Chapter VI

Summary & Conclusion
SUMMARY AND CONCLUSION

The present study, "Assessment of Nutritional Profile of School-Going Children (6-12 years) Among Rural Areas of Aligarh District" was conducted in the four villages of Jawan Block, District Aligarh with the following aims and objectives-

- To assess the nutritional status of school-going (6-12 years) children using Anthropometric Indicators- Height for Age and BMI for Age.
- To examine the effect of socio-demographic factors on nutritional status of school going children.
- To assess the pattern of dietary consumption of nutrients (calories and protein) among school going children by using 24 hr dietary recall method.
- To examine the prevalence of clinical signs of nutritional deficiency disorders among school-going children.

The result of the present study has been summarized in the following manner-

Brief Description of the Study Area and Methods Applied in Research

- The present study was undertaken in the rural field practice area of Department of Community Medicine, Jawaharlal Nehru Medical College, Aligarh Muslim University Aligarh under Rural Health Training Centre.
- The study was carried out for a period of 6 months from April 2010 to September 2010.
• Out of total 7 villages registered under Rural Health Training Centre, only four villages, namely- Jawan, Chhota Jawan, Tejpur and Sumera were selected.

• Interview schedule was prepared as a tool for data collection for obtaining the information about the socio-demographic profile of children and their nutritional status.

• Social class classification was done according to modified Prasad’s Classification (2004).

• Nutritional assessment of school-going children was done by using three standard techniques i.e. anthropometric measurements, 24 hr dietary recall method and clinical examination.

• The study was conducted in the households among the areas of study.

Socio-Demographic Profile of School Going Children

• A total of 350 school going children were selected for the purpose of present study which was based on the findings of initial pilot study.

• Out of total 350 children-161 from Jawan, 44 from Chhota Jawan, 43 from Tejpur and 102 from Sumera were selected by applying the method of proportion of population size.

• Children who had completed 6 years of age on the date of interview and were not more than 12 years of age were included in the study.

• Children having physical deformities of the limbs and spine and who were suffering from diseases and having mental defects were excluded from the study.

• Out of total 350 school going children, majority (52.6%) of them were boys and remaining (47.4%) were girls.
• Maximum number of children (32.3%) were found in the age group 6-7 years.
• Majority (46%) of school-going children were having illiterate mothers and 35.1% were having mothers who were literate. Very few children (18.9%) were having the mothers who were educated up to primary level.
• Majority (50%) of children were having literate fathers. 24.3% and 25.7% children were having illiterate and primary educated fathers respectively.
• Majority (63.4%) of children were having the fathers who were unskilled workers whereas only 36.6% children were having the fathers who were skilled workers.
• Maximum percentage (63.7%) of children were having the non-working mothers, on the other hand 36.3% children were having the working mothers.
• Majority of children (60%) belonged to joint families and only 40% belonged to nuclear families.
• Maximum number (i.e., 205) of children were having more than 3 siblings and 41.4% were having less than 3 or equal to 3 siblings.
• Majority of children (60.3%) were found in lower middle class and 39.7% were found in upper middle class on the basis of modified Prasad’s classification (2004).

Nutritional Profile of School Going Children

• Majority of school going children (68.0%) were found stunted and 32% children were in the category of normal height for age. Out of total 68% children who were found stunted, among them-40.3% were stunted and 27.7% were severely stunted according to WHO, 2007 standards.
• Maximum percentage i.e. 79.4% of school going children were found thin and only 20.6% were under the category of normal BMI for age. Out of total 79.4% children who were found thin, among them-49.7% were thin and 29.7% were severely thin according to WHO, 2007 standards.

• Majority (62.0%) of school going children were having the inadequate pattern of energy consumption whereas 38% were having the adequate energy consumption pattern.

• Majority (72%) of school going children were having inadequate pattern of protein consumption and remaining 28% were having the adequate pattern of protein consumption.

• Majority (81.1%) of children were found stunted whose energy consumption pattern was inadequate.

• Very high percentage (93.1%) of children were found thin whose dietary pattern of energy consumption was inadequate.

• Majority (77.8%) of children whose dietary pattern of protein consumption was inadequate, were found stunted whereas highest percentage (41.8%) of children were under the normal category of height for age whose protein consumption pattern was adequate.

• Majority (94.5%) of children were found thin, whose protein consumption pattern was inadequate. On the other hand, maximum percentage (59.2%) of children were under normal category of BMI for age whose protein consumption pattern was adequate.

• There was 28% prevalence of thin and lusterless hair among 350 school going children.

• Bitot spots and night blindness was present in 5.7% and 6.3% children respectively.
• Prevalence of pale conjunctiva and koilonychia was observed in 29.4% and 17.4% children respectively.
• Glossitis and cheilosis were prevalent in 8.0% and 6.0% children respectively.
• Problem of bleeding gums was observed in 15.1% children.
• The study area was found fortunate in having no single case of goiter during the course of study.
• Prevalence of thin and lusterless hair (28.8%), Bitot spot (6.5%), Pale conjunctiva (29.9%), Glossitis (9.8%), cheilosis (8.2%) and bleeding gums (17.4%) was higher among boys than girls.
• Night blindness (7.4%) and koilonychia (18.7%) were more prevalent among girls than boys.

Impact of Socio-Demographic Factors on Nutritional Status (HAZ/BAZ) of School Going Children

• Majority (68.5%) of school going children were found stunted in the age group of 6-7 years and only 13.2% children in the age group 11-12 years were stunted. Majority of stunted (31.9%) and severely stunted (36.6%) children were observed in the age group 6-7 years.
• Majority (75.8%) of school going children in the age group 6-7 years were found thin and only 8.8% children were observed thin in the age group 11-12 years.
• Majority of female children (75.9%) were found stunted and prevalence of stunting was 69% among male children. Majority (31%) of male children were under the category of normal height for age.
Summary and Conclusion

- Majority of female children (86.1%) were found thin and prevalence of thinness among male children was 73.4%. Majority (26.6%) of male children were under the category of normal BMI for age whereas only 13.9% females were found normal.

- The overall prevalence of stunting among children who had illiterate, literate and primary educated fathers, was 68.2%, 71.5% and 77.8% respectively.

- Majority (80%) of children who had illiterate fathers were found thin. Maximum percentage (27.4%) of children was found under the normal category of BMI for age whose fathers were literate.

- Majority of children (78.9%) of illiterate mothers were found stunted. Majority of children (45.5%) were under the normal category of height for age whose mothers were educated upto primary level.

- Majority of children (93.2%) who were having illiterate mothers were found thin. Maximum percentage of normal children (69.7%) was observed whose mothers were having primary education.

- Highest prevalence of stunting (77%) was seen among children whose fathers were unskilled workers, whereas majority (35.9%) of children whose father were skilled workers were found under the normal category of height for age.

- Majority (93.3%) of children of fathers who were unskilled workers were found thin whereas 55.5% children of fathers who were skilled workers were found thin.

- Maximum percentage (77.1%) of children of non-working mothers were found stunted. Majority (36.2%) of children of working mothers were under the normal category of height for age.
- Very high prevalence of thinness (91.9%) was observed among the children whose mothers were non-working and only 8.1% children of non-working mothers were found normal for BMI for age.

- Majority (78.1%) of children from joint families were found stunted. On the other hand highest percentage (36.4%) of normal children was found among those who belonged to nuclear families.

- Very high percentage (94.8%) of children were found thin who belonged to joint families. Majority of children (43.6%) from nuclear families were under the category of normal BMI for age.

- Majority of children (77.1%) were found stunted who were having more than three siblings. Maximum percentage (34.5%) of children were under the normal category of height for age, who were having less than or equal to three siblings.

- The highest prevalence of thinness (93.1%) was observed among the children who were having more than 3 siblings

- Majority (77.7%) of children were found stunted who belonged to lower middle social class. On the other hand, maximum percentage (36%) of children were under the normal category of height for age who belonged to upper middle social class.

- Majority (92.4%) of children from lower middle social class were found thin and only 7.6% children were under the normal category of BMI for age who belonged to lower middle class.

Factors Associated with Energy and Protein Consumption Pattern of School Going Children

- Majority of children (69%) in the age group 6-7 years were having inadequate pattern of energy consumption. Maximum percentage (53.3%) of children in the age group 10-11 years were having adequate energy consumption pattern.
Summary and Conclusion

- Majority of boys (43.5%) than girls (31.9%) were found in having adequate pattern of energy consumption.
- Majority of children (72.4%) from joint families were having inadequate energy consumption pattern.
- Majority (82.6%) of children of illiterate mothers were having inadequate pattern of energy consumption.
- Majority of children (71.7%) of non working mothers were having inadequate pattern of energy consumption.
- Majority of children (78.6%) in the age group 9-10 years were having inadequate protein consumption pattern.
- Majority of boys (34.2%) than girls (21.1%) were having adequate protein consumption pattern.
- Majority (82.9%) of children from lower middle class were having inadequate pattern of protein consumption.
- Majority of children (85.7%) from joint families were having inadequate pattern of protein consumption.
- Majority of children of illiterate mothers (87%) were having inadequate pattern of protein consumption.
- Majority (83.9%) of children of non-working mothers were having inadequate protein consumption pattern.
- Majority of children (57.6%) from upper middle social class were having adequate pattern of energy consumption pattern.
Suggestions and Recommendations

- Special programmes need to be formulated at the local level by visiting doctors and health service providers for enhancing the nutritional status of this segment of children but at the same time it should be kept in mind that cost effectiveness should be a priority in disseminating nutritional information. This will ensure sense of affordability in providing food and adequate nutrients to children by the mothers.

- Effective IEC (information, education and communication) strategies are necessary because use of these materials and methods such as flash cards, posters, charts, flip album and indigenous method such as puppet shows, “nukkad natak” (street plays), folk songs, have significant association with health service use.

- Skill-based nutrition education is necessary to address the entire family not only the mothers. It should be focused on communication which results in behavioral change.

- Umbrella approach (a combination of local organizations- both governmental and non-governmental) should be taken up and implemented to generate awareness and mobilize parents of children in this age-group, towards health and nutritional development of children and themselves also.

- Public health workers at village level (ANM/ASHA, anganwadi workers) should provided knowledge and skills to implement a nutrition education program effectively and efficiently. There is need to develop some tools to providing training to health workers. Well trained community workers/local leaders will be beneficial to bring the behavioral change among the people and they can also enhance the access to healthcare for the entire
community. They will also be helpful to provide healthcare services and education to mothers and children where the public healthcare system is absent.

- The medical officers at the nearby Rural Health Training Centre, Urban Health Training Centre and Jawaharlal Nehru Medical College, AMU, could play an instrumental role in regular growth monitoring of the nutritionally vulnerable sections of the population including school going children. They can instruct the ANM for regular visits to villages and taking the measurements of height and weight of children and maintaining the records so that a regular check can be kept on the development of the children.

- School aged children are often omitted from health and nutritional surveys and surveillance. National Family Health Survey-3, conducted in 2005-2006 in India also excluded this age group of children. So there is need for national health and nutritional survey that include the school aged children and that do not limit their investigations to young children of age group between 0-5 years.

- A comprehensive nutrition education programme should be initiated by the government of India. So special budget should be allocated for the same to improve the overall health and nutritional status of children in India.

- There is an urgent need to impart knowledge among mothers of school-going children regarding the balanced diet and promote the consumption of food items like cereals, pulses, green leafy vegetables, roots and tubers, sugar and jeggery etc. which are affordable and locally available at the village level.

- In addition to poverty alleviation, efforts should be made towards improvement in education, restricting family size, affective family planning techniques, safe water supply, sanitation and adequate
health care to have a positive impact on the nutritional status of school going children.

- Nutritional status of school going children should be the matter of concern for policy makers as it is one of the main indicators of development and the pre-condition for the socio-economic development of the nation.

- For the above interventions local NGOs, academicians of AMU, Medical officers of JNMC, MSW students of AMU could be brought together and organized for activities to generate awareness, float income generation activities for women and encourage them for their participation in village level programmes.