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RISK OF DEVELOPING EATING DISORDERS AND SOME RELATED FACTORS IN FEMALE UNDERGRADUATES OF GMC, NAGPUR.

Community Medicine

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ABSTRACT

AIM: Purpose of the study was to estimate the prevalence of disordered eating behaviors and risk of developing eating disorders(ED) amongst female undergraduates of GMC, Nagpur.

METHODOLOGY: A total of 154 subjects registered for 1st and 2nd MBBS in GMC, Nagpur consented for the study. Data was collected by using predesigned and pretested questionnaire based on EAT-26. Results were analyzed by EPI INFO 7.3.5.

RESULTS: 45(29.23%) subjects were at risk of developing an ED and majority of them had their BMI deviated from normal (P = 0.0001). Factors like mother's education, duration of sleep and food intake during stress were also strongly related to risk of developing Eds.

CONCLUSIONS: Strong association between BMI, sleep duration, food intake during stress and risk of developing EDs were observed that are probably important for DEB diagnosis and treatment in the normal population.

KEYWORDS

Eating disorder, BMI, socio economic status, sleep, stress.

INTRODUCTION:

Until recently, eating disorders were thought to be limited to western societies and mainly to adolescent females of high socio economic class.[1,2] More recently, studies in developing countries have highlighted that these psychosocial disturbances are now a global public health concern.[3] Eating disorders are multi factorial resulting from the interaction between biological, psychological and socio cultural factors.[4]

Eating behavior is affected by demographic factors such as age, gender and socioeconomic status.[5] It has been found that EDs usually originate in adolescence due to their increasing concern for their body shape thereby resulting in body image dissatisfaction.[6] The majority of adolescents express a feeling of discontentment with their physical appearance describing themselves as fat even when they are not.[7] This results in poor eating habits and inappropriate weight management strategies.[8]

Globally, more females than males have eating disorders, this is evident from both cross sectional and longitudinal studies making female gender a strong risk factor.[9, 10] Although they are found in men too, their symptoms and syndromes are not as wide as that of females.[11]

In earlier research on eating disorders, it has been maintained that people of high socio economic status (SES) are more likely to develop eating disorders than people of low SES.[12, 13, 14] However, recent research did not find any such possible differences in the SES of teenagers with an eating disorder and concluded that socio cultural factors affect all groups to the same extent.[15,16]

Body mass index (BMI) is known to be the main biological risk factor for body image dissatisfaction and dieting behaviors in adolescents which is evident from previous studies.[17, 18, 19] Disordered eating behaviors (DEB) symptoms concern food compulsions and restraints and deviations from normal BMI as a response to inadequate approaches to weight control. The more the BMI deviates from normal, the higher the probability of some form of ED.[11]

A tenacious drive for physical activity is considered as a prominent characteristic of eating disorders. Some researchers have argued that excessive exercise occupies a central role in the pathogenesis of the eating disorders and indeed it is now recognized as a significant factor in the etiology, development and maintenance of eating disorders across diagnoses.[20]

Sleep and eating are essential behaviors for human survival. Eating disorders have the capacity to disturb sleep quality, reduce sleep efficiency and duration and in that respect impair the quality of life.[21] Starvation results in fragmentation of sleep and reduced sleeping hours[22]. A consistent finding from research is that weight loss in ED patients is accompanied by an increase in sleep difficulties such as insomnia with decreased amount of sleep.[23]

Much of the research on eating disorders looks at weight, food and body shape as motivators but there's also a theory that eating disorders serve emotional functions rather than physical ones.[24] The relationship between stress and eating disorders is, in many ways, a vicious cycle: Feelings of being stressed or overwhelmed can trigger disordered eating behaviors, which are used as coping mechanism. Stress might bring out a previously absent association between some psychological predisposing factors for eating disorders and an actual desire or plan to lose weight.[25]

The incidence of eating disorders has increased over the past decades. India is undergoing rapid nutritional, political, socio economic and cultural transitions, which cut through all aspects of society, and have caused change and evolution of beliefs, values and the emergence of eating disorders. Despite the apparent increase of eating disorders in India there has been relatively little research published on eating disorders across cultures. With this back ground, the present study will be carried out in female undergraduates of GMC, Nagpur to

1. Estimate the proportion of students who were at risk of developing Eating disorder using EAT – 26 scale.
2. Study some factors related with eating disorders like BMI, exercise etc.

MATERIAL AND METHODS: -

Present cross sectional study was carried out in Govt. Medical College, Nagpur among female undergraduates. Among 400 students who were registered for 1st and 2nd MBBS, 184 were females out of which 154 consented to participate and thus constituted the study subjects. Study duration was of two months. Data was collected using predesigned and pretested questionnaire based on Eating Attitude Test-26 scale. Approval from Institutional Ethics Committee was obtained and informed consent of subjects was taken after apprising them of the purpose of the study.

Height and weight were measured using standard techniques and BMI was calculated. Information regarding socio demographic factors like age, religion, residence, education etc. were asked and socio economic status of families was assessed using modified kuppuswamy scale [Urban] and Prasad's scale [Rural] corrected as per the current CPI. Questions about exercising for weight reduction, duration of sleep per day, food patterns under stress were also included.

Eating Attitudes Test (EAT – 26) is the most widely used screening tool to assess "eating disorder risk "in high school and college students. The questionnaire consists of 26 items with a final score range of 0 to 78 which were further classified under 3 categories: a) no risk (<20) b) some risk (20-29) c) at risk (≥30). The score >20 indicates the risk for EDs and the need for counseling for EDs from a qualified healthcare professional. For easy evaluation of results, categories of some risk and at risk were combined under the category of at risk. The 2nd part consists of behavioral questions about Anorexia and Bulimia like use of laxatives, exercise compulsion, binge eating and treatment for any eating disorders.

RESULTS:

Total 154 students were enrolled in the study.Table-1 shows the demographic data of study subjects. The age of study subjects varied between 17-22 years, the mean age being 19 ± 1.1 years. 112[72.7%] subjects were of ≤ 19 years of age. Majority of them 133[86.4%] were Hindu by religion. Most of them 131[85.1%] were from urban area. Parents of 103[66.8%] subjects were graduate and above in their educational level and 136[88.2%] were from upper and upper middle class (high) socio economic status.

TAB – 1: Demographic data of study subjects:

Demographic Category	Category	No. of study subjects	
		No.	%
Age	17-19 years	112	72.7
	20-22 years	42	27.3
Religion	Hindu	133	86.4
	Others	21	13.6
Residence	Urban	131	85.1
	Rural	23	14.9
Education of Father	Graduate & Above	103	66.8
	Below Graduate	51	33.2
Education of Mother	Graduate & Above	42	27.27
	Below Graduate	112	72.73
Socio economic Status	Upper & Upper middle	136	88.2
	Lower middle & Below	18	11.8

TAB-2: Distribution of study subjects by their response to some factors associated with eating disorders:

65(42.21 %) subjects were found to practice exercise on daily basis for weight reduction. Most of the subjects 89(57.79%) did not have sufficient amount of sleep per day. 66 (42.86 %) subjects reported an increase in food intake in stressful conditions.

Factor	Response	No. of study subjects	
		No.	%
Exercise for weightreduction	Yes	65	42.21
	No	89	57.79
Have sufficient hours of sleep per day	Yes	118	76.62
	No	36	23.38
Increase in food intake during stress	Yes	66	42.86
	No	88	57.14

FIG-1: Nutritional status of study subjects by Body Mass Index:

Considering body mass index as an indicator of nutritional status, 102(66.24%) subjects were normal, 40(25.97%) were under weight and only 12(7.14%) were Overweight or obese

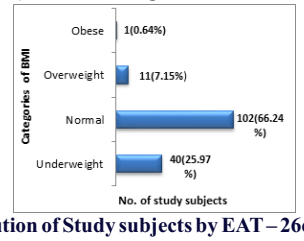
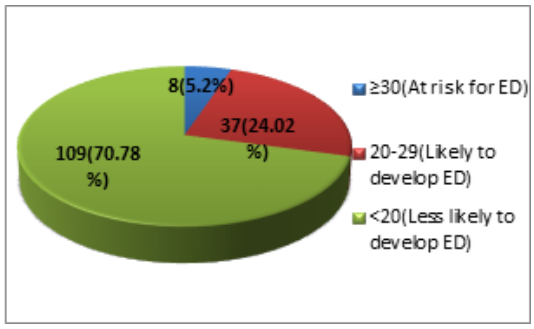


FIG-2: Distribution of Study subjects by EAT – 26categories:

Total 37 (24.02%) subjects were likely to develop and 8 (5.2%) subjects were found to be at risk for developing an eating disorder.



Among behavioral symptoms which were assessed using part-2 of EAT-26 scale, binge eating, Self – induced vomiting were not practiced. Only 2 (1.3 %) were found to use the laxatives. None of them were treated for any eating disorders.

TABLE- 4: Relationship of demographic variables and some factors associated with eating disorders with EAT -26 score:

Factors	Risk of developing Eating Disorder					
	No Risk		At Risk		Total	
Residence Urban Rural	92 17	70.22 73.91	39 6	29.78 26.09	131 23	P= 0.371 X2 = 0.012
Mother's Education Graduate & above Below graduate	20 89	47.61 79.46	22 23	52.39 20.54	42 112	P = 0.0001 X2 = 13.47
Father's Education Graduate & above Below graduate	63 46	61.16 90.19	40 15	38.84 29.41	103 51	P = 0.156 X2 =0.709
Socio economic status High Low	97 12	71.32 66.66	39 6	28.68 33.34	136 18	P = 0.339 X2=0.017
BMI Normal Others	12 33	11.53 66	92 17	88.47 34	104 50	P=0.0001 X2=48.424
Exercise for Weight reduction Yes No	43 66	66.15 74.15	22 23	33.85 25.85	65 89	P= 0.144 X2=0.8086
Duration of sleep/ day Sufficient Insufficient	108 1	72 25	42 3	28 75	150 4	P=0.004 X2=4.161
Increase in food intake in stress Yes No	27 70	40.91 79.54	39 18	59.09 20.46	66 88	P =0.005 X2=7.629

Bold type = statistically significant difference

values based on chi2 results

Risk of developing eating disorders was found to be significantly more in subjects whose mother' were graduate and above in their education[p=0.0001], whose BMI was deviated from normal[0.0001], who had inadequate sleep[0.004], whose had a tendency to increase

food intake during stress[0.005].

DISCUSSION:

Present study was carried out to estimate the risk of developing EDs and some factors associated with EDs in female undergraduates of GMC, Nagpur.

Significant number of subjects 45(29.22%) were found to be at risk of developing an eating disorder [Fig-2]. With respect to risk of developing eating disorder, most studies on adolescents have reported lower risk ranging from 7.1% to 17.9%.26, 27, 28, 29 However, the present results were similar to those reported by Sampie C.A and Martin C.R. who reported the risk rates of 26.7% and 27.6% respectively.30, 31 A study done by Mousa T.Y reported 40.5% subjects were at risk of developing EDs.32

Deviation of BMI from normal is strongly associated with risk of developing an ED. Similar association was reported by V. Cofini33 and Goltz F et.al.34 who reported that 62% and 67% subjects who were found to be at risk of developing EDs had their BMI deviated from normal. Hence, the more the BMI deviates from normal, the higher the probability of developing some form of EDs.11This can also be explained by the fact that women often see their body shape and weight as a sort of "measuring stick" of social value. Hence, so much pre occupation with the body shape leads to body image dissatisfaction which ultimately leads to development of unhealthy practices like over exercise, restriction of food intake which put them at greater risk of developing an eating disorder.

There is a prevailing wisdom in the world of EDs that there is an increased prevalence of eating disorders in high socioeconomic groups.35 In earlier research on eating disorders, it has been maintained that people of higher socio economic groups are more likely to develop eating disorders than people in lower.12, 13 However, the more recent studies offer clear counter evidence to this historic stereotype that EDs are suffered by lower class people.36 The results of present study do not go in accordance with either of the findings mentioned above as there is no such association found between the SES and risk of developing an ED. This could be explained by the fact that the risk factors for developing EDs like body image concern, compulsive exercise, strict dieting etc are present across all the levels of SES.

Study subjects having mothers' who were graduate and above in their education were found be at more risk of developing EDs. A study conducted by Wronka I.et, al. reported that 66% of subjects whose mothers' were highly educated over or underestimated their body weight (p=0.0476).37 This misperception of body weight leads to body dissatisfaction which results in unhealthy practices like food restriction and exercise and ultimately increases the risk of developing an eating disorder.

Tenacious drive for physical activity plays a central role in the development and maintenance of some eating disorders. Excessive exercise also has important clinical implications in those individuals who combine dieting and exercise in an attempt to lose weight.38 However, the present study did not find any such association between exercise and risk of developing an ED.

Disturbed sleep is the hall mark of eating disorders.39There is a significant association between insufficient sleep duration and risk of developing an ED.

Behavior of increase in food intake in stressful conditions is strongly associated with risk of developing EDs. Increase in food intake in stress is a major bulimic symptom. Literature suggests that bulimic symptoms are stimulated by emotional deregulation and stress.40

CONCLUSIONS:

From the findings of the present study it can be concluded that Significant no. of people were found to be at risk of developing an ED. Focus on the relation between BMI, mother's education, sufficient sleep, increase in food intake during stress and risk of developing an ED revealed interesting behavioral schemes that are probably important for DEB diagnosis and treatment in the normal population.It should be emphasized that the EAT-26 scale is unable to diagnose the presence of eating disorders and only identifies who are at risk of developing these disorders. In this respect, the results obtained are a matter of concern since symptoms of eating disorders can progress to clinical cases. This fact highlights the importance of increasing awareness about the damage to health caused by inappropriate weight loss practices and emphasizes the importance of adherence to healthy behaviors such as appropriate eating and regular physical activity.

LIMITATIONS:

The cross-sectional design of the study does not permit to establish a cause-effect relationship between the studied variables and only allows for analysis of a general overlook of the situation. Most of the data was obtained via questionnaire, which being a subjective form of assessment, cannot guarantee the accuracy of the provided answers.

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