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An intervention to enhance the dietetic insight appertaining to children among the underprivileged women of Kashmir

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Abstract

Mothers play a vital role in the growth and welfare of their children. Since she is the primary caretaker for her children, this care is largely influenced by her knowledge and comprehension of fundamental nutrition and child health. It has also been observed in many studies that there is a positive link between caregiver's nutritional knowledge and child nutrition outcomes and that her education is vital to how she raises her children. Moreover, healthy eating habits that are formed in childhood keep a variety of diseases at bay, and they continue to develop into adolescence and adulthood. Healthy infancy therefore guarantees healthy adulthood. With this intention an educational intervention was conducted district Budgam of Kashmir region after identifying the gap areas. A sub sample of 200 underprivileged women were randomly selected from four blocks of district Budgam, with 50 sample beneficiaries from the same sample population of each sample block. Intervention was provided by the investigator by preparing and using module keeping in view their effectiveness and the level of understanding. To assess the effect of Intervention the data was again collected from the same sample beneficiaries (200 women beneficiaries) to whom intervention was provided earlier. It took almost four weeks in collecting the post intervention data and analyzing it. After the analysis of post intervention data in identified gap areas of childcare and nutrition there was a significant ($p < 0.00$) increase in level of nutritional knowledge among the target groups in almost all identified variables. The increase in level of knowledge was mainly due to the effectiveness of intervention with mixed approach, selection of module, presentation and techniques used during the process of intervention. Use of local audio-visual aids and participatory techniques in addition to the context-based modification of information also led to increase in motivation and interest of participating women in sharing contemporary knowledge in the field.

Keywords: Intervention, knowledge, children, health, nutrition

Introduction

Significant progress has been made in reducing childhood mortality and diseases. However, it is important to recognize that there is still room for improvement in children's health. Recent advancements have shown promise but sustaining these improvements and further enhancing children's well-being require a better understanding of the factors influencing health and the adoption of effective strategies to measure and utilize information on children's health. According to a study conducted in 2023. <https://www.ncbi.nlm.nih.gov/books/NBK92210>, undernutrition among children under the age of five remains a global health concern and a leading cause of increased morbidity and mortality in this age group. Shockingly, malnutrition alone accounts for approximately 45% of all deaths among children under five, resulting in the loss of roughly three million young lives annually. Malnutrition intensifies the risk of children succumbing to common infections, making these infections more severe and recurrent. Additionally, malnutrition significantly hampers the healing process, prolonging recovery. In the context of India, various nutritional programs have been implemented to reduce malnutrition. However, despite ongoing efforts, the burden of undernutrition among children has not significantly decreased. To address severe acute malnutrition, the World Health Organization (WHO) recommended home-based management with Ready-to-Use Therapeutic Food (RUTF) in 2007. It is crucial to emphasize that proper and optimal child feeding practices are paramount for their health, growth, and development. Recognizing the importance of nutrition and health for children, the UN Children's Rights Alliance in 2010 [15] and WHO, 2007 & UNICEF, 2003 [18] guidelines have emphasized the right of children to adequate nutrition and good health.

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Infant and Young Child Feeding (IYCF) practices play a vital role in the health, nutrition, growth, and development of children. Since the period before adulthood is characterized by significant growth and development, (Kliegman, Behrman, & Station, 2011; Manikyamba *et al.*, 2015; Pan America Health Organization and WHO, 2001; Salama, Elhawary, & El-Nmer, 2014; WFP, 2009; WHO, 2008, 2014; WHO & UNICEF, 2003, Arlim *et al.*, 2010)) [6, 7, 11, 13, 17, 21, 22, 18, 15], it is influenced by genetic, environmental, hormonal, and behavioral factors. Inadequate and unbalanced nutrition, particularly during the first two years after birth, can lead to growth and developmental delays, rickets, and iron deficiency anemia. Conversely, well-nourished children experience better physical and mental development, leading to improved educational outcomes and economic productivity. Child health is determined by the ideal height and weight corresponding to chronological age, along with physiological, psychological, and intellectual development, while the absence of disease symptoms is also important. Inadequate and unbalanced nutrition can result in various health problems, emphasizing the critical role of nutrition in child growth and mortality. Nicklas and Hayes 2008 [10], Marotz, 2011,) [8] Ruel and Menon, 2002) [12]. unhealthy eating habits established during childhood and adolescence increase the risk of chronic diseases later in life. To combat this, mothers, as primary caregivers, play a crucial role, particularly during the first six years of a child's life. Maternal care significantly varies depending on the mother's knowledge about nutrition and health, highlighting the positive impact of maternal nutrition knowledge on raising children in a healthy manner. (Christian *et al.*, 1998) [3]. Studies conducted in the past, such as those by Khattak *et al.* in 2007 [5] and Guldan *et al.* in 2000 [4], have demonstrated that maternal nutrition knowledge positively affects child nutrition and can be further enhanced through appropriate nutrition education interventions. This knowledge is central to improving the health, growth, and development of children. Conversely, the absence of adequate nutrition education in underprivileged communities, characterized by poverty and food insecurity, remains poorly documented (Bhutta *et al.*, 2013) [2]. Undernutrition is predominantly caused by suboptimal breastfeeding and complementary feeding practices, coupled with infectious diseases, household food insecurity, inadequate healthcare and sanitation services, inappropriate food types and combinations, and limited maternal availability for prenatal and postnatal care and feeding. Consequently, it is crucial to equip mothers/caregivers with appropriate knowledge, attitudes, and practices related to IYCF through nutrition intervention programs. These programs aim to raise awareness about the nutritional value of foods and ensure an adequate and balanced supply of nutrients to promote the health and nutritional status of children and mothers themselves. (Kliegman *et al.*, 2011; Pan America Health Organization and WHO, 2001; Sawaya, 2006; UNICEF, 2011; WFP, 2009; WHO, 2008; WHO & UNICEF, 2003) [6, 11, 14, 16, 17, 20, 18].

Considering the aforementioned factors, this intervention study was conducted to provide mothers with nutritional knowledge to promote the health of their children. It was hypothesized that higher maternal nutritional knowledge would positively influence the nutritional habits of their children.

Objectives

To assess the efficacy of intervention provided to underprivileged women to improve the knowledge regarding different nutritious foods for young children.

Methodology

The present study was divided into three Phases.

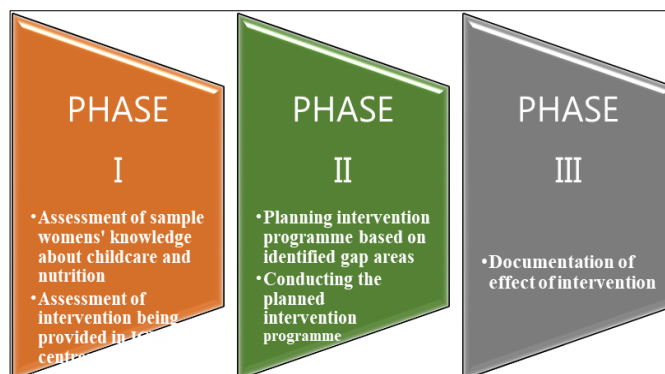


Fig 1: Phases of the study

The main purpose of data analysis in phase I was to determine the strong and gap areas, both in terms of knowledge of women beneficiaries and the intervention being provided to them in AWCs, to plan and execute the activities of Phase II.

Phase-II

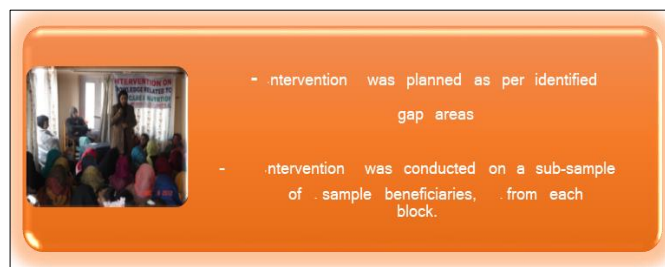


Fig 2: Diagrammatic Presentation of Phase-I

After identifying the gap areas, intervention module was planned and prepared. It took about three months to prepare and finalize the module. A video film was prepared by the investigator herself and the final editing was done by the media personnel, whereas skit (Role play) was prepared with the help of AWWs. However, direction and assistance was provided by the investigator who herself was a part of the skit. Other supporting aids (Charts, Posters, Food cards, Food pyramid, Food plate guide) were also prepared by the investigator.

Sample for Intervention

A sub sample of 200 Kashmir beneficiaries from selected AWCs under study were randomly selected, with 50 sample beneficiaries from the same sample population of each sample block.

Procedure

Intervention was provided by the investigator by preparing and using module keeping in view their effectiveness and the level of understanding.

Table 1: Plan for Intervention

Block/Phases	Sessions	Time duration
PHASE I Nagam Chadoora	Session I	
	Video Film	35 minutes
	Charts, Posters, Food Cards, Food Pyramid, Food Plate,	45 minutes
	Session II	
	Role Play	45 minutes
PHASE II B.K. Pora Budgam	Charts, Posters, Food Cards, Food Pyramid, Food Plate	45 minutes
	Session I	
	Video Film	35 minutes
	Charts, Posters, Food Cards, Food Pyramid, Food Plate,	45 minutes
	Session II	
	Role Play	45 minutes
	Charts, Posters, Food Cards, Food Pyramid, Food Plate	45 minutes

Phase –III

Documentation of effect of Intervention

In Phase III the data was again collected from the same sample beneficiaries (200 women beneficiaries) to whom intervention was provided earlier. This was done to assess the effect of intervention on the knowledge level of sample beneficiaries.

intervention for assessing the effect of intervention. To assess the effect of intervention the tool was administered after twelve days of intervention. (Fig.3)

Procedure

After providing intervention in the identified gap areas, the same interview schedule was administered to collect the post intervention data which was already used for assessing the knowledge of women beneficiaries. It took four weeks in collecting the post intervention data and analyzing it.

Analysis

- Percentages and Chi-square were calculated and computed.
- Pre and Post intervention comparison was also done.
- Content analysis of data was also undertaken.

Results and Discussion

Intervention related to Different Foods

The dietary guidelines for children not only include an adequate intake of the main foods such as fruits and vegetables, but also encourage moderation, especially in intakes of nutrient-poor energy-dense foods.

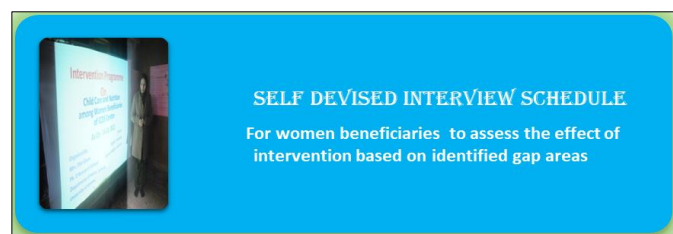


Fig 3: Tools used in the Phase III

Tools used

Interview Schedule (Self devised)

The same self-devised interview schedule used in the Phase-I to assess the knowledge level of sample women beneficiaries was administered again on beneficiaries who received

Table 2: Intervention related to Different Foods

Variable	Responses	Intervention Phase				χ ² Analysis
		Pre-Intervention (n=200)		Post-Intervention (n=200)		
		f	%	f	%	
Variety in foods helps in growth & development	Agreed	145	72.50	184	92.00	26.041** p=0.000
	Not agreed	55	27.50	16	8.00	
	Total	200	100.00	200	100.00	
Eating fruits & vegetables beneficial for a child	Agreed	182	91.00	197	98.50	11.301** p=0.001
	Not agreed	18	9.00	3	1.50	
	Total	200	100.00	200	100.00	
Consumption of certain fruits & vegetables improves vision	Agreed	65	32.50	169	84.50	111.371** p=0.000
	Not agreed	135	67.50	31	15.50	
	Total	200	100.00	200	100.00	
Munching apples helps to Make teeth of a child stronger	Agreed	71	35.50	171	85.50	104.611** p=0.000
	Not agreed	129	64.50	29	14.50	
	Total	200	100.00	200	100.00	
Nutri-nuggets/boiled potato as an egg substitute [for vegetarian or poor people]	Agreed	74	37.00	176	88.00	110.971** p=0.000
	Not agreed	126	63.00	24	12.00	
	Total	200	100.00	200	100.00	
Vegetables should be cooked for less time in less amount of water.	Agreed	16	8.00	176	88.00	256.411** p=0.000
	Not agreed	184	92.00	24	12.00	
	Total	200	100.00	200	100.00	
Green leafy vegetables a rich source of minerals should be given to children	Agreed	37	18.50	170	85.00	177.101** P=0.000
	Not agreed	163	81.50	30	15.00	
	Total	200	100.00	200	100.00	
Consuming milk makes bones of a child stronger.	Agreed	20	10.00	175	87.50	240.001**

Pulses can replace meat in child's diet	Not agreed	180	90.00	25	12.50	p=0.000
	Total	200	100.00	200	100.00	
	Agreed	127	63.50	181	90.50	41.16 ₁ ** p=0.000
	Not agreed	73	36.50	19	9.50	
Total	200	100.00	200			

Column percentage df in subscripts of χ^2 values *denotes significant at 0.05 level ** denotes significant at 0.01 level

Table 2 depicts intervention related to perception regarding different foods necessary for adequate growth and development of a child. The results show the perception of Kashmiri sample women improved after intervention programme. The sample women accepted that variety in foods help in growth and development of children. Such perception of target group improved from 72.5 percent to 92 percent after intervention programme. Similarly, concept regarding eating of fruits and vegetables being beneficial foods for children and as a source of improvement in vision and as protective foods, were accepted with significant increase in acceptance from 91 percent to 98 percent and 32.5 percent to 84.5 percent respectively. It was also admitted by the target groups after intervention that munching of apples can make teeth of children stronger and there was increase in knowledge from 32.5 percent to 85.5 percent significantly. Awareness was also significantly improved from 37percent to 88 percent after intervention in context to the statement that nutri-nuggets/boiled potato can replace eggs in the diet as certain children have egg allergy or some can't afford or may be some are vegetarian. Intervention also helped in making the sample beneficiaries aware about the fact that vegetables should be cooked in less amount of water for less time, and

the awareness increased significantly from 8 percent to 88 percent. Nevertheless, the increase in knowledge was also seen with respect to perception that green leafy vegetables being rich sources of minerals and that consumption of milk makes the bones of a child stronger. A significant increase in knowledge was seen from 18.5 percent to 85 percent and 10 percent to 87.5 percent respectively. A study conducted by some researchers have also shown that, by improving the ways in which children are fed is one of the strategies for preventing stunting and support for interventions designed to increase maternal knowledge of nutrition and child feeding practices to prevent stunting (Kim *et al.*, 2016 & Nguyen, *et al.*, 2016) [25, 26].

Intervention related to Sources of Food

Children's eating habits are often driven by needs other than physiological ones. Most do not eat food just because of its nutritional value. They eat because they like the taste, because it's what is made available to them or it's what their friends are eating and, sometimes, because it is what their mothers can prepare. Food tastes develop at an early age and encouraging healthy choices early in life can help to create lifelong preferences for healthy foods.

Table 3: Intervention related to Sources of Food

Variable	Responses	Intervention Phase				χ^2 Analysis
		Pre-Intervention (n=200)		Post-Intervention (n=200)		
		f	%	f	%	
Sources of energy among the foods	Eggs/potatoes/rice	97	48.50	121	60.50	31.40 ₂ ** p=0.000
	Milk	53	26.50	69	34.50	
	Apples	50	25.00	10	5.00	
	Total	200	100.00	200	100.00	
Foods for strengthening bones & teeth	Milk	78	39.00	123	61.50	30.19 ₂ ** p=0.000
	Chicken/apples	77	38.50	65	32.50	
	Bread/cabbage	45	22.50	12	6.00	
	Total	200	100.00	200	100.00	
Sources of proteins required for growth & development	Eggs	73	36.50	97	48.50	49.4 ₂ ** p=0.000
	Dalia	32	16.0	71	35.5	
	Apple/vegetables	95	47.5	32	16.00	
	Total	200	100.00	200	100.00	
Foods essential to maintain healthy eyes & vision.	Green leafy Vegetables/Carrots	110	55.00	168	84.00	39.67 ₁ ** p=0.000
	Apple/ beetroot	90	45.00	32	16.00	
	Potatoes	-	-	-	-	
	Total	200	100.00	200	100.00	
Foods chosen as a snack in the morning.	Homemade roti/fruits	66	33.00	71	35.50	7.25 ₂ * p=0.026
	Bread/corn flakes	1	0.50	9	4.50	
	Local Roti	133	66.50	120	60.00	
	Total	200	100.00	200	100.00	

Column percentage df in subscripts of χ^2 values *denotes significant at 0.05 level ** denotes significant at 0.01 level

Table 3 indicates the intervention related to best sources of foods. It is clear from the data obtained after intervention that; the knowledge of target groups related to best source of energy giving foods increased from 48.5 percent at pre-intervention stage to 60.5 percent at post intervention stage. Milk as a source for strengthening bones and teeth was accepted by 39 percent at pre-intervention stage to 61.5 percent at post intervention stage. Similarly, egg was admitted as best source of protein for growth and development after

intervention with significant increase from 36.5 percent to 48.5 percent. Concept of green leafy vegetables/carrots were perceived by target groups as foods essential to maintain healthy eyes and vision increased from 55 percent at pre-intervention stage to 84 percent at post-intervention stage significantly. Almost similar study was conducted by Rashid *et al.*, 2018 [24] at International Islamic University Malaysia, and Jigjiga University, Ethiopia, and it was observed that the intervention group had shown statistical significant

improvement in knowledge, attitude and practice of the mothers/caregivers ($p<0.05$) compared to control group in all tests; independent sample t-test mean score difference of the difference ($p<0.001$), and paired sample t-test mean score in intervention group ($p<0.001$). At the end, the nutrition education intervention was found effective in improving mothers/caregivers' behaviors related to child feeding practices. Therefore, nutrition education intervention should be further scaled up and adapted to other areas in the Region.

Conclusion

A nutrition education intervention (NEI) regarding best sources of foods along with importance of certain food necessary for proper growth and development of children below three years of age was performed. As per the results the intervention will improve the knowledge of sample women and thereby improving the nutritional status of children. It is after the analysis of post intervention data in identified gap areas of childcare and nutrition that there was a significant ($p<0.00$) increase in level of nutritional knowledge among the target groups in almost all variables of identified gap areas. The increase in level of knowledge could be attributed to the effectiveness of intervention provided by the researcher with mixed approach, selection of module, presentation and techniques used during the process of intervention. Use of local audio-visual aids and participatory techniques in addition to the context-based modification of information also led to increase in motivation and interest of participating women in sharing contemporary knowledge in the field.

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