



## Effect of Counseling on the Level of Stress and Scholastic Performance in Adolescent Girls of Different BMI Groups (Overweight Vs Healthyweight Vs Underweight)

### KEYWORDS

adolescent females, stress, counseling, overweight, healthyweight, underweight, scholastic performance

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**ABSTRACT** *Background* : Adolescence is a stormy period of life as an adolescent is exposed to a variety of stress on account of intense competitive environment, rapidly changing lifestyle, peer pressure, that have a major impact as regards adjustment and academic performance of the child. Counseling is one of the many strategies adopted to address psychological problems in adolescents.

**Objective** : To study and compare the level of stress and scholastic performance between the three BMI groups (Underweight/ Healthyweight/ Overweight) in adolescent girls and Impact of group counseling on the above parameters.

**Method** : A random sample of 450 adolescent girls (aged between 14-18 years) was drawn from 3 schools with entirely different ambience: one private English medium school, one Government hindi medium and one Government central school, reflecting students from all socioeconomic strata of society. Pre counseling assessment in form of exact age, height, weight and preceding 2 years scholastic performance was taken and BMI calculated using standard formula. The girls were then categorized into three BMI groups i.e Underweight (UW), Healthyweight (HW) and Overweight (OW) as per WHO classification. They were asked to fill a stress questionnaire with objective type questions (pre counseling and after 12 weeks, following a counseling session).

**Results** : In our study pre counseling stress score was found to be moderate in all the three groups and it was significantly higher in OW girls as compared to UW & HW girls. Post counseling data analysis revealed reduction in stress in all the three groups. This reduction was confirmed statistically significant.

**Conclusion** : Counselling is an effective method for alleviating stress among adolescent females and should be included in their school curriculum on a regular basis.

### INTRODUCTION

Adolescence projects the period when influence of variety of intricate and interrelated process involving anatomical, physiological, biochemical, psychological behavior and sociological domains occur on a growing child. Adolescence is a stormy period of life as an adolescent is exposed to a variety of stress on account of intense competitive environment, rapidly changing lifestyle, peer pressure, that have a major impact as regards adjustment and academic performance of the child. These problems have strong root in the psychosocial environment. It is now accepted that deviation in psychosocial behavior is a multidisciplinary issue, abnormal body weight in the form of both overweight and underweight is one of them(1). Obesity carries a large social stigma in our society. Obesity is a highly visible but undesirable state which carries on one hand the stigmatization of bodily appearance, on other, is the stigmatization of character, for which they are blamed for their fatness / overweight(2). Counseling is one of the many strategies adopted to address psychological problems in adolescents, which is above all cost effective method to develop life skill in adolescents. Counseling can make significant contribution in prediction of psychosocial problems by allowing free discussion to bring out hidden conflicts, anxiety, guilt or anger and helps them to deal effectively with these problems and stressful life events/depression (3). Pediatricians are in a unique position to understand and discuss the problems of teenagers.

The method of intervention in the present study was group counseling sessions by experts to promote healthy body image among adolescent and evaluation of the concept of school based group counseling for helping adolescents to

cope up with the stress and psychosocial effects of abnormal bodyweight (4).

### AIMS AND OBJECTIVES

To study and compare the level of stress and scholastic performance between the three BMI groups (Underweight/ Healthyweight/ Overweight) in adolescent girls and Impact of group counseling on the above parameters.

### MATERIAL AND METHODS

450 adolescent girls between the ages of 14-18 years during the period of one & half year constituted the material for this study. A random sample of 450 adolescent girls was drawn from 3 schools with entirely different ambience: one private English medium school, one Government hindi medium and one Government central school, reflecting students from all socioeconomic strata of society. A formal request was made to the heads of the institutions for permission to carry out this study. Protection of individual identity and confidentiality of responses were ensured by maintaining anonymity and allotting code number to each subject. Having ensured our acceptance the girls were approached at school in small batches not exceeding 40 at a time, in the absence of teachers and other staff.

### Pre counseling assessment

1. Documentation of exact age of children from school register.
2. Measurement of weight in kg using electronic weighing scales to nearest 100 grams.
3. Measurement of height in cm using stadiometer to nearest 1mm.

4. Anthropometric assessment for BMI is based on standard technique (5).
5. Filling of stress scale questionnaire and documentation of preceding 2 years scholastic performance (6).

**The questionnaire technique was used to gather information in 2 sections-**

Section I : This section included information regarding exact age, height, weight and preceding 2 years scholastic performance. Height and weight of the girls was measured using standard techniques. BMI was calculated by the formula  $wt (kg) \times 100 / height^2 (meter)$  and matched for the ideal BMI for age/sex. The girls were then categorized into three BMI groups i.e

1. Underweight (UW, BMI less than the 5<sup>th</sup> percentile)
2. Healthyweight (HW, BMI 5<sup>th</sup> percentile up to the 85<sup>th</sup> percentile)
3. Overweight (OW, BMI 85<sup>th</sup> and more percentile)

Section II: included stress scale questionnaire for assessing psychological aspects. There are 40 questions in the scale and candidates have to put right mark in box against that alternative answer selected. Scoring: 2 marks given for answering "always", 1 mark for sometimes and 0 marks for "never". All the marks are summed up to interpret in terms of the level of stress as low = 29-38, moderate = 39-48 and high = 49-58.

The stress scale is a simple scale which can be administered individually as well as in group of about 40 subjects. This scale helps in diagnosis by giving a quantitative evaluation of psychological aspects without requiring the time of skilled practitioners, leaving them free to concentrate on guidance, therapy etc. There are definitive number of questions, with particular scoring scheme available. (6).

**Counseling session**

Group counseling of adolescent girls, in groups of 30-40 was done by a senior pediatrician with more than 30 years of experience in field of adolescent counseling, essentially covering all problems prevalent in students revealed by pretest session. Twenty- seven girls did not come for counseling (dropout cases).

**Post counseling assessment**

The level of stress was reassessed using identical questionnaire, 12 weeks after counseling. Post counselling scholastic performance was documented after the completion of same years final examinations.

**Statistical Analysis**

Data collected was then tabulated and subjected to statistical analysis. Statistical analysis was performed using SPSS 17 Software. Mean values were calculated & appropriate univariate and bivariate analysis were carried out using the Student 't' test for the continuous variable (age) and two-tailed Fisher exact test or chi-square ( $\chi^2$ ) test for categorical variables. The critical levels of significance of the results were considered at 0.05 levels i.e.  $P < 0.05$  was considered significant &  $<0.01$  as highly significant.

**RESULTS**

Out of total 423 females included in study, 93 (21.98%) were found underweight, 304 (71.87%) healthy weight and 26 (6.15%) overweight based on BMI. Age wise distribution of adolescent females depicted that majority of females fall in age group 15-16 years (62.64%). Highest percentage of underweight as well as overweight females

were seen in age 16 years category, respectively 37.63% and 34.62%. In our study pre counseling stress score was found to be moderate in all the three groups and it was significantly higher in OW girls as compared to UW & HW girls. Post counseling data analysis revealed reduction in stress in all the three groups. This reduction was confirmed statistically significant. Stress was reduced from moderate to low in underweight and healthy weight adolescent. In overweight girls it was decreased to moderate range itself. The preceding two years scholastic performance of the overweight adolescent girls was found to be significantly better than the healthyweight and underweight adolescent girls. Post counseling data did not show any significant difference in the scholastic performance of all the three groups studied i.e. UW/HW/OW adolescent girls.

**Table 1. DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO BMI**

| BMI   | Frequency | Percentage |
|-------|-----------|------------|
| UW    | 93        | 21.98      |
| HW    | 304       | 71.87      |
| OW    | 26        | 6.15       |
| TOTAL | 423       | 100.00     |

**Table 2. AGE WISE DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO BMI**

| AGE (in years) | UW              | HW              | OW             | TOTAL            |
|----------------|-----------------|-----------------|----------------|------------------|
| 14             | 16<br>(17.20 %) | 54<br>(17.76 %) | 2<br>(7.69 %)  | 72<br>(17.02 %)  |
| 15             | 20<br>(21.50 %) | 99<br>(32.57 %) | 4<br>(15.38 %) | 123<br>(29.07 %) |
| 16             | 35<br>(37.63 %) | 98<br>(32.24 %) | 9<br>(34.62 %) | 142<br>(33.57 %) |
| 17             | 17<br>(18.28 %) | 49<br>(16.12 %) | 8<br>(30.77 %) | 74<br>(17.49 %)  |
| 18             | 5<br>(19.35 %)  | 4<br>(1.32 %)   | 3<br>(11.54 %) | 12<br>(2.87 %)   |
| TOTAL          | 93              | 304             | 26             | 423              |

**Table 3. IMPACT OF COUNSELING ON LEVEL OF "STRESS" IN ADOLESCENT GIRLS**

| BMI                          | Score | Pre counseling | Post counseling | p value |
|------------------------------|-------|----------------|-----------------|---------|
| UW<br>(n = 93)               | Mean  | 41.56          | 37.67           | <0.05   |
|                              | SD    | 12.46          | 8.89            |         |
| HW<br>(n=304)                | Mean  | 41.47          | 37.8            | <0.05   |
|                              | SD    | 12.65          | 10.68           |         |
| OW<br>(n=26)                 | Mean  | 48.12          | 40.11           | <0.05   |
|                              | SD    | 13.42          | 12.83           |         |
| Underweight Vs Healthyweight |       |                |                 | >0.05   |
| Underweight Vs Overweight    |       |                |                 | <0.05   |
| Overweight Vs Healthyweight  |       |                |                 | <0.05   |

**Table 4. IMPACT OF COUNSELING ON "SCHOLASTIC PERFORMANCE" OF ADOLESCENT GIRLS**

| BMI                          | Percentage | Pre counseling | Post counseling | p value |
|------------------------------|------------|----------------|-----------------|---------|
| UW<br>(n= 93)                | Mean       | 69.19          | 70.3            | >0.05   |
|                              | SD         | 8.54           | 9.92            |         |
| HW<br>(n=304)                | Mean       | 70.85          | 70.08           | >0.05   |
|                              | SD         | 8.43           | 9.04            |         |
| OW<br>(n=26)                 | Mean       | 77.19          | 75.04           | >0.05   |
|                              | SD         | 10.04          | 9.05            |         |
| Underweight Vs Healthyweight |            |                |                 | >0.05   |
| Underweight Vs Overweight    |            |                |                 | <0.05   |
| Overweight Vs Healthyweight  |            |                |                 | <0.05   |

## DISCUSSION

We conducted this study at our centre to assess the effect of counselling on the level of stress and scholastic performance in adolescent girls of different BMI groups (Overweight vs Healthyweight vs Underweight). We evaluated 423 adolescent females in the age group 14-18 years during the study time frame. In our study pre counseling stress score was found to be moderate in all the three groups and it was significantly higher in OW girls as compared to UW & HW girls. Post counseling data analysis revealed reduction in stress in all the three groups. This reduction was confirmed statistically significant. Stress was reduced from moderate to low in underweight and healthy weight adolescent. In overweight girls it was decreased with in moderate range itself.

Several studies conducted in previous years have established a linear relationship between stress and BMI. Mellin et al conducted a cross-sectional, school-based survey of 9957 Connecticut adolescents in grades 7, 9 & 11, comparing overweight and non-overweight adolescents on a number of self-report measures of eating habits, physical activity, dieting, educational, and psychological scales. They found that overweight adolescents experienced more psychological distress (using psychosocial wellbeing variables, like relationships with peers, parents and teachers) and reported higher levels of emotional distress manifested in poor selfimage, aggressive behaviors, suicide, promiscuity, drug, alcohol and tobacco addiction(7). Young children are often stigmatized because of obesity and such behaviors can start as early as 3-5 years of age (8-10). Obese children are often teased and are targets of bullying. Stigmatization could have a marked impact on childhood psychological development (9,11), and could explain some of the psychological disorders obese children experience. Zarnetkin et al reported that obesity is associated with depression, suicidal thoughts and suicide attempts among children(10). Other studies indicate severely obese children score lower on health-related quality of life indicators (12,13). Additionally, overweight children are also more prone to display unhealthy behaviors such as extreme dieting, skipping meals, and prolonged TV watching. Often, overweight children rated their school performance poorly (7,10,11). Furthermore, the studies also indicate that obese children experience social isolation, i.e., rejection by their peers (14). The teasing, harassment and rejection associated with stigmatization has long-term consequences because obese adults tend to face disparate treatment in educational settings and the workplace, and have higher poverty rates and lower marriage rates (10,11).

Comparison of the previous two years scholastic performance of the adolescent girls revealed significantly better performance by overweight girls than the healthyweight and underweight girls, the least mean score was noted for underweight and maximum mean score was seen in overweight adolescent girls. Post counseling data analysis did not show any statistically significant change in the scholastic performance of all the three BMI groups. The work of Cawley (15,16) suggests robust evidence of a negative relationship between body weight and academic achievement among white females. His findings are contradictory to findings of the present study. The apparent better scholastic performance by overweight girls in the present study may be explained by the fact that most of the overweight girls belonged to higher socioeconomic status, more educated families and favorable environment for studies. Also these girls may be spending most of the time in studies rather than participating in other physical activities.

## Role of counseling:

The idea behind the group counseling was not to categorize these students into normal and abnormal, rather it was based on fact that individual counseling would take them away from their adolescent peer group and may result in social isolation. Group counseling is an excellent way to assess the effect of some important influence on adolescent. Interacting with youth in a very friendly manner seems to change their entire perspective towards life. Counseling is the process of interpersonal interaction with the specific purpose of enabling the adolescents to find out various solutions for the problems. Counseling helps in differentiating normal and abnormal, improving decision making, modification of behaviors, improving personal effectiveness, improving achievement and promoting mental, emotional and social health.

## Impact of counseling

The group counseling of the students in the present study as well as previous studies conducted years back was equally rewarding (17-23). The Indian literature is so far focusing mainly on the physical aspect of adolescent development. Negligible studies have been conducted to study the impact of deviant physical growth and development on psychosocial behavior including various aspects of adolescent personalities. Hence our study justifies its unique places in comparison with other similar studies because perhaps it's the pioneer study of its own kind in this country which is studying the effect of weight and impact of counseling on level of stress and scholastic performance on different BMI groups among adolescent girls. Our study justifies its unique position because of its originality, being applied to Indian urban adolescents and the remarkable effect achieved by group counseling on most of these parameters, which is a cost-effective way for a developing country like ours.

Education should emphasize positive aspects and should be given in the setting in which the individual feels free to discuss his problems and can expect sincere and accurate answers to his questions. Regular medical check-ups will also serve to reassure the adolescent that they are in desirable physical conditions. Their concern about their body being intense, they will naturally resent a casual attitude towards it(24). It is not enough just to assure them that they are within the statistical limits or normal, or to tell them that there is nothing that can be done about their condition, or that they will 'outgrow' it. What they require is repeated reassurance, continuing interest and help so that they may understand the vast difference between be-

ing abnormal and not being average(25). We need to emphasize the importance of integrated team approach of paediatrician, psychologist, psychiatrist, social worker, parents, and teachers. Setting up of a adolescent friendly cells where they can put up their questions related to growth and development and group counseling sessions at high school level by experts and bringing out those with negative body image to provide them with individual counseling and repetitively reassuring them.

The limitation of our study were that we had organized only a single counseling session which excavated few forbidden areas of concern among adolescents, thus contributing to increase concern for few parameters. So we need to have repetitive counseling sessions and studies of these kind in large numbers is needed.

## CONCLUSION

Group counseling is an excellent way to assess the effect of some important influences on adolescent life. Counseling is an effective method for alleviating stress among adolescent females and should be included in their school curriculum on a regular basis.

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