**Effect of Intensive Education Intervention on mother’s 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 (AWCs) 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

Poor health, low nutritional status of children under the age of five is caused by many different environmental, socioeconomic, demographic, and cultural variables (Chase et al., 2016). Appropriate nutrition is essential for a child's optimal development and growth. (UNICEF, WHO, World Bank Group, 2017). 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 (UNICEF, 2012).

Under nutrition is also caused by poor water sanitation and hygiene. This is the main causative factors starring to poor nutritional status in children under the age of 5 (UNICEF, WHO, World Bank, 2013). Unsafe drinking water causes diarrheal diseases and environmental enteropathy among children, hinder nutrient absorption and leads to various forms of malnutrition. A large number of child deaths can be prevented by following proper water sanitation and hygiene practices (Walker et al., 2013). According to Mathad et al., 2013, 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 (Mathad & Shivprasad, 2013).

Hand washing, water quality treatment, sanitation and hygiene are the key elements for the reduction of child malnutrition (Bhutta et al., 2008). These unhygienic conditions cause vicious cycle of infection among children. Recurrent infections make child weak and cause nutrient deficiencies. Diarrheal diseases, vomiting causes dehydration and electrolyte imbalance. Reduced appetite or problem in eating causes inadequate nutrient absorption. Child need appropriate care and feeding during illness and recovery period.

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).

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 & 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 in Jawahar Nagar slum area of Jaipur city.

**2.2 Selection of sample:** There were 10-13 malnourished children at each AWC according to growth monitoring data collected by Anganwadi workers. 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.

Jaipur city

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 : Sample selection for the study

###### **2.3 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 6 AWC at each working day. Counseling was given for eight weeks designed in the way comprising 60-0-90 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 |
|  |  |  |  |  |

**2.4 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.

###### **2.5 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.

###### **Statistical Analysis:** Data was entered into a database and tabulated. Frequencies and percentage was calculated. Mean, median and standard deviation were calculated for univariate parameters. Mc namer test was used to assess the significant difference between pre and post knowledge of mothers.

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 knowledge gain of mothers 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 hour  Within 4 hour  Within 12 hour  Within 24 hour | 20  12  18  24 | 60  12  16  0 | 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 products  Biscuits  Cereals  Toffee/chocolate  Vegetables/fruits  Sweets | 86  92  96  58  90  60 | 100  82  100  12  100  32 | 7.527(0.012\*)  NA  2.041(0.495 )  23.253 (0.000\*\*)  5.263 |
| **Consistency of complementary feed for child from 6 to 9 months**  Soft  Semi solid  Solid | 68  62  38 | 96  100  0 | 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 worker  From sahayogini  From doctor | 24  12  88 | 4  0  96 | 8.306 (0.004\*\*)  6.383 (0.013\*)  2.174(0.134NS) |
| **Frequency of mother’s milk during sickness**  More than normal  Like normal  Less than normal  Mother‟s milk should not be given | 12  30  22  36 | 72  16  0  12 | 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 & water  Only sugar & water  Only salt & water | 28  28  44 | 92  8  0 | 44.622 (0.000\*\*) |
| Increased frequency of breast feeding during diarrhea | 36 | 88 | 28.693 (0.000\*\*) |

###### 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, Predominant, partial, or complementary breastfeeding patterns 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 and in the creation of policies and programs.

Breastfeeding is associated with lower infant mortality, reduced infections such as diarrhoea, 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). A study done by Galhotra et al (2008) 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 conducted in rural China, India, Vietnam and Nicaragua exhibited positive effects of educational intervention on nutritional knowledge or practices (Roy et al., 2005; Yin et al., 2009; Moore et al., 2009). A study by Noviati et al., (2006) reported better and improved nutrition related knowledge and practice after nutrition education intervention. 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, Roy et al., (2007) reported an increase in complementary feeding frequency after the counseling. 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.

###### 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 tribal district of Maharashtra, India by Dongrue et al (2010). On the other hand, slightly lower percentage (50.3%) of care-seeking behaviour was observed by Srivastava et al (2009) in previous study conducted in Lucknow. 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).

**Table 3: Effect of counseling on knowledge of mothers 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 | 32  40  28  0 | 40  60  100  0 | 16.444 (0.000\*\*) |
| Separate storage of drinking water | 100 | 100 | NA |
| **Method of taking drinking water from pot**  Pour directly from pot  By hand  By lota/glass without handle  Lota/glass with handle | 42  2  20  36 | 12  0  4  84 | 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 toilet  Community toilet  At open place | 42  24  34 | 100  52  4 | 40.845 (0.000\*\*)  8.319 (0.004\*\*)  14.620 (0.000\*\*) |
| **Throwing of child’s excreta**  In toilet  Open defecation | 58  42 | 96  8 | 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 cattles  After changing the diaper  Before feeding the child  After using toilet  After child’s toilet  Above all | 8  18  4  54  18  42 | 88  82  80  100  88  92 | 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**  Everyday  Some times | 62  38 | 100  0 | 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 diarrhoea 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. Evidences are showing that the burden of diarrhoeal disease reduces significantly when water is treated with household water treatment products as it improves the microbiological quality of household water (Clasen et al., 2007; Waddington & Snilstveit, 2009; 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.

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