A Cross-sectional Study of Correlation of Body Image Anxiety with Social Phobia and Their Association with Depression in the Adolescents from a Rural Area of Sangli District in India

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Brief Communication

ABSTRACT

Background: Prevailing socio-cultural influences lead females to desire a thin body and males a muscular body, especially in adolescents. This results in body image anxiety which may lead to social phobia. Together they can develop depression. The aim was to study the correlation of body image anxiety with social phobia and their association with depression, among adolescents.

Methods: This was a cross-sectional study conducted in randomly selected colleges from a rural area of Sangli district Maharashtra, India. Stratified random sampling technique used with sample size 805. Pretested self-administered questionnaire used. Percentage, Chi-square test, binary logistic regression model was used to estimate odds ratio (OR) and its 95% confidence intervals.

Results: Of 997 study subjects body image anxiety, social phobia and depression were observed in 232 (23.3%), 193 (19.4%) and 326 (32.7%) participants, respectively. Binary logistic regression showed that body image anxiety (OR = 1.849 [1.22, 2.804]; $P = 0.004$) and social phobia (OR = 4.575 [2.952-7.09]; $P < 0.001$) were significant predictors for depression.

Conclusions: Body image anxiety and social phobia are linked with the development of depression. This impresses the need for timely counseling and education among adolescents.

Keywords: Adolescent, body image disorder, depression, India, social phobia

INTRODUCTION

The Merriam Webster defines body image as, "A subjective picture of one's own physical appearance established by self-observation and by noting the reactions of others."[1] Body image anxiety develops when a person focuses only on the negative aspects of his body.[2] Relentless pursuit of a thin body often results in body dissatisfaction, resulting in depression, especially among adolescents.[3,4]

Social phobia is an anxiety disorder which leads to avoidance behavior to social situations due to fear of embarrassment and

rejection.[5-7] Early onset is common with 50% of cases by 11 years of age.[8]

Persons with social phobia tend to have a distorted body image.[9] Comorbidity makes it difficult to treat.[8] Studies regarding the subject are very few in India and concentrated on the urban area. The current research is conducted to find the prevalence of body image anxiety and social phobia among rural adolescents and their contribution in the development of depression.

METHODS

Study design and participants: This was a cross-sectional study conducted in a rural area of Sangli district from Maharashtra, India. Institutional ethical committee approval, permissions from the respective authorities and consents from participants or parents in case of underage were acquired. Study population was college participants under 19 years of age.[10] Based on the observed prevalence in the pilot study sample size derived was 805. Sampling technique was a stratified random. The study duration was January to April 2013.

Study instrument and variables assessment: Study instrument was pretested, self-administered questionnaire. Depression is identified by "DASS-21" for which Lovibond had observed Cronbach's alpha - 0.76, and the internal consistency 0.83.[11] Social phobia inventory (SPIN) is a validated 17 itemed scale for social phobia. Connor *et al.*, reported; good test-retest reliability (Spearman correlation coefficient, $r = 0.78$), internal consistency (Cronbach's α, $r = 0.56$-0.76) and convergent validity (comparing with the BSPS ratings; $r = 0.57$-0.66) for SPIN.[12] Using Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria, six-item scale was developed for identifying body image anxiety.[2,5] Based on the pilot study, changes were made on consulting the experts of the field. In the current study, body image anxiety scale has good internal consistency Cronbach's alpha 0.705 and split half validity coefficient 0.8.

Statistical analysis

Analysis was performed using percentage, Chi-square test and binary logistic regression. Data from the pilot study and incomplete questionnaires were not included in the final analysis.

RESULTS

Out of 997 study participants, 380 (38.1%) were females, and 617 (61.9%) were males with a mean age of 17.3 years.

Body image anxiety, social phobia and depression were present in 232 (23.3%), 193 (19.4%); and 326 (32.7%) participants respectively, with female preponderance [Table 1].

Based on body type perception participants were divided as underweight 152 (15.3%), normal 779 (78.1%) and overweight 66 (6.6%). Higher percentage of perceived overweight participants had body image anxiety, social phobia, and depression [Table 2].

There was statistically significant association ($P < 0.001$) between body image anxiety and social phobia. Their comorbidity was present in 94 (9.4%) participants.

Depression was present in 129 (55.6%) participants with body image anxiety, 137 (71%) participants with social phobia and 82 (87.2%) participants with their comorbidity. There was statistically significant association of depression with body image anxiety ($P < 0.001$), social phobia ($P < 0.001$) and their comorbidity ($P < 0.001$).

Binary logistic regression was applied, with depression as dependent variable, while gender, body type perception, body image anxiety, social phobia and comorbidity (of body image anxiety and social phobia) as independent variables. Enter method was used to identify most significant predictors of depression. Chance accuracy rate for the model is 75.4%, which is greater

Table 1: Gender distribution of participants with body image anxiety, social phobia and depression

Problem	Gender (%)		Total	P
	Male	Female		
Body image anxiety				
Present	77 (12.5)	155 (40.8)	232 (23.3)	<0.001
Absent	540 (87.5)	225 (59.2)	765 (76.7)	
Social phobia				
Present	91 (14.7)	102 (26.8)	193 (19.4)	<0.001
Absent	526 (85.3)	278 (73.2)	804 (80.6)	
Depression				
Present	172 (27.9)	154 (40.5)	326 (32.7)	<0.001
Absent	445 (72.1)	226 (59.5)	671 (67.3)	
Total	617 (61.9)	380 (38.1)	997 (100)	

than calculated chance accuracy rate (67.3%). Body image anxiety and social phobia were the highly significant predictors for presence of depression [Table 3].

The need of counseling cell in the college was agreed by 738 (74%) participants, and the inclusion of mental health education in the curriculum was reported by 723 (72.5%) participants.

DISCUSSION

In the current study, body image anxiety was observed in 23.3% of participants. Females and perceived overweight were more affected by it. Similarly, it was associated with depression.

Al Sabbah *et al.*, observed that prevalence of body image dissatisfaction among adolescents varied across the countries. Among boys, it ranged between 14.1% in Ukraine and 39.9% in Italy and in females it ranged between 34% in Netherland and 61.8% in Czech Republic. They concluded that females and overweight adolescents had higher tendency to develop body image dissatisfaction.[13] Dixit *et al.*, observed body image dissatisfaction

in 24.5% female adolescents from a rural area of Lucknow district of India.[14] These findings are consistent with the observations of the current study.

In Benner *et al.*, observed the prevalence of social phobia among adolescent participants to be 14.9%, with female preponderance.[15] Mehtalia observed prevalence of social anxiety in 12.8% adolescents from Ahmadabad, India.[16]

In the current study, the observed prevalence of social phobia was higher at 20%, with similar gender trend of female preponderance. Brook and Schmidt appreciated role of cultural, ethnic and geographical differences in development of social phobia.[17] This could explain the reason behind variations observed in different studies.

There was a strong association between body image anxiety, and social phobia was observed in the current study. Similarly, depression was associated with both the conditions. Similar findings were observed by Igzic (Turkey, 2004).[9]

More than 70% participants felt the need of counseling cell in the college, and the inclusion of mental health education in the curriculum.

Table 2: Body image anxiety, social phobia and depression according to body type perception

Problem	Body type perception (%)			Total	P
	Underweight	Normal	Overweight		
Body image anxiety					
Absent	56 (36.8)	690 (88.6)	19 (28.8)	765 (76.7)	<0.001
Present	96 (63.2)	89 (11.4)	47 (71.2)	232 (23.3)	
Social phobia					
Absent	113 (74.3)	645 (82.8)	46 (69.7)	804 (80.6)	0.004
Present	39 (25.7)	134 (17.2)	20 (30.3)	193 (19.4)	
Depression					
Absent	89 (58.6)	548 (70.3)	34 (51.5)	671 (67.3)	<0.001
Present	63 (41.4)	231 (29.7)	32 (48.5)	326 (32.7)	
Total	152 (15.3)	779 (78.1)	66 (6.6)	997 (100)	

Table 3: Binary logistic regression, model-association of gender, body type perception, body image anxiety, social phobia and comorbidity of body image anxiety and social phobia with depression

Variables	B	SE	Wald	P	OR (95% CI for OR)
Gender	0.132	0.162	0.659	>0.05	1.141 (0.83, 1.567)
Body type perception	0.084	0.166	0.258	>0.05	1.088 (0.786, 1.504)
Body image anxiety	0.615	0.212	8.39	0.004	1.849 (1.22, 2.804)
Social phobia	1.521	0.224	46.282	<0.001	4.575 (2.952, 7.09)
Comorbidity of body image anxiety and social phobia	1.049	0.422	6.185	0.013	2.856 (1.249, 6.53)
Constant	−1.64	0.384	18.253	<0.001	0.194

SE=Standard error, OR=Odds ratio, CI=Confidence interval

LIMITATIONS OF THE STUDY

Being a self-administered questionnaire reporting bias cannot be totally eliminated. Confounders like current emotional state, personality etc., may be present. Only perceived body type is considered in the study, the body mass index not calculated.

CONCLUSIONS

Body image anxiety is widely present among the rural adolescents, and it is an important factor in the development of social phobia. Female and overweight adolescents tend to develop body image anxiety and subsequently social phobia. Depression was associated with body image anxiety and social phobia.

There need of educating teachers and parents for early identification the symptoms of body image anxiety and social phobia. College authorities should take the initiative in the development of effective "counseling cell" and mental health education.

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