling. Every sector has at least 35-40 AWCs. A cluster of five AWCs, situated near to each other was selected by cluster sampling techniques. According toCensus of India 2011, there are approximately 17% children under the age of five. Nearly 30 children 0-6 months were excluded from the study. According to norms one AWC is situated at the population of 1000, so there were nearly 140 children at each AWC under the age of five. According to growth monitoring data collected by Anganwadi workers there were 10-13 malnourished children at each. In a cluster of 5-6 AWC there were 50-65 malnourished children. So, 5-6 AWCs next to each other were selected for the formation of study group (Census, 2011).

 Jaipur city

5 ICDS Projects

Project IV

 Jawahar Nagar sector slum area

 10-11 Anganwadi centres of Jawahar Nagar next to other

 AWC1 AWC2 AWC3 AWC4 AWC5 AWC6

 10-13 malnourished children at each AWCs

 50-65 malnourished children making sample for the study

Chart 1 : Research design

**2.3 Inclusion-Exclusion criteria:** Mother who were willing to participate in the study, having children aged 6 months to 5 years, gave consent and available throughout the data collection period were included in the study. Whereas participants who showed unwillingness, did not give consent, having children below 6 months and above the age of five and were not available throughout the data collection period were excluded from the study.

**2.4 Data Collection:** Purposive sampling technique was used to collect the data. A self-prepared, self-structure questionnaire was used as a tool to collect pre and post data. Demographic details were obtained through self structured questionnaire and with the help of registration data available at AWCs. Interview schedule was also used to ensure participants understood the question. Due to most of the participant being illiterate, the questionnaire was filled by the researcher self. Questionnaire was consisting two parts. Both the parts consisted 20 close ended questions in multiple choice forms, requiring one correct answer from the options regarding knowledge of IYCF and care seeking behaviour in part one and knowledge of hygiene and sanitation in part two. One mark was given to every correct answer and zero mark was accorded for every incorrect answer. Total score of 20 was given. Scoring was done by dividing obtained score by total score. Results obtained for different levels of knowledge were categorized ass participant having knowledge <50% was considered as inadequate knowledge. Moderate knowledge among participants was categorized as 51-75%. Participants having knowledge >75% were considered as having adequate knowledge.

**2.5 Ethical clearance and consent:** Ethical clearance was taken from the departmental ethical committee and consent from the participants was taken prior to the data collection.

###### **2.6 Educational intervention:** Counseling was given by collecting mothers/care taker of children once in a week at each Anganwadi centers. Thus the researcher provided each day session at one or the other AWCs at each working day apart from Sunday. Thus covered all six AWCs at each working day. Counseling was given for eight weeks designed in the way comprising 60-90 minutes per session per day. All the counseling sessions were given at AWC in the presence of Accredited Social Health Activist (ASHA) and Anganwadi worker (AWW). A counseling package was planned to improve the knowledge of mothers related to these parameters-

**Table 1: Contents of counseling**

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| --- | --- | --- | --- | --- |
| **Session** |  **Contents** | **Method**  |  **Time** | **Aids used** |
| Week 1  | Breast feeding indicators. | Face to face | 60-90 minutes | Charts, Posters, Flash cards, Pamphlets |
| Week 2 | Complementary feeding indicators | Face to face | 60-90 minutes | Lectures, Group discussions, Charts, Posters, Flash cards, Pamphlets, Power point presentation  |
| Week 3 | Hygiene and sanitation Indicators-Personal & Hand Hygiene  | Face to face | 60-90 minutes | Lectures, Pamphlets, demonstration, Power point presentation |
| Week 4  | Environmental Hygiene & Water sanitation practices  | Face to face | 60-90 minutes | Demonstration, Poster, chart, Lecture |
| Week 5  | Preparation of energy dense food from locally available ingredients  | Face to face | 60-90 minutes | Demonstration, Lecture |
| Week 6 | Importance of regular feeding  | Face to face | 60-90 minutes | Group discussion, lecture  |
| Week 7 | Care of sick child | Face to face | 60-90 minutes | Charts, Posters, Flash cards, Pamphlets |
| Week 8  |  Information about malnutrition | Face to face | 60-90 minutes | Charts, Posters, Flash cards, Pamphlets, power point presentation  |
|  |  |  |  |  |

**2.7 Tools and Techniques-** Lectures, group discussions, presentation techniques were used for counseling. Visual aids like charts, posters, flash cards, pamphlets and models were used during counseling.

###### **2.8 Pre-test and post-test:** Pre and post intervention knowledge of mothers on IYCN (infant & Young Child Nutrition), food hygiene and hand hygiene and care of sick child was collected through self-structured questionnaire. Post test was conducted 15 days after the intervention to assess the sustainability of the knowledge.

###### **2.9 Data Analysis:** Collected data was moved to the SPSS software and stored in an MS Excel database. Descriptive statistics were used to determine the respondents' basic characteristics, which are displayed as frequency, percentage, mean, standard deviation, and score level of understanding. McNemar test, which is a non-parametric test, was used to analyze paired nominal data and to assess pretest-post test study design. It was used to determine if there are differences on dichotomous dependent variables and to analyze the significant difference between pre and post knowledge of mothers. Results were assessed at 1% and 5% level of significance with P value <0.000.

3. results and discussion

The pre & post counseling results were assessed and analyzed. Knowledge of the mothers on IYCF indicators, care of child during illness and hygiene and sanitation was assessed.

###### Table 2: Effect of counseling on maternal knowledge regarding appropriate IYCN and care during sickness

|  |  |
| --- | --- |
| **Knowledge on IYCF**  | **Percentage of mothers having the correct knowledge** |
| **Pre-test** | **Post-test** | **Test Value (p-value)** |
| Feeding of colostrum | 64 | 84 | 0.039(0.020\*) |
| **Timely initiation of breast feeding after birth** Within 1 hourWithin 4 hourWithin 12 hourWithin 24 hour | 20121824 | 6012160 | 24.638 (0.000\*\*) |
| Exclusive breastfeeding for 6 months | 62 | 92 | 12.970 (0.002\*\*) |
| Continued breastfeeding till 2 years of age | 60 | 92 | 16.840 (0.000\*\*) |
|  Initiation of complementary feeding at 6 months of age | 70 | 96 | 11.977 (0.001\*\*) |
| **Food diversity-** Milk & milk productsBiscuitsCereals Toffee/chocolate Vegetables/fruits sweets | 869296589060 | 100821001210032 | 7.527(0.012\*)NA2.041(0.495 )23.253 (0.000\*\*)5.263 |
| **Consistency of complementary feed for child from 6 to 9 months** SoftSemi solid Solid | 686238 | 961000 | 23.45(0.000\*\*) |
| **Knowledge on care during sickness** |
| Continued breastfeeding during sickness | 44 | 80 | 18.248 (0.000\*\*) |
| Curing from home remedies | 54 | 24 | 9.458(0.002\*\*) |
| ORS in diarrhea | 64 | 92 | 11.422 (0.001\*\*) |
| Extra care during sickness | 72 | 100 | 20.000(0.000\*\*) |
| Vaccinated timely | 96 | 100 | 2.041(0.247) NS |
| **Places to get treatment**From anganwadi workerFrom sahayogini From doctor | 241288 | 4096 | 8.306 (0.004\*\*) 6.383 (0.013\*)2.174(0.134NS) |
| **Frequency of mother’s milk during sickness**More than normalLike normal Less than normal Mother‟s milk should not be given  | 12302236 | 7216012 | 40.559 (0.000\*\*) |
| More liquid in diarrhea | 50 | 96 | 26.839(0.000\*\*) |
| Less liquid in diarrhea | 56 | 32 | 5.844 (0.013\*) |
| **Things needed to make O.R.S. at home**Sugar, salt & waterOnly sugar & waterOnly salt & water | 282844 | 9280 | 44.622 (0.000\*\*) |
| Increased frequency of breast feeding during diarrhea | 36 | 88 | 28.693 (0.000\*\*) |

NS=Non Significant

\*Significant at 5% level

\*\*Significant at 1% level

###### **3.1Gain in knowledge regarding appropriate IYCN and care during sickness**

###### **3.1.1 Gain in knowledge regarding breastfeeding indicators**

WHO/UNICEF has suggested key breastfeeding indicators such as early initiation of breastfeeding (within 1 hour of birth), exclusive breastfeeding till 6 months, continued breastfeeding upto 2 years with complementary feeding and introduction of solid, semi-solid, or soft foods at 6–8 months. These breastfeeding indicators are important to track and promote the optimal IYCF practices. Government, medical professionals and organizations can use these indicators to evaluate breastfeeding practices in the creation of policies and programs.

Breastfeeding is associated with lower infant mortality, reduced infections such as diarrhea, pneumonia and improve nutritional status. Indicators help to pinpoint area where interventions are needed to reduce malnutrition and improve survival rate. The first milk secreted after child birth is rich in nutrients, antibodies and helps to combat infection, knowledge about this fact improved to 84% from 64%. Results on breastfeeding showed that after counseling mothers became aware about the fact that breastfeeding should be initiated within one hour of birth (from 20% to 60%), child should be exclusively breastfed till 6 months of age (62% to 92%) and breastfeeding should be continued till two years of age (from 60% to 92%) (Table 2). Studies done by AlQurashi et al., (2023) and Janmohamed et al., (2020) showed similar results.

###### **3.1.2 Gain in knowledge regarding complementary feeding indicators**

Breast milk is not enough to support proper growth and development of infants after the age of 6 months. Post-intervention almost all the mothers became aware about the fact that complementary feeding should be started at 6 months of age. Counseling increased the awareness of mothers regarding the importance of diverse diet including foods from milk & milk products, vegetables/fruits and cereals. There was a significant improvement in all the aspect of knowledge (p <0.0001) after educational intervention (Table 2).

In line to the present study various other studies have reported the similar results (Moras et al., 2021; Sabharwal et al., 2014). Study of Kushwaha et al., (2014) also showed that mothers displayed a significant improvement in knowledge after counseling (Kushwaha et al., 2014).

Similar to the results of the current study, Ara et al., (2019) and Janmohamed et al., (2020) reported an increase in feeding frequency after the counseling. Diverse diet is necessary to provide complete nutrition to children, knowledge about this aspect also increased significantly after nutrition education. Many other researcher have reported that age appropriate diverse diet should give to child to attain optimum nutrition (Aboud et al., 2011; Ara et al., 2019; Sabharwal et al., 2014; Singh et al., 2018; Janmohamed et al., 2020). The ability of mothers to identify the onset of malnutrition and other child care practices including infant and young child feeding improved significantly in the post counseling period.

Post-intervention, a shift in perspective was noted, and resources were reallocated to ensure their children were receiving wholesome and reasonably priced food. Additionally, the frequencies of daily feeding before and after the intervention were shown to have changed. Mothers also began using oil, eggs and pulses after learning about the child’s growth and basic needs. Study done by Janmohamed et al. also showed that behaviour of mother changed about giving diverse diet to children rather than giving only some food items (Janmohamed et al., 2020).

###### **3.2 Gain in knowledge regarding the care of child during sickness**

###### There were several misconceptions regarding care of child during sickness. Very few mothers have the knowledge that breastfeeding should be continued during sickness. More than half of the mothers had wrong perception that child should be treated by home remedies.

Post-intervention perception changed regarding facts that ORS should be given to the child during diarrhea and child needed extra care during illness. Pre-intervention mothers were having good knowledge about the facts that child should be vaccinated timely, should give medicines prescribed by the doctor and needed treatment during diarrhea, fever and infection. Counseling increased the awareness regarding frequent breastfeeding during sickness. Diarrhea causes dehydration among children. More liquid is needed if child had diarrhea, this fact was known to half of mothers prior counseling and almost all the mother became aware after nutrition education intervention (Table 2).

Prior to intervention, some mother sought therapy from local hakim or traditional healers because they thought that illness was a result of God’s will. Post-intervention, mothers/care taker changed their perception and sought medical attention after realizing the value of appropriate care. Counseling sessions are necessary to enhance mother’s knowledge on caring behaviour, standard of child feeding techniques, and maintain a hygienic environment. Furthermore, suitable educational interventions might impact caregiver’s understanding of the optimal mix of seasonal and local food sources.

These results are in alignment with the studies conducted at a district of Karnataka, India by Karki et al., (2019). A randomized trial conducted in a rural region of India exhibited that post counseling improvement was observed in mother’s perception in regards to seeking appropriate care for severe childhood illness episodes (Mohan et al., 2004). Several evidences have shown that educational intervention can influence the health-seeking behaviour of mother and care-giver (Borah et al., 2016; Aigbokhaode et al., 2015; Simkhada et al., 2010; Medhanyie et al., 2010; Newbrander et al., 2014).

**Table 3: Effect of counseling on maternal knowledge regarding hygiene**

|  |  |
| --- | --- |
| **Knowledge on hygiene**  | **Percentage of mothers having correct knowledge** |
| **Pre-test** | **Post-test** | **Test Value (p-value)** |
| Drinking water should kept covered | 100 | 100 | NA |
| Use of Lota with handle for drinking water | 66 | 100 | 20.482 (0.000\*\*) |
| Drinking water should kept at height | 56 | 92 | 16.840 (0.000\*\*) |
| **Keeping drinking water** Covered pot with narrow opening Uncovered pot with narrow opening Covered pot with broad opening Uncovered pot with broad opening | 3240280 | 40601000 | 16.444 (0.000\*\*) |
| Separate storage of drinking water | 100 | 100 | NA |
| **Method of taking drinking water from pot** Pour directly from potBy handBy lota/glass without handle Lota/glass with handle | 4222036 | 120484 | 24.267 (0.000\*\*) |
| Use of boiled water during sickness | 48 | 84 | 14.439 (0.000\*\*) |
| Use of clean water for drinking  | 98 | 100 | 1.010 (0.500NS) |
| Dirty water should not collect near home | 100 | 100 | NA |
| Bathing of child everyday | 56 | 100 | 28.205 (0.000\*\*) |
| Bathing of mother everyday | 70 | 100 | 17.647 (0.000\*\*) |
| Should give clean complementary food to child | 98 | 100 | 1.010 (0.500NS) |
| Complementary food should kept covered | 86 | 100 | 7.527 (0.006\*\*) |
| Cleaning of home everyday | 86 | 100 | 7.527 (0.006\*\*) |
| **Place of toilet** Personal toiletCommunity toiletAt open place | 422434 | 100524 | 40.845 (0.000\*\*) 8.319 (0.004\*\*)14.620 (0.000\*\*) |
| **Throwing of child’s excreta** In toiletOpen defecation | 5842 | 968 | 20.384 (0.000\*\*) 15.413 (0.000\*\*) |
| Hand washing before cooking, serving and feeding the child | 56 | 100 | 28.205 (0.000\*\*) |
| **Activities after which hand washing should perform**After feeding the cattlesAfter changing the diaperBefore feeding the childAfter using toilet After child’s toiletAbove all | 8184541842 | 8882801008892 | NA 0.706(0.288 NS) 2.041(0.247 NS)15.868 (0.000\*\*)2.210 (0.117NS)28.268 (0.000\*\*) |
| Cutting of nails every week | 66 | 96 | 14.620 (0.000\*\*) |
| **Household cleanliness**EverydaySome times | 6238 | 1000 | 23.457 (0.000\*\*) |

NS=Non Significant

\*Significant at 5% level

\*\*Significant at 1% level

**3.3 Gain in knowledge regarding hygiene and sanitation indicators**

Children are susceptible to wide range of infections if they do not receive specific care. The majority of infections are caused by parasite diseases and diarrhea` linked to water, sanitation and hygiene. These illnesses can be avoided if proper Water, Sanitation and Hygiene (WASH) practices are followed by the community. Hand washing promotions include promoting hand washing using soap at critical times such as before preparation of meal or cooking, before feeding the child and after defecation.

Results of the study revealed that mothers were having poor knowledge related to WASH) practices. Boiled water should be used during sickness was known to only half of the mothers which increased to 84% after counseling. Pre-test results showed that mothers were aware about the concepts as use of clean water for drinking and prevention of water logging near home, clean complementary food should be given to child, food should kept covered, serving in clean utensils, feeding in clean environment, household and environmental cleanliness (Table 3).

**3.3.1 Personal hygiene*-*** Post-intervention, knowledge improved on the aspectthat child and care giver should take bath every day and personal hygiene is important for child’s health (Table 3).

**3.3.2 Sanitation-**Mothers were having poor knowledge on sanitation and open space defecation. Counseling increased the awareness on this aspect as all mothers became aware about the fact that toilet should be used for defecation and child’s excreta should be thrown in the toilet (Table 3).

**3.3.3 Hand washing-**Awareness on correct hand washing practices among mothers was also poor before counseling. Mothers were not aware about hand washing at critical conditions. Only half of the mothers knew the fact that hand washing should be practiced before cooking, serving and feeding the child, which increased significantly among all participants after counseling (Table 3). Perception increased significantly, although results obtained for hand washing practices after changing diaper and before feeding the child were non-significant (Table 3).

Similar to the current study, many studies and programmes also reported significant improvement in perception among the community and the gain in correct knowledge of hygiene and sanitation after conduction of educational intervention. A pilot study from Myanmar provide evidences that maternal counseling improve WASH practices (Hasmi et al., 2019). Results of a skill training program on hygiene and sanitation were in line with the present study and show that knowledge base of mothers regarding good hygienic practices and hand washing increased significantly after training. Another study from Karnataka also have shown that narrative approach in health education on hand washing can positively change perception towards hygiene (Susanti et al., 2024). Evidences are showing that the burden of diarrheal disease reduces significantly when water is treated with household water treatment products as it improves the microbiological quality of household water (WHO, 2014). The study conducted in rural community of Iran demonstrated that incidents of malnutrition in children below five years of age reduced, after creating awareness on WASH indicators among mothers (Malekafzali et al., 2000). Nutrition education encouraged the mothers for correct feeding and hygienic practices and this reflect in behaviour (Roy et al., 2007).

The ambitious international policy on drinking water and sanitation is still inadequate, even though water supply, hygiene and sanitation are developmental goals. Even in the developed countries, health issues are frequently related to sanitation, hygiene and water supply. Accelerating initiatives to promote children's growth, development, and survival while placing a high priority on community-level cleanliness and sanitation, better infant and young child feeding (IYCF), and caring practices are the key recommendations.

4. Conclusion

Overall, the study had a positive impact mother’s awareness on IYCF, care habits and cleanliness. Knowledge on all the aspects improved significantly after 60 days counseling. Educational interventions have a significant impact on growth in food insecure communities by increasing awareness on age-appropriate supplemental feeding techniques, caring practices, and following hygienic behaviour. Lack of adequate awareness among mothers, conventionally prevalent misbeliefs, and a lack of on-going support and motivation among mothers, particularly working mothers, are all key contributions to the prevailing situations. Accelerating interventions aimed at improving survival, growth and development of children giving key priorities to improved infant and young child feeding (IYCF), caring practices and hygiene and sanitation at community level are the corner stone.

**5. FUTURE NEED OF THE STUDY:**

Future studies can evaluate the long-term impact assessment to evaluate sustainability of knowledge gain over time and transmission of this knowledge in improvement of child health and nutritional outcome. Researches should be focused on the assessment of actual change in practices by this knowledge. Future interventions could assess the impact of education intervention on the knowledge of other family members and care takers. Future researches could examine the impact of integration of these types of educational interventions with existing health programme designed for maternal and child health. Studies could investigate the impact of improved maternal knowledge on cognitive development of children.

**LIMITATIONS AND FUTURE DIRECTIONS**

There are some limitations to the study. First, since the study sample was from one specific locale, the findings might not generalize to the entire population. Second, absence of the control group restricts casual reference and makes it difficult to rule out the influence of external factor on observed outcomes. Some parameters were not included in questionnaire; another studied should all other parameters related to IYCF, care and hygiene. Future studies should consider including a control group to strengthen the validity of findings.

**DECLARATION:** Author(s) hereby declare that no generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

**COMPETING INTEREST:** Authors declare that no competing interests exist.

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