

## **ASSESSMENT OF BEHAVIOUR CHANGE INTERVENTION TO IMPROVE THE NUTRITIONAL STATUS (UNDER WEIGHT) OF PRESCHOOL CHILDREN IN MULLAITIVU MOH AREA**

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### **ABSTRACT**

Good nutrition is essential for achieving and maintaining good health, improving quality of life, and enhanced socio-economic development of the country. Inappropriate infant and young child feeding practices and inappropriate complementary feeding still persist. Inadequate knowledge and time constraints on the part of caregiver are major contributory factors for poor feeding practices than the economic hardships. The study was carried out to assess the effectiveness of a behavior change intervention to improve the nutritional status (underweight) of preschool children Mullaitivu MOH area. The study population was the mothers of selected underweight children. Twenty six mothers with underweight children in from 2 preschools in one PHM area were given intervention and 26 mothers from another PHM area were kept in the wait list as controls. The education was given using materials on how to improve the nutritional status of the children. The mothers were given education in group and individually as well. After 6 months of intervention the weight of the children were checked and looked for any significant improvement. The factors identified as reasons for underweight included poor knowledge about cheap and nutritious foods available locally, not

feeding during illness and feeding the child with junk foods. The intervention showed improvements in proportion of underweight children, but it was not statistically significant ( $p < 0.05$ ). The intervention by this methodology has to be checked with longer post intervention period and with bigger sample size for statistically significant improvement.

Key words: child nutrition, malnutrition, complementary feeding

### **BACKGROUND**

Good nutrition is essential for achieving and maintaining good health, improving quality of life, and enhanced socio-economic development of the country. Under nutrition leads to sub-optimal growth, poor cognitive development and poor academic performance in children resulting in decreased work capacity and productivity in adult life. Sri Lanka is dependent upon well-nourished healthy children to grow up and contribute effectively to the well-being of the nation. The nutritional status of the population inter related all stages of life cycle. So the nutritional interventions have to be targeted reducing the inter-generational impact of malnutrition.

### **Nutritional status of the country**

Despite the relatively high literacy rate (90.8% in 2006) in the country (Central

Bank Annual Report. 2008), and achievements in economic growth, the nutritional status of children is not satisfactory, and neither is that of adolescents and women. According to the Demographic & Health Survey 2006/2007 data, among the under five children, 21.1% are underweight (compared to 22.8% revealed by DHS 2000), and about 14.7% under 5 years are wasted (15.5% in 2000). Stunting levels have declined from 18.4% in 2000 to 17.3% in 2007 (DHS). The nutrition status shows a wide variation across the districts mainly poor in north east (mainly conflict affected areas) and plantation sector. The mullaitivu district well known as a conflict affected area having 35.6% of underweight, 27.6% of wasting, and 17.6% of stunting among fewer than 5 children compared to national average of 23.5%, 19.6% and 13.1 respectively (MRI survey 2012). Inequity of household food distribution, insufficient knowledge, inappropriate feeding and caring practices add to the problem of compromising nutrition security of the individual. Inappropriate infant and young child feeding practices especially short duration of exclusive breast-feeding & inappropriate complementary feeding still persist. Inadequate knowledge and time constraints on the part of caregiver are major contributory factors for poor feeding practices than the economic hardships. Although a wide range of programmes (e.g. Thripasha programme, growth monitoring and promotion of children, micronutrient supplementation etc.) have been ongoing for several years, it is imperative that they are evaluated and strengthened to reap the full benefit.

### **Future plans to improve the nutritional status of children in the country**

Ensuring all pre-school and primary school children have access to adequate and safe nutrition, which will optimise

their growth and development is one of the recommendation under the nutrition policy of Sri Lanka. In addition it is recommended that promoting behaviour change communication to all sections of population enabling them to make right food choices and care practices will be useful to improve the nutrition of the population. Strengthening the complementary feeding practices and the IYCF strategy will be useful in improving the nutritional status according to the policy (National Nutrition Policy of Sri Lanka 2010). According to the policy ensuring of nutritional interventions to underserved areas, plantation community, urban poor and conflict affected areas was considered useful.

### **Success of interventions**

According to the interventions in South Asian countries it was resulted in 36% reduction in underweight by nutritional education intervention to mothers (khan etal 2013). In a pooled analysis of 9 studies also it was shown 25% decrease in underweight (Bhutha etal 2008).

### **Justification**

Despite the relatively high literacy rate (90.8% in 2006) in the country (Central Bank Annual Report. 2008), and achievements in economic growth, the nutritional status of children is not satisfactory. The nutrition status shows a wide variation across the districts mainly poor in north east (mainly conflict affected areas) and plantation sector (Refer Introduction and Literature Review). According to the national nutrition policy ensuring of nutritional interventions to underserved areas, plantation community, urban poor and conflict affected areas are identified as essential. Ensuring all pre-school and primary school children have access to adequate and safe nutrition, which will optimise their growth and development is

one of the recommendation under the nutrition policy of Sri Lanka. In addition it is recommended that promoting behaviour change communication to all sections of population enabling them to make right food choices and care practices will be useful to improve the nutrition of the population. Strengthening the complementary feeding practices and the IYCF strategy will be useful in improving the nutritional status according to the policy (National Nutrition Policy of Sri Lanka 2010). International and local studies proved that educational interventions are success in improving the nutritional indicators. So the PI has selected an MOH area from Mullaitivu district where the nutritional indicators of children are poor. The particular MOH area is selected due to feasibility of the PI. As this as an initial step in the intervention the expected effect is taken as 35% decrease in underweight in 3 months compared to control group.

### **Objectives**

#### **General objective**

To implement and assess the effectiveness of a nutritional education package to improve the underweight of preschool children of Mullaitivu MOH area

#### **Specific objectives**

1. Development of intervention package to improve the underweight of preschool children of Mullaitivu MOH area
2. To implement the intervention and to assess its effectiveness

## **METHODOLOGY**

### **Study Type**

This is a quasi experimental study conducted by nutritional intervention to the mothers of underweight children in preschools in Mullaitivu MOH area.

### **Study setting**

The study setting is the preschools in two randomly selected PHM areas (one area as intervention area and other as control area) in Mullaitivu MOH area.

### **Study duration**

This study was conducted from November 2013 to January 2014

### **Study Population**

The study population was the mothers of selected underweight children in preschools in one randomly selected PHM area in Mullaitivu MOH area.

### **Sampling size**

For a quasi experimental study specific way of calculating the sample size was not mentioned in literature. Number of study subjects was selected considering the feasibility and convenience.

Formula I :

$$N = \frac{2pq(z\alpha + z\beta)^2}{(p_1 - p_2)^2}$$

The sample size in each of an experimental and a control group is given by above formula in Experimental studies, discussed in Schlesselman case control study design, conduct and analysis (Schlesselman 1982). Where,

P1= % of success expected in the Control Group – CG (10%)

P2= % of success expected in the Intervention Group – IG (45%)

$\alpha$  = Level of significance used to detect the difference type 1 error (0.05)

Where power is set at 0.8(80%), type 2 error  $\beta$  = 0.2

Applying these values to formula I calculations approximates  $N = 18.3 = 19$

With the non response and withdrawal in between add 10% = 21

### **Sampling technique**

Two PHM areas were selected by simple random sampling for intervention and control taking the list of PHM areas as sampling frame, from Mullaitivu MOH area. Among the two selected PHM areas one was again selected randomly for intervention and other was kept as control which receives the intervention later. Twenty six mothers were selected for intervention and control groups each. The preschools were selected randomly by simple random sample till the sample size is achieved from the intervention area. The list of preschools was the sampling frame.

## **DATA COLLECTION AND INTERVENTION**

Underlying causes for underweight were identified by research questionnaire and by the food sheet to mark the foods given to the child every day. The food sheet was prepared with the expert and mothers consultation. A behavior change intervention package was developed by PI with expert consultation and be used to educate the mothers with the help of the mothers groups of the particular PHM area. The weight was recorded before the intervention and 3 months after the intervention. The intervention package was based on the key messages (suitable for the preschool children) of the Infant and Young Child Feeding (IYCF) strategy targeting the underlying causes identified. The intervention was delivered by Health Education Officer and pre intern doctors in 3 workshops

The messages were targeted in following areas:

- explained CHDR growth monitoring graphs
- Frequency and amount of meals of for the age
- Inclusion of animal food, pulses and legumes to the main meals
- Feeding during illness
- Introducing the locally available cheap food items and recipes through the mothers groups
- Monitoring of feeding practices at least once a week by research assistants and mothers group

### **Workshop 1**

- Took 24 hour dietary recall from each individual mother verbally and the same time what are the good practices and which need to modified? asked and facilitated to getting from other mothers considering food security.
- Discussed possible dietary modification considering income, palatability, feeding frequency, feeding approaches and change undesirable practices with each mother.
- Asked them to keep a record regarding dietary modifications, food items, volume and feedings continuously and mention feed backs each day.

Workshop 2 & 3 were conducted with the same messages as a booster.

All the procedures were monitored closely by the PI

## **DATA ANALYSIS**

Data entry and analysis were done by PI. The data were analyzed using the Statistical Package for Social Sciences (SPSS) software version 15 with suitable statistical tests.

## **Administrative requirements and Ethical Consideration**

Ethical clearance was obtained from a Ethical Review Committee of Faculty of Medicine Jaffna. Permission to carry out study was obtained from the RDHS of the Mullaitivu district.

Informed written consent was obtained from the participants using information sheet and consent form. The freedom was given to the participants not to participate and even to withdraw after participation

All measures were taken to minimize the inconvenience for the subjects and optimal confidentiality was assured. The data were stored in the PI's computer with pass word and discarded after use

The improvement of the nutritional status of the community was the expected benefit by this research. No compliments or incentives were provided.

- not feeding during illness
- laziness to prepare food
- feeding the child with junk foods
- inadequate income

Comparison in underweight status before and after the intervention in intervention group

Weight before intervention	Weight after intervention		Significance <u>McNemar's test</u>
	underweight	normal	
underweight	21	05	0.07
normal	00	00	

Comparison in underweight status before and after the intervention in control group

Weight before intervention	Weight after intervention		Significance <u>McNemar's test</u>
	underweight	normal	
underweight	25	01	1.00
normal	00	00	

## Results

### Socio demographic features of the parents

Variable	Father		Mother	
	Number (n=26)	%	Number (n=26)	%
<b>Educational qualifications</b>				
No schooling	00	00	00	00
Primary education	05		03	
Post primary education	16		13	
Up to G.C.E(O/L)	04		10	
Up to G.C.E (A/L)	01		00	
Undergraduate/Diploma/Graduate	00		00	
<b>Occupation</b>				
Unemployed	00		26	
Fishery	25		00	
Bus driver	01		00	
<b>Income</b>				
Less than or equal 15000/=	11			
15000/= to 20000/=	14			
>25000/=	01			

Underlying factors identified associated with underweight

- poor knowledge about cheap and nutritious foods available locally

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