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**Nuzhat Sultana MB**  
Department of Home Science  
Mrs. K.S.K. College, Beed,  
Maharashtra, India

## Food safety and its impact on health status of preschool children

**Nuzhat Sultana MB**

### Abstract

Children are high risk population. Food habit & food safety are the most important factors that determine the health of a child is a full and regular supply with all the necessary macro- and micronutrients, vitamins and minerals Michadsen 2003, Gidding & *et al* 2006, Normy zywienia 2012, Normy zywie 2012) Two hundred and fifty preschool children in the age of 3 to 6 years from anganwadies of Beed district were selected. Nutritional status of preschool children were assessed by anthropometrical, dietary & Clinical measurement. To study the food habit & safety with the help dietary survey & personal hygiene and safety measures maintained by mothers at home. The hygiene level, sanitary condition and microbial quality of food & water, pathological health examination of mothers were assessed with the help of questioner cum interview method. Results of the study show that the nutritional and health status of preschool children was very poor. Food habits acquired during childhood persist into adulthood and form the basis of either good health or ill health, as the case may be, in the coming years. Hence there is a need to educate parents regarding correct dietary habits for their children to ensure that they can live healthy and productive lives as adults. Many of the mothers were not aware of general knowledge and hygiene practices to follow during food preparation. An intervention programme of education and importing training at work places have shown a positive impact on the outcome of food safety practices and safe hygienic practices of food handlers/mothers at work place and it may improve the health status of preschoolers.

**Keywords:** food, nutritional status, food safety, preschoolers

### 1. Introduction

Children are the valuable asset of a nation. Food is necessary for the proper growth and development of children. Nutrition is one of the most important factors that determine the health of a child is a full and regular supply with all the necessary macro- and micronutrients, vitamins and minerals Michadsen 2003 <sup>[12]</sup>, Gidding & *et al* 2006 <sup>[8]</sup>, Normy zywienia 2012 <sup>[14]</sup> The younger the child, the more important is adequate, balanced food for child's further development and health, especially for the first 3 years of life. At this phase of human ontogeny which is characterized by rapid growth and development, adequate nutrition needs and balanced intake of nutrients and energy is a key factor in the full realization of genetic potential, ensuring optimal mental development, formation of immune competency and long-term health. Respectively, inadequate or poor nutrition during the first years of life may lead to significant negative consequences for health, including delayed psychomotor and mental development, behavioral problems, lack of social skills, disorders of attention learning problem, *etc.* (Hasschke & *et al* (2013) <sup>[9]</sup>

Adequate provision of basic nutritional needs of a child who is growing and rapidly developing is an important medical and social task for Pediatrics and Family Medicine. It has been proven today that features of early life nutrition not only play an important role in the formation of optimal physical health and intellectual development of a child, but may even determine a substantially higher risk of chronic disease in adulthood Agostoni & *et al* 2011 <sup>[11]</sup>, Hoyman & 2007 <sup>[10]</sup>, American dietetic asso 2008 <sup>[3]</sup>, Koletzko & *et al.* 2009) <sup>[13]</sup>

About 35% of diseases in children aged less than 5 years are associated with certain nutritional disorders. WHO estimated that globally in 2012, 162 million children under five were stunted and 51 million had a low weight-for-height ratio, mainly as a consequence of improper feeding or recurrent infections while 44 million were overweight or obese. Few children receive nutritionally adequate and safe complementary foods.

**Corresponding Author:**  
**Nuzhat Sultana MB**  
Department of Home Science  
Mrs. K.S.K. College, Beed,  
Maharashtra, India

In many countries only a third of breastfed infants aged of 6–23 months receive complimentary feeding which is appropriate to their age criteria of dietary diversity and feeding frequency WHO (2014) [16].

Consumption of fruits and vegetables by all children aged 6 months – 4 years remained insufficient also. Specifically, 30% of them did not eat any vegetables and 25% – any fruits on the survey day (Fox & Reidy (2010) [7]. At the same time, fried potato was the favorite vegetable dish in children older than 2 years. The diet of many children aged 1–3 years did not contain enough vitamin E and dietary fibre, but too much sodium, and some of them did not consume enough iron and zinc Dwyer & Siega-Riz (2010) [6]. The ratio between separate nutrients was broken, in particular, the diet proportion of fat did not provide 30–40% of energy needs, primarily due to excess protein intake. (Butte & Dwyer & Siega-Riz (2010) [6]. In children older 12 months the diet diversity was becoming narrower with a negative tendency to increase the proportion of nutritionally inadequate snacks, sweets, sugary and carbonated beverages.

Food safety is an also important public health issue to prevent or control food-borne illnesses. In response to the increasing number of food-borne illnesses, governments all over the world are intensifying their efforts to improve food safety [Subba *et al* 2007] [15]. According to the WHO [Henson & Reardon 2005] [11], contaminated food contributes to 1.5 billion cases of diarrhoea in

children each year, resulting in over three million premature deaths. However, these deaths and illnesses are shared by both developed and developing nations. Approximately 10 to 20% of food-borne diseases outbreaks are because of contamination by food handlers /parents [Mundey *et al* 2010]. The role of food handlers in homes, usually mothers, in ensuring food safety at the household level is well accepted but an understanding of the status of their food handling knowledge and practices is needed [Chekolet *et al* 2019] [5]. It is very important to understand the interaction of the prevailing food safety, knowledge, and practices of food handlers in reducing food born outbreak (Abdulla & *et al* 2016) [1].

Most of the studies showed that food handlers/mothers were directly involved some stage of food processing (Ragini 2004) and food contamination can be reduced drastically by wash their hands.

Taking into account the importance of balanced nutrition in early childhood, its impact on the subsequent formation of the body tissues and maintaining health, Beed is one of the backward area of Maharashtra. The rural and urban population of Beed districts is not aware about the food

safety & good food habit, therefore a study was planned to assess food safety measures maintained by food makers/mothers at personal level at home of Beed district.

## 2. Objective

- To study the impact of nutrition education and training programmes of food habits & food safety on mothers.
- To know the food habits of preschool children of selected anganwadies of Beed district.
- To study the health problems of anganwadi preschool Children of Beed District.
- To observe the food safety rules at work place by mothers of preschoolers of Beed district.

## 3. Methodology

For assessment the food habits & food safety of preschool children of Beed district a questionnaire and check list were used to elicit the socioeconomic data. A data was collected on knowledge, attitude and practices in two phases, Before and after imparting education and training on food safety and security to parents/mothers of the preschoolers.

To assess the food habits & food safety of 250 preschool children at Beed district A diet survey was carried out, with the help of 24 hrs. Recall method. For the above survey fifteen anganwadies from Beed were selected randomly. A clinical health of preschoolers were assessed with the help of Physician.

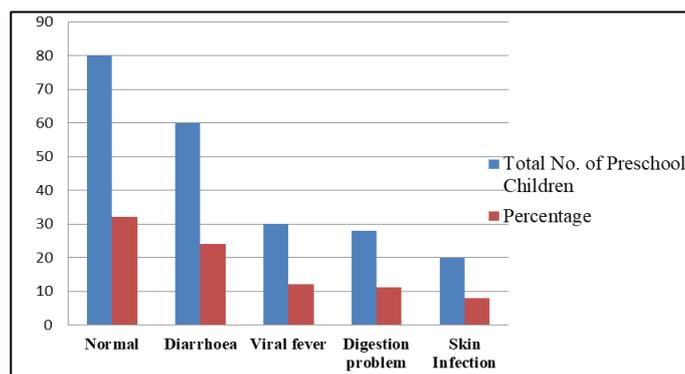
## 4. Result and Discussion

The Dietary pattern of preschool children of different anganwadies reveals that the intake of cereals and pulses were quite satisfactory, but their diet were lacking green and other vegetables, i.e. 63% and 53.42% deficient respectively. Therefore the mean nutrient intake were lacking in protein, calcium nutrient.

A majority of the rural preschool children had clinical signs, which may attributed to protein energy malnutrition (PEM), i.e. luster less skin, and B complex deficiencies. Moreover majority of children facing diarrhoea and digestion problem. i.e. 24% and 12% respectively.

**Table 1:** Health problems in preschool children

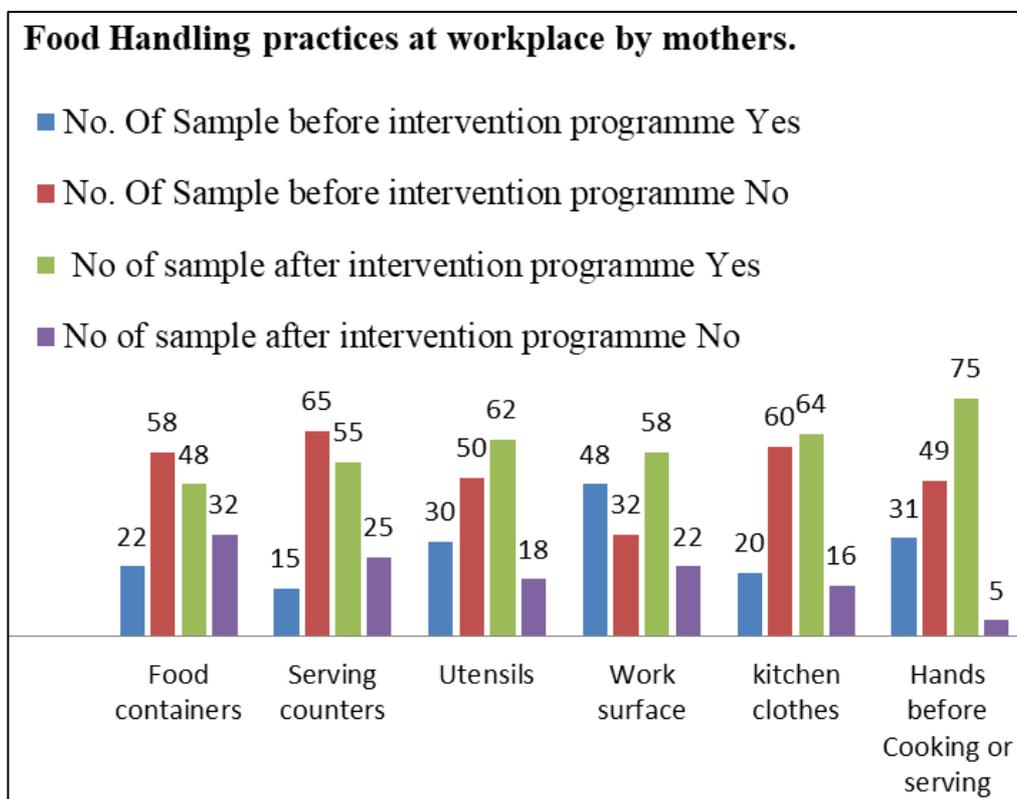
Health Problems	Total No. of Preschool children	Percentage.
Normal	80	32
Diarrhoea	60	24
Viral fever	30	12
Digestion problem	30	12
Gastric problem	28	11.2
Skin infection	22	8.8



Health Problems in Preschool Children

**Table 2:** Food Handling practices at workplace by parents

Sr. No.	Activity (Washing)	No. of Samples before intervention programmes		No of samples after intervention programmes	
		Yes	No.	Yes	No
1	Food containers	22(11%)	58(29%)	48(24%)	32(16%)
2	Serving counters	15(7.5%)	65(37.5%)	55(37.5%)	25(17.5%)
3	Utensils	30 (15%)	50 (55%)	62 (31%)	18 (9%)
4	Work surface	48(24%)	32(16%)	58(29%)	22(11.0%)
5	kitchen clothes	20(10%)	60(30%)	64(32%)	16(8.0%)
6	Hands before Cooking or serving	31(15.5%)	49(24.5%)	75(37.5%)	5(2.5%)



Food Handling practices at workplace by mothers

The above study result shows that there was a positive impact of education and training on aspect of personal hygiene and safe food handling practices of the parents. The result showed that many of parents were not aware of general knowledge and hygiene practices to follow during food preparation. An intervention programme of education and imparting training on parents has shown a positive impact on the outcome of the practices of food safety & security.

### 5. Conclusion

It was concluded that Nutrition education & intervention programmes has a positive impact on food safety practices of food handlers at work place. Before intervention programme most of the children were facing many health problems but after training to food handlers it may improve the health status of preschool children.

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