

# INFLUENCE OF MOTHER'S EDUCATION AND OCCUPATION ON ANTHROPOMETRIC MEASUREMENTS OF ADOLESCENT GIRLS OF MARATHWADA REGION

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## ABSTRACT

The present study was carried out in selected urban, rural and tribal places of Marathwada region of Maharashtra State. The selected sample comprised of adolescent girls belonging to the age group 13-18 years. A total sample of 500 adolescent girls were selected randomly from urban (200), rural (200) and tribal (100) areas. The adolescent girls of illiterate mothers were exhibiting significantly lower values for different anthropometric measurements in urban area. However, adolescent girls with college educated mothers showed better height (155.11 cm), weight (43.64 kg) and body mass index (18.14). Further, it was noted that the percent of normal girls increased from 10.34 to 41.18 percent and percent of severely undernourished girls decreased from 34.48 to 5.88 percent with improvement in educational status of mothers. The girls of farmer mothers in urban areas and the girls of labour mothers in rural areas had low anthropometric measurements. In case of tribal population more percent of normal girls were belonging to mothers who were labourer while more percent of severely undernourished girls were from mothers who were farmers.

**Key words :** Mother, Adolescent girls, Anthropometric, Measurement, Education, Occupation

Adolescent girls are constituting nearly one tenth of the population and form an extremely important segment of our society. These girls need special care in view of their role in shaping the health and well being of the present as well as future generation (Anonymous 2000). Adolescence is often defined as a transient stage between childhood and adulthood, and a formative period during which many life patterns are learned and established. Adolescence is a significant period of human growth and maturity and during this phase of life unique changes occur in an individual, adult patterns are established following early childhood. Studies conducted by Malhotra *et al.* (1984) reported that nutritional status of preschool children was found to be better when the mothers were educated.

The better literacy level enhances intake of nutritious foods such as pulses, fruits, milk and milk products (Devi and Arya 1990) which contributes for improvement in nutritional status. The results revealed by Zanvar *et al.* (1998) are also in the same line, that the educational status of mother was found to be helpful for improvement of nutritional status of preschool children. But data regarding the impact of mothers educational and occupational status on the nutritional status of adolescent girls is scanty. As the adolescent girls are important and

most crucial segment of our population from the view point of quality of our future generation who are just on the threshold of marriage and motherhood and influence of mothers education and occupation is directly correlated with the nutritional status of adolescent girls. Hence the present study was taken up to assess the influence of mothers educational and occupational status on the nutritional status of adolescent girls.

## METHODOLOGY

A survey was carried out in selected urban, rural and tribal places of Marathwada region of Maharashtra State. The urban population was selected from different parts of Parbhani city, while rural population was selected from villages around Parbhani within the radius of 25 KM. The tribal areas covered under the study were selected from Nanded district. The selected sample comprised of adolescent girls belonging to the age group 13-18 years. A total sample of 500 adolescent girls were selected randomly from urban (200), rural (200) and tribal (100) areas. While selecting the sample care was taken that equal number of 13-15 and 16-18 year of adolescent girls were covered. Using standard procedures of anthropometry (Jelliffe, 1966) height (cm) and weight (kg) of the selected 500 adolescent girls were recorded. The body weight was recorded to the nearest 0.5 kg using portable weighing machine. The height was recorded in the standing position to the nearest 0.5 cm. The Body

mass index (BMI) was calculated following ICMR standard formula, (1986).

## RESULTS AND DISCUSSION

### ***Anthropometric measurements of adolescent girls as per mother's education :***

Influence of mother's education of anthropometric measurements of adolescent girls is described in Table 1. Perusal of the table revealed that the adolescent girls of illiterate mothers were exhibiting significantly lower values for different anthropometric measurements in urban area. Adolescents with college educated mother's showed better height (155.11cm) weight (43.64 kg) and body mass index (18.14). However no significant difference was noted between the adolescent girls of school educated and college educated mothers for height and body mass index. Among the rural adolescent girls the highest values for height, weight and body mass index were recorded by those whose mothers were school educated. Where as least values of height was recorded by adolescent girls with illiterate mothers. On contrary the adolescent girls with college educated mother recorded least value for body mass index in rural area. In case of tribal population no mother was college educated though slight difference was exhibited for different anthropometric measurements in school educated and illiterate groups. Statistically non significant difference was noted by them.

### ***Factors influencing anthropometric measurements of selected adolescent girls as per mother's educational status :***

When compared between two educational groups in urban population the illiterates exhibited lowest measurements for height, weight and body mass index. At the same time two educated groups *i.e.* school educated and college educated did not exhibit significant difference for height. Where as the difference for weight was significant revealing that weight was more sensitively influenced by mother's education than the height. In rural population the weight did not exhibit any sensitive change between two educated groups, but at the same time significant differences were noted between illiterate and school educated groups. Surprisingly the difference in height and weight was non-significant when compared between illiterate and college educated. Probably this could be due to unequal sample size. The selected rural population comprised of only two college educated mothers while illiterate mothers were 88. Devdas *et al.* (1980) recorded better nutritional status of preschool children when the mothers were educated. The better literacy level enhances intake of nutritious foods such as

pulses, fruits, milk and milk products (Arya and Devi, 1990) which contributes for improvement in nutritional status. Perhaps this could be the reason behind the better anthropometry of girls of educated mothers. However, in the present table it is clearly evident that the educational status of the mother significantly influenced the body weight of tribal adolescent girls. This indicated the marked influence of mother's educational status on the nutritional status of adolescent girls. Perusal of the above results clearly emphasized the profound influence of mothers education on the nutritional status of children.

### ***Anthropometric measurement of adolescent girls as per mother's occupation :***

Table 2 explains the influence of mother's occupation on anthropometric measurements of adolescent girls. The occupation of mothers in the selected group comprised of three categories *i.e.* housewife, farmer and labourer. From the table it was evident that no mother from urban area was working as a labourer. Among the categories of housewife and farmer the adolescent girls exhibited significant difference with respect to all three anthropometric parameters. The farmer girls had low height ( $149.0 \pm 0.80$  cm), weight ( $36.0 \pm 0.79$  kg) and body mass index value ( $16.17 \pm 0.30$ ) as compared to adolescent girls of housewife mother. In rural areas least value of height, weight and body mass index ( $149.02$  cm,  $38.33$  kg and  $17.15$ , respectively) were recorded by adolescent girls belonging to labour mothers. The adolescent girls in farmer categories recorded highest values for height ( $155.0 \pm 5.93$ cm), weight ( $42.0 \pm 5.23$  kg) and body mass index ( $17.48 \pm 1.85$ ).

However statistically non significant difference was noted for anthropometric measurements between the groups. Similar situation was noted even in tribal adolescent girls.

### ***Factors influencing anthropometric measurements of selected adolescent girls as per mother's occupation:***

In case of mothers occupation non detrimental effect was noted in rural and tribal area where as in urban areas the children of housewives were of better anthropometric measure than children of farmer's. As observed during survey a farmer mother goes every day to her field to work and therefore was unable to give proper attention to the dietary consumption pattern. Probably due to which significant differences were noted.

### ***Prevalence of undernutrition in selected adolescent girls as per mother's education :***

Prevalence of undernutrition in selected adolescent

Table 1 : Influence of mother's education on anthropometric measurements of selected adolescent girls in different area (n=500).

Mother's education	Urban			Rural			Tribal		
	Height (cm)	Weight (kg)	BMI	Height (cm)	Weight (kg)	BMI	Height (cm)	Weight (kg)	BMI
Illiterate	148.62± 0.92	36.31± 0.94	16.40± 0.36	148.76± 0.62	38.06± 0.54	17.17± 0.19	145.81± 0.77	36.25± 0.63	16.98± 0.20
School educated	152.63± 0.40	40.82± 0.41	17.52± 0.15	151.33± 0.55	40.54± 0.48	17.67± 0.17	144.80± 0.34	34.10± 0.96	16.23± 0.30
College educated	155.11± 1.21	43.64± 1.23	18.14± 0.47	150.0± 4.12	33.50± 3.05	14.91± 1.29	-	-	-
'F' value	10.86**	13.25**	5.18**	4.77**	7.14**	3.76*	0.300NS	3.47*	4.18*
C.D.									
1 Vs 2	1.98*	2.02*	0.78*	1.63*	1.42*	0.51 at par	NS	2.26*	0.71*
1 Vs 3	2.99*	3.05*	1.18*	NS	NS	NS	-	-	-
2 Vs 3	NS	2.55*	NS	NS	NS	2.55*	-	-	-

NS=Non-significant,

\* = Significant at 5 per cent,

\*\* = Significant at 1 per cent

Table 2 : Influence of mother's occupation on anthropometric measurements of selected adolescent girls in different area (n=500).

Mother's occupation	Urban			Rural			Tribal		
	Height (cm)	Weight (kg)	BMI	Height (cm)	Weight (kg)	BMI	Height (cm)	Weight (kg)	BMI
Housewife	153.05± 0.39	41.47± 0.39	17.70± 0.15	150.41± 0.46	39.64± 0.40	17.48± 0.14	146.50± 1.21	35.63± 0.88	16.56± 0.18
Farmer	149.0± 0.80	36.0± 0.79	16.17± 0.30	155.0± 5.93	42.0± 5.23	17.48± 1.85	148.90± 1.23	37.40± 1.71	16.83± 1.17
Labour	-	-	-	149.02± 0.98	38.33± 0.87	17.15± 0.30	143.84± 2.64	35.19± 1.99	16.93± 0.48
'F' value	20.53**	38.13**	19.85**	1.13NS	1.34NS	0.68NS	1.96NS	0.688NS	0.544NS
C.D.									
1 Vs 2	1.75*	1.73*	0.674*	NS	NS	NS	NS	NS	NS
1 Vs 3	-	-	-	NS	NS	NS	NS	NS	NS
2 Vs 3	-	-	-	NS	NS	NS	NS	NS	NS

NS = Non-significant,

\* = Significant at 5 per cent,

\*\* = Significant at 1 per cent

Table 3: Prevalence of undernutrition in selected urban, rural tribal adolescent girls as per mother's education.

Different grades of under nutrition	Urban			Rural			Tribal		
	Illiterate	School educated	College educated	Illiterate	School educated	College educated	Illiterate	School educated	College educated
Normal	3 (10.34)	49 (31.82)	7 (41.18)	24 (27.27)	31 (28.18)	-	13 (18.57)	4 (13.33)	-
Mild	9 (31.03)	47 (30.52)	3 (17.65)	22 (25.00)	38 (34.55)	-	23 (32.86)	5 (16.67)	-
Moderate	7 (24.14)	24 (15.58)	6 (35.29)	18 (20.45)	23 (20.91)	-	17 (24.29)	3 (10.00)	-
Severe	10 (34.48)	34 (22.08)	1 (5.88)	24 (27.27)	18 (16.36)	2 (100.00)	17 (24.29)	18 (60.00)	-
Total	29 (100.00)	154 (100.00)	17 (100.00)	88 (100.00)	110 (100.00)	2 (100.00)	70 (100.00)	30 (100.00)	-

Figures in parenthesis indicate percentage

girls as per mothers education is revealed in Table 3. The data of the table revealed that 10.34 to 41.18 per cent, 16.67 to 34.55 per cent and 10.00 to 35.29 percent girls were found to be normal, mild and moderately undernourished respectively. Whereas 5.88 to 100 percent girls were severely undernourished. It was also observed that 10.34 to 27.27 per cent girls of illiterate mothers, 13.33 to 31.82 percent girls of school educated mothers, 41.18 per cent girls of college educated mothers were normal. Considering area wise distribution it was evident that in urban area the per cent of normal girls increased from 10.34 to 41.18 per cent and per cent of severely under nourished girls decreased from 34.48 to 5.88 per

cent with improvement in educational status of mothers. In rural and tribal areas no mother was college educated. The percent of normal adolescent girls with illiterate and school educated mothers were almost at par in rural areas. Similar trend was noted with respect to moderately undernourished. However the per cent of severely undernourished adolescent in rural areas were belonging to the group of illiterate mothers which was vice versa in case of mild undernourishment. On the other hand more per cent of normal adolescent girls in tribal area were having illiterate mothers while more per cent of severely undernourished girls were having school educated mothers.

Table 4 : Prevalence of undernutrition in selected urban, rural tribal adolescent girls as per mother's occupation.

Different grades of under nutrition	Urban			Rural			Tribal		
	Housewife	Farming	Labour	Housewife	Farming	Labour	Housewife	Farming	Labour
Normal	56 (34.78)	-	3 (7.69)	46 (28.22)	-	10 (26.32)	3 (6.82)	2 (20.00)	12 (26.09)
Mild	51 (31.30)	-	7 (17.95)	51 (31.29)	1 (100.00)	9 (23.68)	14 (31.82)	3 (30.00)	11 (23.91)
Moderate	24 (14.91)	-	13 (33.33)	33 (20.25)	-	6 (16.66)	11 (25.00)	1 (10.00)	8 (17.29)
Severe	29 (18.01)	-	16 (41.03)	33 (20.25)	-	11 (28.95)	16 (36.36)	4 (40.00)	15 (32.61)
Total	161 (100.00)	-	39 (100.00)	163 (100.00)	1 (100.00)	36 (100.00)	44 (100.00)	10 (100.00)	46 (100.00)

Figures in parenthesis indicate percentage

**Prevalence of undernutrition in selected adolescent girls as per mother's occupation :**

Prevalence of undernutrition in selected adolescent girls in terms of mother's occupation is shown in Table 4. It is evident that majority of normal girls were having mothers who were just housewives (6.82 to 34.78 percent). On contrary when mothers were working as labourer the per cent of adolescent girls suffering with severe undernutrition was found to be more (28.95 to 41.03 percent). Similar trend was noted even in rural areas. With the increasing degree of undernutrition the percent of adolescent girls suffering with undernutrition decreased, when the mothers were housewives both in urban and rural areas. Where as it was noted in reverse direction in case of urban adolescents when mothers were labourers. In tribal population more per cent of normal adolescent girls were belonging to mothers who were labourer while more per cent of severely undernourished adolescent girls were belonging to mothers who were farmers.

**Factors influencing undernutrition in selected adolescent girls as per mother's education and occupation :**

Considering area wise distribution it was evident that in urban area the per cent of normal girls increased from 10.34 to 41.18 per cent of severely under nourished girls decreased from 34.48 to 5.88 per cent with improvement in educational status of mother. In rural and tribal areas no mother was college educated. The per cent of normal adolescent girls with illiterate and school educated mothers were almost at par in rural areas. On the other hand more per cent of normal adolescent girls in tribal area were having illiterate mothers while more per cent of severely undernourished girls were having school educated mothers. However, less number of normal adolescents were found in labour and farmer category. Same trend was also observed in rural area also. Further it was evident that majority of normal girls were having mothers who were just housewives. On contrary when mothers were working as labour as the per cent of adolescent girls suffering with severe undernutrition were found to be more.

**CONCLUSION**

It can be concluded from the study that the adolescent girls of illiterate mothers were exhibiting

significantly lower values for different anthropometric measurements in urban area. However, adolescent girls with college educated mothers showed better height (155.11 cm), weight (43.64 kg) and body mass index (18.14). Further, it was noted that the per cent of normal girls increased from 10.34 to 41.18 per cent and per cent of severely undernourished girls decreased from 34.48 to 5.88 per cent with improvement in educational status of mothers. The girls of farmer mothers in urban areas and the girls of labour mothers in rural areas had low anthropometric measurements. In case of tribal population more per cent of normal girls were belonging to mothers who were labourer while more per cent of severely undernourished girls were from mothers who were farmers.

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