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The Effect of Household Income and Heath Care Access on Youths Nutritional Status in Mumbai Metropolitan Region

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Abstract

Youths should have access to education, nutrition and health care. Educated and healthy youths help nation to develop fast. Mumbai Metropolitan Region is most developed region of India. But the prevalence of malnutrition is widely viewed across slums in region. The incidence of malnutrition is increasing with increase in age among youths. The parent?s lower educational achievement is a cause of malnutrition among youths. At lower household income, the incidence of malnutrition is higher but as the income increases the incidence of malnutrition declines among youths. The various asset holding is lower with malnourished youths of slums in region. Most of nutritious food is eaten by the youths but still prevalence of malnutrition is higher among youths. The logit model for youths is positively correlated to sex, water requirement, read newspaper and magazines, prenatal care. It is negatively co-related to car owned, contraceptives used, child care at home. The logit regression for female is positively correlated to sex, weekly water requirement, IUD, prenatal care. It is negatively co-related to known of nutrition, condom use, child care at home. The logit regression for male is positively co-related to private source of drinking water, weekly water requirement; purify drinking water, known nutrition, curd and vegetable consumption. It is negatively correlated to sex, pulses and fruits consumption. In order to reduce the incidence of malnutrition among youths, the state government and municipal corporations must provide infrastructural facilities in slums. Most of the slums are not provided sewage line, electricity, water supply and solid waste collection system etc. The water supply in slums is very important to reduce the water washed and water borne diseases. State government must provide vocational training to poor people of slums. Such skills will improve income and asset holdings. Youth need counseling related to good behavior, nutritious diet, examinations and

Index terms— health, public policy, safe water.

1 Introduction

he youth form the engine of the labor force and represent the future of any nation. The energy, skills and aspirations of youths are invaluable assets that no country can afford to squander **??**Akintayo D.I. and Adiat K. O. 2013). Malnutrition is consequently the most important risk factor for the burden of disease in developing countries. It is the direct cause of about thirty thousand deaths per year and is indirectly responsible for about half of all deaths in young children. The risk of death is directly correlated with the degree of malnutrition **??**Muller, Olaf and **??**ichael Krawinkel 2005, Ergin F.et.al 2007). In India, the young people in the age group of 10-24 year constitute one of the precious resources. But nearly 10-30 per cent of young people suffer from health impacting behaviors and conditions that need urgent attention of policy makers and public health professionals **??**Singh Sunitha and Gopalkrishna Gururaj 2014).

Youth needs nutrition for physical growth, educational achievement and future work. The additional supplementation of protein, iron, and other nutrients support growth. The need of nutrition is much higher for the young girls because physical growth, menstruation cycles, future pregnancy. For healthy and productive population, the youth nutrition cannot be ignored. Youth also play an important role in economic development of any country. Healthy youths always acquire skills in a competitive environment. The skilled workforce can help to achieve higher economic growth. India has an opportunity of demographic dividend. Therefore youth issues are very important from current and future perspective. The malnutrition among youths involves many underlying factors such as social, economic, cultural, and environmental conditions. The underlying factors that affect household conditions directly and indirectly include parental education, employment and support. The malnutrition incidence among youths varies among different societies. Therefore it is important to explore these relationships in societies with common social and cultural backgrounds **??**Rikimaru Toru et.al 1998) Mumbai Metropolitan Region is economically developed region of Maharashtra state. The development of services sector demand different skills from youths. Youths in the region are facing a higher competitive environment in terms of employment and education. All youths do not have same socio-economic environment. The parents of youths are less educated and live in slums. Therefore they do not understand the youth's different issues. The poor families of slums earn very low income from daily activities. Most of the T households are depends on construction activities, small scale self employment. Self employment include sell of cloths, fish, garlic, vegetables, plastic etc. The daily income earned from self employment activities is very low. The earning members of family get maximum share of food, money and health care. The children, youths and older members left with very low share. They have no choice but to satisfy basic needs. The poor families do not able to invest in youth's health and education. Youths spend maximum time for household chores and caring of sibling. Some youths play different games after school and college hours. They do not go regularly to school and college and concentrate on study. Parents are involved in daily wage earning and self employment. Therefore they do not have time to monitor youth activities. Poor health status and low educational achievement is responsible for drop out from schools of youths. The girls get busy with household chores. If they are older then they work along with their mothers. The girls also help in household chores and caring of other members. The poverty at household level does not help youths to achieve more academic progress. Families do not afford more education of youths. Females are not allowed to pursue more education. The male get more priority in food and health care. The male members get more qualitative diet as compare to female. The female are offered very low intake of food. The gender bias is practiced in slums in terms of health care and education. Access to electronic assets such as television, radio helps youths to get more information knowledge as current affairs. But families do not have money to buy such assets. Therefore youths do not get any knowledge and information. Access to vehicles such as bike, car and bicycle helps youths to use infrastructural facilities more effectively. But families in slums are very poor. They cannot afford to buy such expensive assets. It affects on the overall mobility of the household members and youths. Most of the youths carry drinking water in slums. The households often transfer responsibility on youths because there is no any kind of choice. Household size is large and there is scarcity of resources. Most of the poor families do not allow youths to buy different day today needs. The first part of paper deals with data collection and economic model. The second part of research paper deals with socio-economic determinants of malnutrition among youths in metropolitan region. The second last part of research paper deals with regression results. The last part of paper explains conclusion and policy implication.

2 II.

3 Data and Methodology

For this study, we have collected primary data of slum households in Mumbai Metropolitan Region. We have collected 767 households' data from eight slums such as Mankhurd East and West, Govandi East and West, Kalwa, Koparkhairne, Rabale, Turbhe, Vashi and Ghatkopar. The household heads and women are interviewed during survey. The questionnaire comprises as different questions related to household members, youths, income and expenditure, fertility behavior, household assets, media exposure and illness. We focused more on the youth behavior, health status, contraceptive knowledge and health care access. The primary data is collected in May-June 2014. We have analyzed data in SPSS@20 and STATA@12 software.

4 a) Economic model

We have developed economic model to understand the malnutrition among youths in metropolitan region.

5 M=(C, Y, A)

(1)

Malnutrition is observed among children, youths and adults in any region.Y m =f (A) (2)

Malnutrition among youths is related to age. We have considered age of youths as per United Nations definition.

6 b) Region

We have studied the incidence of malnutrition among youths in Mumbai Metropolitan Region Y m = (E, C, W, T)**(3)**

Youth malnutrition mainly categorized as severely, moderate and mild malnutrition.

7 c) Education

Parent's education is sole determinant of youth malnutrition in region. Youths own education is also important. It is categorized as follows.

Y m = E e ,M e ,F e (I,P,S,H S ,C)

(5)

Youth malnutrition is because of education of youth, mother and father. Each members education is further classified as illiterate, primary, secondary, high school studied and college.

8 d) Household income

Household income decides the health status of youths.Y m =(Y) (6)

Youth malnutrition is a function of household income.

9 e) Asset holding

Every house has physical, electronic assets and they are determinant of youth health.Y m =(A s) (7)

The assets in the house are categorized as follows.

A s =(C,B,W,E,F,Bi,Sm,Ra,Tel,Bi,Ca) (7a)

The assets are categorized as cooker, bed, watch, electricity, fan, bicycle, sewing machine, radio, telephone, refrigerator, television, bike and car.

10 f) Age at marriage

Age of marriage and nutritional status play an important role. Poor health status and marriage make the youths more vulnerable.Y m = (A m) (8)

Malnutrition among youth is related to age at marriage. The age at marriage is classified into three types.

A m = (La, Aa, Oa) (8a)

The age of marriage is defined as lower age, actual legal age and over age.

11 g) Food intake

The adequate food intake is the first determinant of youth malnutrition.Y m =N k (9)

Malnutrition among youth is related to nutrition knowledge and food eaten.

Nk= (M, C, P, B, Ve, Fr, E, Ch, Me, Fi) (9a)

Nutritional knowledge and food eaten is categorized as milk, curd, pulses, beans, vegetables, fruits, eggs, chicken, meat, fish etc.

12 h) Drinking water

Safe, affordable and adequate drinking water is must for all households. It is the basic requirement and determinant of good health status.Y m = (D w) (10)

Malnutrition among youths is related to drinking water. D w =(S,l d ,W p ,T, C,P c) (10a)

Drinking water is related to safe water, liters daily required, water purified, time to carry water, cost of water, persons carry drinking water.D w = (P s ,G s) (10b)

Drinking water is mainly brought from private and government sources.D w =P (M a , Fe, C h) (10c)

Drinking water is carried by male, female and children in slums.

13 III.

14 Malnutrition among Youths in mmr

Malnutrition is a global problem. In the developing countries, malnutrition is severe problem in all age groups. The protein energy malnutrition affects infant, school children and pregnant women. The micro nutrients are essential for mother and the growing baby. But they do not get adequate quantity and quality of food (Opara J.A et.al 2011). Youths do not get the quality diet health care as well as care in the poor households. Malnutrition reduces their physical capacity to do study and achieve knowledge. It is required for skilled workforce. They cannot complete more education as well as earn future income. There are direct and indirect factors responsible for the malnutrition among youths. We found there is gender difference of incidence of malnutrition among youths. Incidence of severe malnutrition among male is 33.33 percent in Koparkhairne but among female it is 22.22 percent in Ghatkopar. The incidence of moderate malnutrition among male is 30.43 percent. But it is 39.47 percent among female in Turbhe. In Turbhe, the slums do not have basic facilities such as water supply,

electricity, sewage and solid waste collection. It is affecting on youths health status. The incidence of moderate malnutrition among male is 30 percent in Mankhurd (W). Moderate malnutrition is 22.22 percent among female in Mankhurd (E). We have not found any incidence of malnutrition among male in Rabale. We found that the incidence of moderate and severe malnutrition is more among male. The incidence of obesity is found more among the female as compare to male.

15 a) Age wise incidence of malnutrition

The United Nations have defined 'youth' as those persons between the ages of 15 and 24 years. We have used same definition to categorize youth in region. As the age of youth increases, he/she understand more about the proper nutrition and diet. He can develop good friend circle and talk to nutrition experts. They visit with friends to market, cinema and community centers. Youth can chat on various topics with friends and can have own opinion about different things. They understand what is good for their health and well being. At smaller age youths have less mobility and do not have frequent movement in the community. As age is growing, youths are listening radio, watch television and listen views of parents, friends, teachers and experts. The 32 percent male of Koparkhairne in 15-17 age group are malnourished. The female in this age group are 29.41 percent in Rabale. The half male in 18-20 age groups are malnourished in Vashi and Ghatkopar. The females are 62.50 percent in this category. Such incidence of malnutrition is very high in this age group. The girls required quality intake of food and care bit it is not given in this age group in Vashi. In 21-23 age groups, nearly 29.41 percent male in Mankhurd (E) are malnourished. Among female, it is 32.69 percent in Kalwa. In 24-25 age groups, 33.33 percent male of Govandi (E) are malnourished. Among female, it is 41.18 percent in Rabale. In 18-20 age group, the female are more malnourished as compare to male.

16 b) Youth's education and malnutrition

Educated youth always understand the benefits of good health. He/she takes positive steps in terms of quality health care. The less educated youths do not understand the quality health care and future health care needs. They are the neglected part by family and society. Educated youth read newspaper, watch television and cinema. Youth learn many health and carrier related things in day to day life. The college studied 14.29 percent male are severely malnourished. The 10.64 percent female of primary studied are severely malnourished. The moderate malnourished college studied youth is not found in our survey. But 11.67 percent female are moderate malnourished and they are illiterate. Illiteracy certainly not helps to females to have good health. Among male, it is 12.50 percent but they are higher secondary studied. Mild malnutrition among male is 9.73 percent and they are secondary school studied.

There are 14.29 percent female are mild malnourished but they are college studied.

17 c) Parent's education and malnutrition among youths

Education of parents is most important to wipe out malnutrition. But low parents parent's does not help to provide good food, quality care and assets to youths. Educated parents easily understand the needs of youths. They always prepare to invest more in education, health of youths. Nearly 12 percent male are moderate malnourished but the mothers are illiterate. Among female, 15.61 percent are moderate malnourished and the mother are illiterate. The 16.13 percent male are obese 1 but the mothers are primary studied. Total 17.39 percent female are mild malnourished. The mild malnourished female are 14.81 percent and mothers are secondary studied. The mothers are higher secondary studied. The 16.67 percent female are severe malnourished but the mothers are higher secondary studied. All male are severely malnourished but the mothers have college education. The females are 66.67 percent in this category. It is because the college studied mothers are few and incidence is more. But we can say that more educated mothers have less incidence of malnutrition among youths. As far as father's education is concerned then, 18.32 percent male are mild and moderate malnourished but the father is illiterate. The female are 19.38 percent severely malnourished but the father is illiterate. The 16.67 percent male are mild malnourished but the fathers have primary education. The 42.86 percent male and female are severely malnourished but the fathers are primary studied. The 27.50 percent male are mild malnourished but the father is secondary studied. The female severely malnourished are 27.66 percent and father is secondary studied. We have not found malnourished youths with father's higher secondary school and college education.

18 d) Monthly income and malnutrition among youths

Household income is the significant determinant of health of youth. At lower income, family does not buy basic needs for members. Most of the time youth compromise with households economic conditions and start working at early age. It does not help their carrier and health. In short period, the knowledgeable youth earn more income for family. The households with higher income help youths to get more economic freedom. They can study well and can have good health. The low household income is a failure of youth's future carrier. Nearly half of the severely malnourished males have monthly income between Rs 4500-8500. Among 42.86 percent severely malnourished female are also from same category. Total 20.83 percent male are moderate malnourished and income category is 41.67 percent. For female, it is 37.50 percent. The 35.14 percent male are mild malnourished and they have income category of Rs 500-4500. The mild malnourished females are one fourth and they have

income of Rs.500-4500 and Rs 13000-16500. Nearly 66.67 percent male are obese one and their income is between Rs.4500-8500. Among female it is 56.82 percent. The obese two are 50 percent and their income is Rs 13000-16500. Among female, it is 56.67 percent and income is in the range of Rs 4500-8500. We have not found obese 3 male in region. But 60 percent female are obese three and they are in income category of Rs.500-4500. We have found that at lower income there is higher incidence of obesity. There is need of more research to understand such relationship in slums of metropolitan region.

19 e) Assets holding and malnutrition among youths

Assets in the households such as radio, television, refrigerator, car and bike are very useful to access different kinds of information and nutrition. All physical and electronic assets help youths to have good health as well as education. Youths can develop their carrier and earn more income in future. Only 8.98 percent male and 9.40 percent female are moderate malnourished but have cooker in house. Similarly 11.11 percent moderate malnourished male and 10.34 percent moderate malnourished female have bed at home. Only 3.13 percent moderate malnourished male and 4.08 percent moderate malnourished female have watch at home. Nearly 14.34 percent mild malnourished male households and 22.96 percent mild malnourished female have continuous electricity in house. Around 42.24 percent normal BMI male and 38.52 percent normal BMI female have fan in house. Obese 3 category male and female have not owned bicycle. All moderate malnourished female and normal BMI male have owned swing machine. All normal BMI male have owned the radio. The 8.18 percent male and 3.13 percent female are severely malnourished and they have owned the television. Nearly half male and female have owned refrigerator and they have normal BMI. Only 9.47 percent severely malnourished male and 17.28 percent severely malnourished female have owned the television. Only 7.69 percent mild malnourished female have owned bike. But the households of mild malnourished male have not owned bike. Car is not owned by any households of malnourished male and female. The asset holding such as bike and car is low in slums. The incidence of malnutrition among youth is more with less asset holding of families. the information that they have available about the link between food inputs and health outcomes that they care about. The second constraint is the household budget. The poor households do not have knowledge and resources. It leads to the question of whether mis-nourished youths lack information about the relation between nutrition and health or whether they lack resources. We have asked to the youths about nutrition eaten in household. Nearly 24.18 percent male eat curd but they are severely malnourished. The 8.75 percent female are vegetarian but they are severely malnourished. The 13.40 percent male are mild malnourished and they are vegetarian. The 12.24 percent female are mild malnourished but they are vegetarian. The 20.22 percent male are eating milk regularly but they are moderate malnourished. The 15.76 percent female eat beans but they are moderate malnourished. Total 44.19 percent male eat fruits and they have normal BMI. The 45.71 percent female are eating chicken and they have normal BMI. The 7.14 percent male are obese 1 and they eat meat. The 15.84 percent female are obese 1 but they eat curd in diet. Only 1.55 percent male are vegetarian but they are obese 2. The obese 2 female are 10.34 percent but they eat beans. The obese three male are not found in our sample. The obese 3 female are 1.97 percent and they eat beans in their diet. Most of the youths told that they have knowledge of nutrition and they eat most of the food. But we don't know how often they eat nutritious food in house. We need to understand the relationship between income and BMI status of youths in region. The relationship is explained as follows. The above diagram shows that average households in slums have Rs. 5000 monthly income. Few youths have less BMI due to low household income. But as the household income increases, the BMI of youths also increases. Most of the youths have above 18.5 BMI at Rs.5000-10000 monthly income. But at the same monthly income, the BMI increases from 20 to 30. The BMI upto 25 is considered as normal. But the interventions are required for the higher BMI at lower household income. At higher income, the BMI of youths is observed in normal category.

IV.

20 Logit Regression Results

We used Logit regression model **??**Greene W.H. 2003) in order to examine the socio-economic reasons behind the youth malnutrition. Such model is used to all age group youths in slums. The youth is classified as malnourished if the BMI falls below 18.5 and above 25. Logit model for youths in slums is as follows (‘) Pr (ln 1) 1 exp (‘)

21 Exp b x ob a given youth is ma urished b x = = +

We have used such model for male, female and both for MMR slums. The results are presented in the following table.

22 ?

significant at 1 percent ** significant at 5 percent *** significant at 10 percent Female are more malnourished as compare to male because female are offered less qualitative food. Medical facilities are offered less to female. The educational opportunities are offered more to male as compare to the female. In India, girls are discriminated in womb itself. Therefore they are more malnourished as compare to boys. The malnutrition among younger female is much more than male. It is statistically significant and positively co-related. The income is the sole determinant of nutrition among youths. But the households have low income. They cannot afford to spend

income on the health, education and nutrition. The lowest income does not help households to invest in health of youths. The low purchase of food, fruits does not help youth to gain weight. It affects on future skills and learning. The household income is negatively co-related to malnutrition among youths. Water requirement is large in slums. Households do not get adequate water in slums. Households get water from common taps but it is insufficient. They have to carry water from long distance. Therefore water brought is low and it is laborious activity. Therefore less water is available for regular use. Water requirement is statistically significant and positively co-related in slums. Most of the households are poor. They do not have money to buy different needs of family. The poor households cannot buy car because they do not have money to buy it and park it because of space. Most of the youths read newspaper and magazines. They have up to date information about current affairs. Most of the youths watch television and listen news on radio. The contraceptive related knowledge is not known to youths. This is because no health workers are visiting to slums and explain about contraceptives. Youths are not provided the knowledge of contraceptives at health facility. Health facilities in suburbs are most crowded. Social media does not provide the knowledge on contraceptives. The youths read magazines and newspaper regularly. It is statistically significant and it is positively co-related. Malnourished youths do not know about contraceptives. It is negatively correlated with malnutrition. Most of the female get prenatal care. They visit nearby health care facility. They visit at least two to three times and get the required health checkups.

Prenatal treatment is positively co-related with malnourished youths. Most of the female do not get the child care at home. They have to carry children at work. There is no child care facility available at home. Families do not support the young couples because families are nuclear in nature. The child care at home is negatively correlated with malnourished female youths. Most of the females are working and they do not have child care facility. ? * significant at 1 percent ** significant at 5 percent *** significant at 10 percent Females are more malnourished as compare to male. They are discriminated in terms of food and care. They do not get medical care. Therefore female are more malnourished. The females are more malnourished as compare to the male in MMR. In slums, water taps are not available in households. At common tap, there is queue for water. Therefore the water supply is less available to households. The water requirement is more but the water availability is less. The weekly water requirement is positive and statistically significant. Most of the female do not know about nutrition. They eat food which is less in nutritional quality. They watch television but they watch movies. They do not get knowledge on television and radio. Such low knowledge of nutrition negatively affects on health outcome. The knowledge of nutrition among female is negatively co-related and statistically significant. Female do not use condom as family planning method. They do not know about it and health staff does not counseling women about use of condom. Female often shy to buy condom at shops. The condom use is negatively among female and it is statistically significant. Female know about IUD. This is because IUD counseling is done at health facility. Female often use it to provide the space among children. But the IUD use is positive and statistically significant. The prenatal care is available of women among slums. After pregnancy they often visit to health care facilities. They visit once or twice and get the necessary health care. The prenatal care is positive and statistically significant among female. The child care at home is negatively co-related and significant. Child care is not available for female in slums. Most of the families are nuclear in nature. Therefore female do not get child care at home. Females often carry children at work. Child care is not exists in slums. It makes the things difficult to improve human resource. The male are less malnourished as compare to female. The male are offered care, food and medical care at home. They are often considered as source of future income and security. Therefore they are less malnourished as compare to female. The male malnutrition is negatively co-related as compare to female. The malnourished male households often buy water from private source. They do not get water from government pipeline. Such water source is denied by government. The slums households those have build their houses before 2000 do not get the water. Such slums are on government land. They are denied the water. Therefore they buy water from private sources. It is very expensive for slum households. The private source of water is positively co-related and statistically significant. Water requirement is positively co-related. Malnourished youths do not get sufficient water. They often get the low supply of water from different sources. Therefore it is statistically significant. The weekly liters of water supply are positive and statistically significant. Malnourished male of household purify water by different methods. They often use cloths to purify water. They do not use machine to purify water. But traditional methods of water purification are used. The households are purifying water by simple method and it is statistically significant. Male know about nutrition. They read books, listen radio and television. Only economic problem is they cannot afford to buy the nutrition. The nutrition knowledge of male is statistically significant and positively co-related. Most of the male eat curd in diet. Most of the male eat curd. It's made when the small quantity of milk is available at home. They eat curd regularly in diet. Eating curd helps youths to get some nutrition. The male eat curd in diet and it is statistically significant and positively co-related. Male do not eat pulses in diet. Pulses are costly. Households cannot afford to buy the pulses. They bring small fresh vegetables at lower prices and eat at home. It worsens health of the youths. But the pulses eaten are negatively co-related and statistically significant. Most of the youths are eating vegetables. They buy the vegetables from street while returning. Therefore youths eat vegetables regularly in diet. Most of malnourished male are vegetarian and it is statistically significant. Households do not eat fruits. They are poor and cannot afford to buy fruits. They are poor and cannot afford to buy fruits. Fruits are expensive and cannot eat every day in diet. The fruits contain various micronutrients but youths cannot afford to buy it and eat it. It

affects negatively on their health outcome. In order to reduce the incidence of malnutrition more fruits must be eaten by male. They do not eat fruit and it is negatively co-related and statistically significant.

V.

23 Policy Implication and Conclusion

Government must invest more in infrastructure facilities. Such facilities like water supply, electricity, sewage and housing. All such infrastructure facilities are scarce in slums. It will help youth to achieve future development. Youths need counseling and guidance for carrier. Most of the youths do not have educational background at home. They often lack the economic support. They often chosen activities carrier which is already chosen by their friends. Youths need access of health care. Most of the youth's do not have knowledge of contraceptives and reproductive activities. Health staff does not provide knowledge to such youths. Role of state is very important in terms of educational policy. All the courses are made more competitive and youth require playing, developing hobbies. But parent's educational system has made youth more exam oriented. Youths spend more time in doing study, play indoor games, chat on mobile etc. Role of government and NGO's is very important to change the present educational system. Government must introduce the vocational skills to youths. It will increase their employability. They can get good skills and job and improve standard of living. The metropolitan region requires developed workforce for high economic growth. Youth are in growing stage and learn many skills required for their future carrier. Therefore counseling of youths is required. The role of teacher is important. There should be regular meeting of psychologists, youths, parents and teachers required. Such meeting must be organized on the subject of carrier, present achievements, socio-economic issues, friend circle etc. The NGO's must help economically backward youths to continue their education. Their behavioral, economic, cultural belief problems must get solved by the social organizations. Most of the youths are involved in the number of risky behaviors. They need continuous guidance for different problems. All such counseling will certainly help youths to develop their carrier. Dietary intake and habits of young people are not favorable implementing informative programs and developing practical policies should be noted to improve the diet quality of adolescents and young adults (Akbari F, Azadbakht L 2014). Youths must be taught of nutrition in their curriculum they do not have knowledge of food, vitamins and nutrition. Most of the youths end up eating street and unhygienic food. They must be taught of nutritious food with different vitamins. Such vitamins and calories are required to youths in physically growing stage. But unhygienic and less qualitative food makes them more vulnerable. Such youth cannot achieve more education. It also affects on their future work capacity. Such youths often fail in trap of poverty. Therefore government, parents, teacher, NGO'S must think to have more investment in youths overall development.

Figure 1:

1

	Severe		Moderate		Mild	
Suburb	M	F	M	F	M	F
Mankhurd(E) 25.00 7.41			7.50 14.81 25.00 22.22			
Mankhurd(W) 5.00		0.00 10.00 3.70 30.00 14.81				
Govandi(E)	0.00	6.25	0.00	0.00 25.00 18.75		
Govandi (W)	30.77 10.53 7.69			7.89 23.08 10.53		
Kalwa	19.44 8.40 11.11 9.16 22.22 14.50					
Koparkhairne 33.33 2.86 13.33 5.71 13.33 5.71						
Rabale	0.00 14.29 0.00			0.00	0.00 21.43	
Turbe	17.39 2.63 30.43 39.47 21.74 18.42					
Vashi	0.00					

[Note: 6.67 17.65 13.33 11.76 13.33 Ghatkopar 11.11 22.22 11.11 0.00 11.11 11.11 Total 18.27 7.14 12.18 11.14 20.81 14.57 Source: Computed from primary data]

Figure 2: Table 1 :

2

Suburb/Age	M	15-F 17	M	18-F 20	M	21-F 23	M	24-F 25
Mankhurd(E)	16.67	22.64	33.33	41.51	27.27	16.98	22.73	18.87
Mankhurd(W)	14.71	10.00	26.47	25.00	29.41	25.00	29.41	40.00
Govandi(E)	11.11	31.82	38.89	22.73	16.67	27.27	33.33	18.18
Govandi (W)	30.91	16.07	27.27	35.71	20.00	16.07	21.82	32.14
Kalwa	15.63	14.74	21.88	25.64	21.88	32.69	40.63	26.92
Koparkhairn	32.00	15.56	26.00	31.11	10.00	24.44	32.00	28.89
Rabale	19.05	29.41	38.10	11.76	19.05	17.65	23.81	41.18
Turbe	15.91	20.45	43.18	43.18	11.36	11.36	29.55	25.00
Vashi	6.25	6.25	50.00	62.50	18.75	12.50	25.00	18.75
Ghatkopar	0.00	15.38	50.00	38.46	20.00	23.08	30.00	23.08
Total	19.02	17.10	30.98	31.82	20.00	23.59	30.00	27.49

Source: As per table one

Figure 3: Table 2 :

3

Type of malnutrition/ Age group	Sex	15-17	18-20	21-23	24-25	Total
Sever	M	15.15	23.29	17.14	14.29	18.27
	F	9.30	9.09	6.82	4.59	7.14
Moderate	M	15.15	9.59	14.29	12.50	12.18
	F	9.30	16.36	6.82	10.09	11.14
Mild	M	33.33	16.44	17.14	21.43	20.81
	F	11.63	14.55	13.64	16.51	14.57

Source: As per table one

Figure 4: Table 3 :

4

Malnutrition/ Education	Sex	Illiterate	Primary	Secondary	Higher secondary	College
Sever	M	3.75	6.38	8.41	12.50	14.29
	F	4.17	10.64	5.31	6.25	0.00
Moderate	M	5.00	2.13	3.54	12.50	0.00
	F	11.67	2.13	4.42	0.00	0.00
Mild	M	5.00	4.26	9.73	6.25	0.00
	F	10.00	12.77	9.29	0.00	14.29

Source: As per table one

Figure 5: Table 4 :

5

Malnutrition and parents education	Sex	Mothers Education Sever	Moderate	Mild	Fathers education Sever	Moderate	Mild
	M	6.97	11.94	14.43	16.03	18.32	18.32
Illiterate	F	8.29	15.61	13.17	19.38	18.60	18.60
	M	9.68	9.68	9.68	0.00	16.67	8.33
Primary	F	4.35	8.70	17.39	42.86	14.29	14.29
	M	11.58	12.63	8.42	7.50	27.50	25.00
Secondary	F	11.11	4.94	14.81	27.66	17.02	17.02
Higher	M	5.26	0.00	0.00	0.00	0.00	0.00
secondary	F	16.67	0.00	0.00	0.00	0.00	0.00
	M	100	0.00	0.00	0.00	0.00	0.00
College	F	66.67	0.00	0.00	0.00	0.00	0.00
	M	8.65	11.24	11.53	12.97	20.00	18.92
Total	F	9.40	11.91	13.48	22.40	18.03	18.03

Source: As per table one

Figure 6: Table 5 :

6

Malnutrition/ Monthly income(Rs.)	Sex	500-4500	4500-8500	8500-12500	12500-16500	16500-Above
Sever	M	19.35	51.61	12.90	16.13	0.00
	F	21.43	42.86	32.14	3.57	0.00
Moderate	M	20.83	41.67	20.83	8.33	8.33
	F	22.50	37.50	22.50	5.00	12.50
Mild	M	35.14	45.95	10.81	5.41	2.70
	F	25.00	42.31	25.00	3.85	3.85

[Note: Source: As per table one]

Figure 7: Table 6 :

7

Assets	Severe M	F		Moderate M	F		M	Mild F
Cooker	11.84	21.37	8.98		9.40	14.69 23.08		
Bed	7.41	31.03	11.11 10.34 16.67 13.79					
Watch	8.16	28.13	4.08		3.13		8.16	25.00
Electricity	9.32	22.22	7.89		8.89	14.34 22.96		
Fan	9.39	22.22	7.94		8.89	14.44 22.96		
Bicycle	11.76	27.78	11.76 16.67 23.53 11.11					
Swing machine	0.00		0.00 0.00		0.00		0.00	100.00
Radio	0.00		0.00 0.00		0.00		0.00	0.00
Telephone	8.18		3.13 8.18		6.25	13.64 18.75		
Refrigerator	25.00	0.00	0.00		0.00	25.00 50.00		
Television	9.47	17.28	9.47		8.64	11.83 28.40		
Bike	10.00	30.77	0.00		7.69	20.00 30.77		
Car	0.00		0.00 0.00		0.00		0.00	0.00

Source: As per table one

Figure 8: Table 7 :

8

Age at marriage	Sex	Before>15	15-17	18-20	21-23	23-Above
	M	5.88	7.89	12.50	30.00	0.00
Severe	F	12.00	3.85	6.31	0.00	10.00
	M	17.65	7.89	10.71	10.00	0.00
Moderate	F	4.00	7.69	6.31	5.56	0.00
	M	23.53	18.42	21.43	30.00	50.00
Mild	F	8.00	17.95	8.11	27.78	0.00

Source: As per table one

Figure 9: Table 8 :

9

Nutritional knowledge/ Malnutrition	Severe		Moderate		Mild	
Sex	M	F	M	F	M	F
Milk	17.49	8.38	12.57	10.4	20.22	14.74
Curd	24.18	6.79	9.89	9.5	19.78	12.22
Pulses	22.55	8.33	10.78	9.21	16.67	13.6
Beans	20.83	7.88	12.5	9.36	19.44	15.76
Vegetable	18.04	8.75	13.4	12.24	20.1	9.33
Fruits	20.16	8.71	10.08	9.06	17.83	12.89
Eggs	18.59	8.21	10.26	9.42	17.95	13.07
Chicken	18.24	8.28	10.69	8.9	18.24	13.5
Meat	18.57	8.64	10	9.3	20.71	13.95
Fish	18.29	8.43	11.59	10.84	21.34	13.55

Source: As per table one

Figure 10: Table 9 :

10

Variables	Coefficient	Std error	Z stat
Sex	0.29**	0.14	2.02
Wages	-0.91**	0.32	-2.84
Water requirement	0.72**	0.30	2.37
Car	-1.04*	0.28	-3.70
Read magazine and newspapers	0.67**	0.30	2.23
Not known of contraceptives	-0.32***	0.18	-1.70
Prenatal care	0.49**	0.19	2.55
Child care at home	-1.58**	0.77	-2.03
Constant	-0.36	0.34	-1.07
	LR chi 2 =46.81		Log likelihood = -544.45518
	Prob > chi 2 =0.0000		Pseudo R 2 =0.0412

Figure 11: Table 10 :

11

Variables	Coefficient	Std error	Z stat
Sex	1.14 *	0.19	6.13
Weekly water requirement	0.78**	0.36	2.20
Known nutrition	-0.21*	0.07	-2.73
Condom used	-0.77*	0.28	-2.71
IUD used	0.46**	0.18	2.57
No of prenatal visits	0.73*	0.18	3.89
Child care at home	-1.37***	0.79	-1.72
Constant	-1.91*	0.21	-8.84
	LR chi 2	=94.63	Log likelihood = -422.6337
	Prob > chi 2 = 0.0000		Pseudo R 2 =0.1007

Figure 12: Table 11 :

12

Variables	Coefficient	Std error	Z stat
Sex	-1.38*	0.24	-5.75
Private source of water	0.75*	0.27	2.76
Liter weekly	0.00*	0.00	2.67
Purify water	1.00*	0.38	2.62
Know nutrition	0.78*	0.28	2.76
Curd	0.49***	0.29	1.66
Pulses	-0.49**	0.27	-1.79
Vegetables	0.45**	0.25	1.83
Fruits	-0.67**	0.29	-2.27
Constant	-2.25*	0.42	-5.32
	LR chi 2	=77.45	Log likelihood = -287.97Pseudo R 2
	Prob > chi 2 =0.0000		=0.1185

? significant at 1 percent ** significant at 5 percent *** significant at 10 percent

Figure 13: Table 12 :

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357 1 2

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