Malnutrition during childhood can also affect growth potential and risk of morbidity and mortality in later years of life. Malnourished children are more likely to grow into malnourished adults who face heightened risks of disease and death. The present study is a humble attempt to analyse socio-economic factors affecting nutrition of school going children such as child’s age, child’s birth order, mother’s education, family income and household standard of living etc.

Evidence from the most comprehensive studies into school-age children’s nutritional status indicates that this age group suffers from levels of stunting and underweight, and in some regions, wasting, that are comparable with pre-school children. While these studies cannot claim to be representative of all school-age children in the study country or region, they do consistently show very high prevalence rates for stunting and underweight among African, Asian and South American school-age children. The high levels of stunting may be attributed to delayed puberty and catch-up growth in older children although in the majority of studies, the pattern observed was one of sustained linear growth retardation throughout the primary school years. The full physiological implications of these findings although unclear may offer a window of opportunity to improve the growth of school age children. What is clear is that stunted children enroll late into
school and are probably less likely to complete their schooling. Boys in school also appear to be more stunted than girls.

Overweight and obesity is emerging as a new problem in school-age children in countries undergoing the ‘nutrition transition’. The increasing evidence of an association between stunting and obesity suggests that obesity could represent a major problem for developing countries in the future.

Studies undertaken of the health and nutrition status of children who do not enroll for school reveal that they more likely to be sick and have higher levels of malnutrition (stunting is particularly high) than those who attend school. It is noted that this group is subject to multiple disadvantage which needs to be addressed through their active inclusion in existing school health programmes or other targeted initiatives.

There are effective school-based programmes that directly address some of the main health and nutrition problems facing the school-age child. New evidence is emerging of the potential to increase the effectiveness of iron supplementation programmes though the provision of weekly or even intermittent dosing of schoolchildren. The positive effect of weekly dosing on the iron status and growth of adolescents has been strongly demonstrated in East Africa and there are examples of similar effects from South America. The challenge, however, is to ensure the levels of compliance needed for such an effect at the programme level. The use of multiple micronutrient supplementations has been shown to have a beneficial effect on iron, iodine and vitamin A deficiency in school children. There is also evidence a significant
reduction in iodine deficiency among school-age children following the recent introduction of iodized salt.

The impact of school feeding, particularly the provision of breakfast has been shown to result in increased attendance and cognitive function among already undernourished schoolchildren thus conferring the most benefit to those most in need.

The value of sanitation, hygiene and water programmes in schools is justified because of the potential high risk of disease transmission if facilities are either non-existent, in a poor state of repair or incorrectly used. In addition, studies show that school aged children can provide effective links with their peers (child to child) and the wider community in communicating important hygiene messages as well as promoting improved sanitation.

Children of school age face health and nutrition problems that may affect their individual physical development, their capacity to attend school and their ability to learn. Health and nutrition problems are closely related to socio-economic status. The present study is a humble attempt to explore the bearing of socio-economic aspects on nutrition and health problems of school going children.

1.1 OBJECTIVES OF THE STUDY

The objectives of the present study are as follows-

1) to ascertain the nutritional status of school going children;

2) to find out impact of family background on nutritional status of school going children;
3) to find out impact of socio-economic aspects on nutritional status of school going children;

4) to ascertain consequences of nutritional status among school going children and;

5) to critically examine various governmental programmes of child nutrition and suggest ways and means to improve the nutritional status of school going children.

1.2 CONCEPTUAL FRAMEWORK

The concepts used in the present study are operationalised as under:-

**SCHOOL AGE CHILDREN:** - The Children of school age are defined here as 5-14 years of age.

**SCHOOL GOING CHILDREN:** - The School going children are among school age children and attending the schools.

**NUTRITIONAL STATUS:** - Nutritional status refers to availability of required energy and nutrients to the body cells in relation to body requirements.

**FAMILY BACKGROUND:** - The term family background has been used to denote to the type of family, size of family and education of parents of children.

**SOCIO-ECONOMIC STATUS:** - The term socio-economic status has been used to denote caste, religion, rural-urban background, income and occupation of parents of children.
1.3 COVERAGE

The locale of the study has been confined to Meerut city. Meerut is districts headquarter. Meerut district is one of the most important districts in north-western region of Uttar Pradesh. It has a historical importance. Meerut district with a population of 29,97,361 having 16,01,578 males and 13,9,57,783 females, sharing 1.80 percent of total U.P. (Census of India-2001), is one of the most leading districts of western region of Uttar Pradesh, historically, culturally, economically and politically.

Geographically, the locale of our study, i.e. Meerut city lies between 29°29’ north latitude and 77°43’ east longitude. It is situated at an altitude of 290 meters. The major portion of the city lies on a fertile land. The study is confined to the Meerut City and outskirt rural areas only. The sample is selected from children studying in schools up to junior high school standard situated at Meerut. Out of four schools, two are from urban areas and another two are selected from outskirt rural areas.

So, total 400 school going children are selected on a random sampling basis from the schools selected for study. Various demographic and socio-economic characteristics of the sample are as follows:

(1) Every six out of ten children are from the age group of 10 to 12 years. A little less than two out of every ten children are equally from the age group of 7 to 9 years and the age group of above 13 years. Remaining a very little children are from the age group of up to 6 years,
(2) A little less than four out of every ten children among the sample are girl or female child. The rest are boys or male child.

(3) Almost three-fourth of the children are from the second, third, and fifth or higher birth order. The remaining one-fourth of the children are either from the fourth birth order or from the first birth order.

(4) A little less than two-third of the children are from medium castes, further a little less than one-fourth are from lower castes whereas the remaining are from the higher castes.

(5) A little less than two-third children are from Hindu religion and the remaining children are from Non-Hindus, in majority from Muslims.

(6) A little less than one-fourth of the children are from urban background, remaining about three-fourth children are comes from rural background.

(7) More than six out of every ten belongs to nuclear families, whereas the remaining are from joint families.

(8) Nearly half of the children are from medium-sized families i.e. having 5 to 7 members, four out of every ten children are from large-sized families i.e. having 8 or above members. The remaining children are from small-sized families with the majority of urban areas.

(9) Nearly half of the children are from the families with monthly income range of Rs. 3,000.00 to Rs. 5,000.00, one eighth of the children are from the families with monthly income range up to Rs. 3,000.00, whereas the remaining children are from the families with monthly
income range of Rs. 10,001.00 to Rs. 15,000.00 and above Rs. 15,000.00

(10) As concerned with father’s education, fathers of nearly four out of every ten children are educated up to High School level, father of nearly one-fourth children are Intermediate level, whereas remaining children are almost equally divided in to either Illiterate or Graduation or above in father’s education.

(11) As concerned with father’s occupation, fathers of a little less than one-fourth children are engaged in Agriculture, fathers of three out of every ten children are engaged in business, whereas remaining are almost equally distributed in to Govt. job, Private jobs and working as daily wages labourers.

(12) As concerned with mother’s education, mothers of more than four out of every ten children are Illiterate, which are further in majority of rural areas. Mothers of nearly one-third children are educated up to High School level, whereas remaining are distributed in to Intermediate level and graduation or above in mother’s education.

(13) As concerned with mother’s occupation, mothers of almost nine of every ten children are house-wife, whereas remaining are distributed with engagement in Agriculture, Private Job, Government Job, Daily wages labourers and Business in descending order.

(14) More than eight out of every ten children are living in Pucca Houses, whereas remaining children are living in Kuchcha Houses, with in category of children living in
Kuchcha Houses, almost nine of every ten are from the rural areas.

(15) Except a very little share of children, almost whole sample holds the ownership of their houses. This proportion is cent-percent in rural areas. whereas the little share of Rentiers cuts down from urban areas.

(16) Six out of every ten families of the selected children are using the L.P.G. in the cooking of their food, whereas the remaining are still using the traditional Chulhas in cooking their food.

(17) An over-whelming majority of the respondent children are having electric facility in their houses. This facility is available to almost all in the urban areas, whereas it is a little less (nine of every ten) in the rural areas.

(18) The Telephone facility which includes Land-line Phones as well as Mobile Phones is available to eighth of every ten families of the respondent children, which is further higher in the urban areas (nine of every ten) in comparison to the rural areas.

(19) More than seven out of every ten families of the respondent children are depends upon Radio and Television for updating the current affairs, whereas about three out of every ten families are the regular subscriber of News Paper also.

(20) More than two-third of the children are spending their leisure time in street sports, whereas almost three out of every ten children are using the Television as entertainment media. The habit of tele-viewing is much
more in the urban children in comparison to the rural children.

(21) However only almost one-third families of the respondent children having milth animals, but the maximum share (more than three-fourth) of people having milth animal is captured by the rural areas.

(22) Almost half of the families of respondent children are using two-wheeler as a mode of personal transport, one-third are using cycle and a little more than one-eighth are having four-wheeler or Tractor in their possession.

(23) Six out of every ten children are coming on foot to their school, one-sixth are using school transport and remaining are using cycle or other transport means to coming the school.

1.4 TOOLS, DATA COLLECTION AND DATA PROCESSING

The primary data about the objectives of the study have been collected from the children of the selected schools with the help of an interview schedule. On the substantial side, the schedule is an effort at getting response of selected children to their demographic and socio-economic variables, age, caste, religion, family income, education of parents, living standard, dietary observation and other hygiene and health related habits. The health observations such as height and weight are measured separately. The responses about the performance of children are also collected from their class teachers. Secondary data are collected from various Govt./non-government agencies. The primary data collected through an interview
schedule have been processed through computer. Secondary data are handled manually.

1.5 MAJOR FINDINGS AND INFERENCES

Every researcher attempts at making certain generalizations regarding the phenomenon under study on the basis of his observations. This is done by drawing inferences from the major findings and unveiling the implications. This is what we aim to do now. The major findings and inferences of this study are being presented in to following parts-

(1) Nutritional status of school going children
(2) Family background and nutritional status of children
(3) Socio-economic aspects of nutritional status of children
(4) Consequences of nutritional status
(5) Critical assessment of Governmental programmes and policies of child nutrition

1.5.1 Nutritional status of school going children

The major findings about the nutritional status of school going children are as under-

(1) Majority of the mal-nourished respondent belongs to the group whose dietary intake is less or below the standard requirement. The poorer intake respondents are cent-percent mal-nourished.

(2) Children having short height or stunted are cent percent mal-nourished, whereas children having
normal or average height according to their age are found mal-nourished less than one-fourth of the total.

(3) More than three-fourth of the respondent children, who are under-weight for height or wasted, found mal-nourished, whereas the children having normal weight are well-nourished or normal in majority. This proportion is continuously increasing for over-weight and obese children.

On the basis of above findings, it may be concluded that majority of the mal-nourished respondent belongs to the group whose dietary intake is less or below the standard requirement, children having short height or stunted are cent percent mal-nourished and more than three-fourth of the respondent children, who are under-weight for height or wasted, found mal-nourished.

1.5.2 Family background and nutritional status of children

The major findings about the Family background and nutritional status of children are as under-

(1) Six out of every ten children are from the age group of 10 to 12 years, among them two-third are mal-nourished. More than half of the children from the age group of 7 to 9 years and the age group up to 6 years are mal-nourished, whereas this proportion is slightly higher (six out of every ten) in the age group above 13 years.

(2) An overwhelming majority of the children from 5th or higher birth-order are mal-nourished. Seven out of every ten children of 4th birth-order are mal-nourished.
More than half of the children from 2nd or 3rd birth-order are also found mal-nourished.

(3) Six out of every ten male children are mal-nourished, whereas in females nearly two-third children are found mal-nourished. Though, it shows a higher nutritional problem among females in comparison to male Childs.

(4) Almost two-third children from lower castes as well as from medium castes are mal-nourished, whereas this trend is down-ward in higher castes.

(5) More than two-third of the children, who are non-Hindus (mainly Muslims) are mal-nourished, whereas this proportion is down in Hindus and six out of every ten Hindu children are found mal-nourished.

(6) More than six out of every ten children are mal-nourished from rural back-ground, whereas this proportion is less in the respondents of urban back-ground.

(7) Two-third respondent children living in joint families are mal-nourished, whereas less than six out of every ten children living in nuclear families are found mal-nourished.

(8) In high degree of mal-nutrition, i.e. moderate mal-nutrition in our study, the proportion of children is increasing as the size of the family increases.

(9) More than two-third of moderately mal-nourished children belong whose fathers are either illiterate or educated up to High school level. This trend is more or less same in the case of minimal mal-nourished and mild mal-nourished children.
Eight out of every ten moderately mal-nourished children are among them whose mothers are either illiterate or educated up to High School level. More than three-fourth of mildly mal-nourished or minimally mal-nourished children also among the category, whose mothers are either illiterate or less educated.

Children, who are moderately mal-nourished, constitutes only one-fifth among them whose awakening time in the morning is before 5 AM, whereas half of the respondents left the bed between 5 to 6 AM.

Majority of the respondents in mal-nourished are whom sleeping time in night is 10 PM or later. The minimum are the respondents in mild or minimally mal-nourished, practicing the habits of early sleeping in night.

Children having eye-sight problem and using spects are in majority as mildly mal-nourished whereas, children having eye-sight problem but not using spects are mal-nourished in half of the total.

Two-third of the respondent children are mal-nourished, whose any one of family member is suffering from infectious disease and getting treatment. This proportion is also valid among whom, where any of family members was in treatment but now recovered.

Children whose any of the family member is mentally retarded, are cent-percent mal-nourished, whereas two-third of the children are mal-nourished, whose any
of the family member got treated for mental retardation.

(16) Two-third of the mal-nourished respondents are availing medical facility from their nearby areas. Rests are equally divided who prefer Govt. Hospital, Private Hospitals or Nursing Homes or using self medication. An overwhelming majority of mildly mal-nourished or minimally mal-nourished children are also availing medical facility from the quakes of their nearby areas. The quantum of mal-nourished children is less among the respondents who prefer treatment in Private Hospitals or Govt. Hospitals.

(17) Children, whose parents were regular in vaccination of their child, are well-nourished or normal in majority. On the other hand, children whose parents were irregular, casual or careless against vaccination are mal-nourished in majority.

On the basis of these findings we may infer that the nutritional status is downward with the growing age of the children, majority of the children from higher birth-order are mal-nourished, there is higher nutritional problem among females in comparison to male Childs, almost two-third children from lower castes are mal-nourished and this trend is down-ward in higher castes, the proportion of mal-nutrition is higher in non-Hindus (mainly Muslims) in comparison to Hindus, more than six out of every ten children are mal-nourished from rural back-ground, two-third respondent children living in joint families are mal-nourished, the mal-nutrition in children is increasing as the size of the family increases.
There is a significant association between educational status of parents and more than two-third of moderately mal-nourished children belong whose fathers are either illiterate or educated up to High school level, eight out of every ten moderately mal-nourished children are among them whose mothers are either illiterate or educated up to High School level.

Nutritional status is also affected with routine habits of the children. The children whose any one of the family member is suffering from the infectious disease or mental retardation are more prone to mal-nutrition. The quantum of mal-nourished children is less among the respondents who prefer treatment in Private Hospitals or Govt. Hospitals, inspite of taking treatment from quakes of their nearby areas. Children whose parents were irregular, casual or careless against vaccination are mal-nourished in majority.

1.5.3 Socio-economic aspects of nutritional status of children

The major findings about the Socio-economic aspects of nutritional status of children are as under-

1) Nine out of every ten moderately mal-nourished children comes from the lower income categories.

2) More than four out of every ten respondents whose fathers are either labourer or engaged in agricultural work are mal-nourished. This proportion is very less among the children whose fathers are in Govt. job.

3) An overwhelming majority of mal-nourished children of each category are among them, whose mothers are
house-wife. The cent percent children of the mothers doing job as labourer found mal-nourished.

(4) Nearly two-third respondent children living in pucca house are mal-nourished, whereas more than half of the children living in kuchcha or mud house are also mal-nourished.

(5) An overwhelming majority of the respondents are living their own or parental houses, so that it may be obvious to find the majority of mal-nourished children in this category. The children who are living in rental houses are cent percent mal-nourished.

(6) Nearly two-third of the children, whose families are using traditional chullhas for cooking the food, are mal-nourished, whereas this proportion is less in the children, whose families are using gas stove for cooking their food.

(7) An overwhelming majority is using electricity for domestic purpose. So that mal-nutrition also presents in the children whose families using electricity in their home.

(8) Nearly two-third of the children, who has the telephone facility in their house, either land line or mobile phone, are mal-nourished. This proportion is almost same among the children who do not have this facility in their home.

(9) Six out of every ten respondents, exposed to the old and traditional communication media Radio, are either normal or well-nourished, so that remaining four out of every ten Radio listeners are mal-nourished. The
status of mal-nutrition is downward gradually in case of Television viewers and News paper readers.

(10) Six out of every ten respondents, exposed to the old and traditional communication media Radio, are either normal or well-nourished, so that remaining four out of every ten Radio listeners are mal-nourished. The status of mal-nutrition is downward gradually in case of Television viewers and News paper readers.

(11) Majority of Radio listeners as entertainment media is normal or well-nourished, only one-fourth are found mild mal-nourished. On the other side majority of Television viewers and children entertaining with street sports are found mal-nourished.

(12) More than six out of every ten children, who are not having milth animals in their houses, are mal-nourished, whereas this proportion is slightly down among the children who have milth animals in their house.

(13) Eight out of every ten respondents of moderately and minimally mal-nourished are using two-wheeler or cycle as their means of transportation in local. This proportion is as valid in mildly mal-nourished children.

(14) Two-third of the respondents, who are using cycle or school rickshaw to attend the school, are mal-nourished and this trend is slightly down in the children coming on foot.

On the basis of above findings we may infer that, there is a significant association between nutritional status and family income, children whose fathers are either labourer or engaged
in agricultural work are mostly mal-nourished, the cent percent children whose mothers doing job as labourer are found mal-nourished, so the occupation of the parents also has a greater significance over nutritional status of children. The facilities in living standard such as type of house, electric supply, telephone facility, mode of conveyance and exposure to communication and entertainment media are also playing major roles.

### 1.5.4 Consequences of nutritional status

The major findings about the Consequences of nutritional status are as under-

1. Children, who are taking bath at weekly interval or irregularly once or twice in a week found mal-nourished in majority, whereas this proportion is less among the children who are regular in taking bath daily.

2. Two-third of the respondents who are going in open for their morning habits are mal-nourished, whereas this proportion is continuously less among the respondents using Kuccha W.C. at outside their house or Pucca W.C. inside their home.

3. Two-third of the respondents, who are irregular in cutting their nails are found mal-nourished. On the other side children who are regular in cutting nails are well-nourished or normal in majority.

4. Two-third of the respondents, who are just throwing their domestic garbage outside, found mal-nourished, whereas eight out of every ten respondents, who
keeps dustbin for garbage collection are either normal or well-nourished.

(5) Two-third of the respondents, who are taking their domestic water from Govt. hand pumps, found mal-nourished whereas this proportion is very less among the respondents whom having water connection in their home.

(6) Six out of every ten respondents, who are using the water as it is for drinking purpose, found mal-nourished.

(7) Four out of every ten respondents, whose families are habitual in draining the sewage in open drains, are found moderately mal-nourished, whereas a well proportion found well-nourished or normal where, there is a proper disposal of sewage.

(8) Six out of every ten respondents, whose attendance in classroom is irregular found mal-nourished, whereas more than half of the respondents of poor attendance are also found mal-nourished.

(9) Two-third of the respondent children, who are not taking proper interest in their study, are found mal-nourished. This proportion is distributed un-evenly among all other categories.

(10) Two-third of the respondent children, who are less curious about things, are found mal-nourished. The children who have normal curiosity about things are less mal-nourished in comparison.

(11) Three-fourth of the respondent children, who are not active in sports, are found mal-nourished. On the other
hand this proportion is about two-third in the children, who are very active in sports.

(12) Six out of every ten school children, who are very poor in extra curricular activities in their school, found malnourished. However this proportion is a little higher in the children of normal, good or excellent in extra curricular activities showing un-even distribution.

(13) Two-third of the respondent children, who are normal or poor in creativity, found mal-nourished, whereas this proportion is much less in the children who has good creativity level.

(14) Two-third of the respondent children, whose motivation ability is poor, found mal-nourished. This proportion is a little less (six out of every ten) in the children whose motivation ability is normal.

On the basis of above findings we may draw the inference that in personal hygiene children, who are taking bath at weekly interval or irregularly once or twice in a week; who are going in open for their morning habits; irregular in cutting their nails are found mal-nourished. As the question of proper sanitation and cleanness, respondents, who are just throwing their domestic garbage outside, taking their domestic water from Govt. hand pumps, using the water as it is for drinking purpose, whose families are habitual in draining the sewage in open drains, are found mal-nourished.

The consequences of mal-nutrition as per responses from class teacher also confirm their poor performance in the class room. The mal-nourished children are irregular in classroom, not taking proper interest in their study, less curious about
things, not active in sports, very poor in extra curricular activities in their school. They are poor in creativity and their motivation ability is also poor.

1.5.5 Critical assessment of Governmental programmes and policies of child nutrition

The major findings about the Critical assessment of Governmental programmes and policies of child nutrition are as under-

(1) More than six out of every ten respondents, who are not provided the mid-day-meal in their schools, are mal-nourished, whereas this proportion is a little less among the respondents who are provided the mid-day-meal in their schools.

(2) Almost half of the respondents, who are eating their food got in mid-day-meal are either normal or well-nourished, whereas in respondents majority of children who does not like the food distributed in mid-day-meal and thrown it as waste are mal-nourished.

(3) Majority of respondents, who likes and taking interest in mid-day-meal are normal, whereas the majority of mal-nourished respondent belongs to, those who are reluctant to the mid-day-meal in their schools.

On the basis of above findings, it may be inferred that majority of the children, whom mid-day-meal is provided in the school are taking interest, but as the question of the quality of the food, almost half of the children are reluctant due to the quality of the food provided. So, it may need to monitor the scheme closely to improve quality of the food provided in the scheme.
What emerges from this study is the fact that family income, education of parents and above all the occupation of the parents has greater significance on nutritional status. Improper calories intake in the diet is the main cause of the mal-nutrition among children. There is a lack of awareness among parents regarding proper vaccination and periodical health check-ups at growing age. Children, who are not regular in their habits in personal hygiene and sanitation, are more prone to mal-nutrition. In the Mid-day-Meal programme children are reluctant due to the quality of the food provided. The performance of the children in the classroom is also affected with the mal-nutrition. They are irregular in attendance, less curious, not active, and poor in extra curricular activities, creativity and motivation ability.

1.6 MAJOR RECOMMENDATIONS

The major recommendations based on the results and inferences of this study are as follows-

1. The diet of the children must be divided into parts at the growing age so that recommended calories may be provided as food intake.

2. The health observations such as the weight and height of children must be recorded periodically to keep the record and close monitoring of their health status at school level as well as at home by parents, if possible.

3. The nutrients as food intake and other supplements such as Vitamins are also to be provided besides the proper diet.
(4) There is a need for the awareness among parents regarding proper vaccination and periodical health check-ups at growing age. This may also be taken up by school management.

(5) Children must be trained by the parents as well as at school level for their regular habits in personal hygiene and sanitation.

(6) There is a need to expand the Mid-day-Meal and other Governmental programmes to cover all the schools of rural areas as well as urban areas to improve the nutritional status of school going children.

It is hoped that these recommendations, in the form of suggestions emerging from this empirical exercise and ground reality, will go a long way to improve the nutritional status of children. There is a need for the close monitoring of various Governmental programmes related to health of children and first of all to change the mind-set of the people regarding the Governmental programmes and policies.

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