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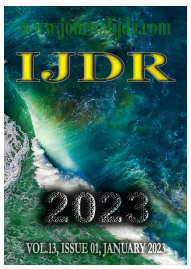

RESEARCH ARTICLE OPEN ACCESS

FEMALE FIGURE DRAWINGS AND ITS RELATION TO SELF ESTEEM AND TENDENCY TOWARDS ANOREXIA NERVOSA OF ADOLESCENT GIRLS

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ABSTRACT

The present study aims to explore the relation between tendency towards Anorexia Nervosa of adolescent girls and their depiction of female figures. The study also tries to find out the relation between self esteem and the tendency towards anorexia nervosa. Therefore the study highlights the depiction of self esteem and anorexia nervosa on the female figures created by the adolescent girls. This paper also provides evidence that lower self esteem in young women may lead to a tendency towards anorexia nervosa. Therefore objectives of the study was to find out the relation, between tendency towards Anorexia Nervosa of adolescent girls and their drawings of female figures, relationship between tendency towards anorexia nervosa and self esteem and whether the self esteem and tendency towards anorexia nervosa can be predicted through their female figure drawings. Stratified random sampling technique was used for sample selection. The sample size was 100. Anorexia test by Vijayalakshmi Chouhan and Aditi Banerjee (2007) and Coopersmith Self Esteem Inventory (School Form) by Stanley Coopersmith (1967, 1981) was used as a tool for the study. Statistical analysis of mean, standard deviation, product –moment correlation coefficient and regression analysis was conducted.

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INTRODUCTION

Anorexia Nervosa is an eating disorder that is mainly observed in young women and is characterized by a pathological fear of weight gain which leads to faulty eating habits, malnutrition and as a result excessive weight loss (Legg, 2016). A review of the literature illustrates a long-standing relation between self-starvation and religious ideals in Western culture and points to an association between contemporary anorexia nervosa and asceticism (Banks 1992). Much has been researched about the role of families and parenting as causes of eating disorders. In a study by Bonsch *et al*. (1993) it was evident that mothers of anorexics may communicate specific negative aspects of the body experience to anorexic daughters or anorexics might be more susceptible to such messages. The present study aims to explore the relation between tendency towards Anorexia Nervosa of adolescent girls and their depiction of female figures.It will also aim to find out the impact of anorexia nervosa on the self-esteem of the adolescent girls. This field of research is rarely investigated especially in India and therefore has a great significance on the behavioural development of the adolescent girls.

Body Image of Anorexic Girls as Reflected in their Drawings: Body image distortion is one of the main symptoms of anorexia nervosa. The young individuals who are anorexics tend to overestimate their body size if they are asked to undergo body size estimation tasks. In a study by Dalhof *et al* (2019) body image distortion was considered to be one of the most important treatment objectives for Anorexia Nervosa patients. In children and adolescents' changes in body size estimation task was found to be more realistic after the treatment.It is due to body image distortion that children and adolescents are motivated towards poor dietary behaviour which leads to negative feelings and body size overestimation (Jacobi *et al*., 2004). Body image distortion is persistent in children and adolescents and are prognostic for both the initial phases of treatment as well as the long-term outcome of the treatment (Boehm *et al*., 2016). These findings were also supported by Stice *et al*. (2011) and Keel and Brown (2010). As the body image distortion is mainly measured by self-report method many aspects of the patients like body dissatisfaction, overestimation of body shape and weight and fear of weight gain is manifested (Linardon *et al*., 2018). Anorexia Nervosa patients tend to perceive their own body as bigger than it actually is. This can be measured by body size estimation tasks with respect to one's own body or stylized body as presented by the participants who have to select, configure or prepare a picture that best represents their body (Gardner and Brown, 2014 and Molbert *et al*., 2017). In a study by Rodrigo and Manoel (2006) body image of anorexia nervosa patients were evaluated.

The Human Figure Drawing was used as a tool to process the mental representation of the subjects. The results indicated that a part of the appraised women presents a negative body image, influenced by inferiority, inadequacy, and insecurity. However, some participants projected in the drawings an idealized body image, influenced directly by compensatory defence mechanism. Such results indicate that Human Figure Drawings can be considered as a useful technique for body image evaluation in anorexia nervosa and a valuable alternative to the psychometric instruments usually used for this purpose. In another study by Strober *et al*. (1979) subjective experience of body image distortions and differentiation of body concept in the human figure drawing were assessed.Results highlighted thatsize estimation was not found to be distinguishing but experiences denoting estrangement from the body, insensitivity to body sensations, and weakness of body boundaries were more prevalent in anorexicsand it persisted even when the symptoms of eating disorder had subsided. Anorexics also showed less differentiation in their human figures relative to controls. Vomiting in anorexics was related to greater experience of body image distortion.In one of the studies that investigated the Draw a Person indices of height, weight, size and inclusion omission details portrayed a significant correlation between the size of the figure and body image whereas no significant results were noticed with respect to body image and inclusion omission (Handelzalts *et al*., 2014). In a study researchers confirmed that the tendency to overestimate body size, the fear of gaining weight, and the conflict about eating are important mechanisms in anorexia nervosa. In a study by Izydorczyk and Stanik (2010)body image among young females with anorexia nervosa and their mothers were highlighted. The results of this research revealed the statistically significant correlation between body image scoresof mothers and the body perception among their daughters with anorexia nervosa. Researchers have also examined the use of self-figure drawing in the assessment of eating disorders. The results indicated that self-figure drawing scores could be clearly differentiated. The results also indicated significantly high correlation between the self-figure drawing and the psychometric assessments of eating disorders. Findings indicate that using self-figure drawing as a tool to assess eating disorders or a tendency to develop eating disorders would be valuable for researchers and practitioners.

Self- esteem as the cause of Anorexia Nervosa: Previous researches have revealed that low self esteem is associated with eating disorders (Silvera *et al*. 1998). According to some recent studies people with eating disorder have a very poor opinion of self-worth. People with core low self esteem may describe themselves as worthless, useless, stupid, unlovable and a failure. They also tend to make negative comparisons with others. In one of his studies Silverstone (1992) opined that low self – esteem occurs in people with eating disorders like anorexia nervosa and bulimia nervosa. Eating disorder can be considered as a symptom of low self-esteem. Ghaderi (2001) opined that low self-esteem puts women at a greater risk of eating disorder and also maintains it. Low self esteem is a significant risk factor for both anorexia nervosa as well as bulimia nervosa (Ghaderi, 2001). Button *et al*. (1996) revealed in their study that body dissatisfaction was the most important predicter of eating disorder therefore in treating body dissatisfaction therapists may try to improve self-esteem, an important determinant of body image. According to Fitzpatrick *et al*. (2011) low self- esteem and perfectionism are two predominant features of eating disorder. It is clear from the study thatlow self-esteem, mood intolerance, and problem-solving deficits may present difficulties with eating disorder. A study by Kroplewski (2019) revealed that dimensions of self-esteem is required in the diagnostic and therapeutic procedures of eating disorder. Apart from self-esteem gender, body image and perceived self worth are other issues to mention. Researchers have argued that people who suffer from eating disorder are more likely to have low self-esteem (Hesse-Biber *et al*., 1999). Studies on the impact of gender on self-esteem and eating disorder revealed that women are more likely to experience low self-esteem and experience eating disorder (Green *et al*., 2009). A study conducted by Munoz *et al*. (2009) evaluated the quality of life in patients with eating disorder and the general population.

It was evident that students with high self-esteem were less likely to suffer from eating disorders, binge eating, bulimia nervosa, and anorexia nervosa was less in this respect. Another hypothesis was that women are more likely than men to suffer from eating disorders, A similar study, conducted by Muñoz *et al*., (2009) aimed to evaluate and compare the quality of life in patients with eating disorders and general population. Results indicated that patients with anorexia nervosa had poor perception regarding quality of life though their condition improved with treatment.Gender also influenced the self esteem scores, that is females reported lower self-esteem compared to the boys (Smink *et al*., 2012), females also reported eating disorder (anorexia nervosa and bulimia nervosa) more compared to the male counterparts.Similarly Silvertone (1990) in his study have revealed that both anorexia nervosa and bulimia nervosa patients are assessed with low self-esteem and absence of depression. Decreased body weight was associated with increased self-esteem which was mainly due to satisfaction of achievement motive (Brockmeyer *et al*., 2012). It is evident from the above review of literature that there is a dearth of Indian investigations in this area hence the need for carrying out the present study. The survey of literature helped in the selection of the variables and tools, the formulation of the objectives and hypotheses and the choice of the techniques of statistical analyses of the present study.

METHODOLOGY

Objectives of the study:

- To find out whether there is significant relationship between tendency towards Anorexia Nervosa of adolescent girls (11 – 15 years) and their drawings of female figures.
- To find out whether there is significant relationship between tendency towards Anorexia Nervosa of adolescent girls (11 – 15years) and their self-esteem scores.
- To find out whether there is significant relationship between female figure drawing of adolescent girls (11 – 15years) and their self-esteem scores.
- To find out whether the tendency towards Anorexia nervosa can be significantly predicted on the basis of female figure drawings in case of adolescent girls (11 – 15 years).
- To find out whether self - esteem of adolescent girls (11 – 15 years) can be significantly predicted on the basis of their female figure drawings.

Variables Selected

The variables selected for the present study were as follows

- Tendency towards Anorexia Nervosa
- Drawing of female figures
- Self-esteem
- Age
- Gender

Besides, the variables of parental occupations of the subjects, habitat of the subjects, type of schooling, language of instruction at school and private lessons in art taken by the subjects were identified on the basis of previous research findings for the purpose of control as these might affect the scores of the variables under investigation.

Operational Definitions of the Variables

Tendency towards Anorexia Nervosa: Anorexia nervosa is characterized by the individual's refusal to maintain minimally normal body weight, an intense fear of gaining weight, and significant disturbance in the perception of the shape or size of the body. Post menarchal females with this disorder are amenorrheic (Chouhan and Banerjee, 2007).

Drawing of Female Figures: It refers to pencil sketches of girls or women drawn by the participants of the present study.

Self-esteem: According to Coopersmith (1981; 1990) self esteem is a set of attitudes and beliefs that a person brings with him or herself when facing the world. He also mentioned that the term self esteem refers to the evaluation a person makes and customarily maintains, of him – or herself; that is, overall self esteem is expression of approval or dis approval, indicating the extent to which a person believes him – or herself competent, successful, significant and worthy.

Age: In general it refers to the chronological age of a person. Age is an important demographic variable. Generally, age and the stages of development attained by individuals are closely associated (Smith *et al*., 2003).

Gender: It refers to the differences between men (male, masculine) and women (female, feminine). It is regarded as a social construction – it gives meaning to the fact of sex.

The operational definitions of the control variables are also presented:

- **Occupations of parents:** The socioeconomic status of adolescents were determined by that of their parents Occupations of the parents have important roles to play in their socioeconomic status.
- **Habitat:** It is an ecological or environmental area that is inhabited by a particular species.
- **Type of School and Language of Instruction at School:** Schools may differ with from being formal vs. non – formal schools; government – funded vs. private schools; etc. In India there are three major types of boards of school education:- i) the Central Board of Secondary Education (C.B.S.E.), ii) the Council for the Indian School Certificate Examination (I.C.S.E.) and iii) the boards of school education of the different states of the country. The language of instruction of these types of school boards may differ. In India, the medium of instruction is linked with the type of board of school education.
- **Private Lessons In Art:** It refers to the special training in drawing and painting that the parents of adolescents arrange for their offspring by engaging a tutor or by enrolling their wards in art schools.

Classification of Variables of the Investigation:

Independent Variable: The independent variables of the study are age and gender.

Dependent Variables: The dependent variables are tendency towards anorexia nervosa, self-esteem and female figure drawings.

Control Variables: The control variables are parental occupation of the subjects, habitat of the subjects, type of schooling of the subjects, language of instruction of the subjects and whether the subjects take private lessons in art.

Dependent Variables: The dependent variables of the study are tendency towards anorexia nervosa and self-esteem.

Predictor: The predictor of the present study is female figure drawings.

Hypotheses of the study

Alternative Hypotheses

- There is significant relationship between tendency towards Anorexia Nervosa of adolescent girls (11 – 15 years) and their drawings of female figures.
- There is significant relationship between tendency towards Anorexia Nervosa of adolescent girls (11 – 15years) and their self-esteem scores.
- There is significant relationship between female figure drawing of adolescent girls (11 – 15years) and their self-esteem scores.
- Tendency towards Anorexia nervosa can be significantly predicted on the basis of female figure drawings in case of adolescent girls (11 – 15 years).
- Self - esteem of adolescent girls (11 – 15 years) can be significantly predicted on the basis of their female figure drawings.

Selection of Tools: For the purpose of assessing the variables mentioned, the following tools were selected to serve the purpose of data collection.

Anorexia test developed by Vijayalakshmi Chouhan and Aditi Banerjee (2007): It measures tendency towards Anorexia Nervosa. There were thirty items in the test. The test has no time limit. All items are close ended. The maximum score to be obtained is 30 and the minimum score is 0. Higher score indicates greater tendency towards Anorexia Nervosa (Chouhan and Banerjee, 2007).

Coopersmith Inventory, School Form by Stanley Coopersmith (1967; 1981): This inventory is used for measuring self esteem.It was devised by Stanley Coopersmith (1967, 1981). It is a standardized test used to measure self esteem. There are three forms of the Coopersmith Inventories – the School Form, the School Short Form and the Adult Form. The term "self esteem" does not appear on the top of any of the forms to disguise the intent and reduce faking of the responses by the subjects.

Drawings of female figures: Participants were provided blank sheets of paper and asked to write their identifying information. Then they were told to draw a pencil sketch of a female figure (girl or woman) on it. Later three raters were asked to independently rate the drawing as that of a thin female; slim female; or a fat female with ratings of 1, 2 or 3 respectively. The identifying information printed at the top of the tools was useful in gathering the background information regarding the subjects. Besides, additional information like home address, mother's occupation, the board of affiliation of the school the subject is studying in, the language of instruction at school and whether the subject takes private lessons in art was recorded using the interview technique.

Sample:

Type of sample: In the presents study stratified random sample was selected from the population. The sample size was 100. Strata were based on age of the participants. There were two strata- one of 50,11 to 13 year old adolescent girls and another of 50, 13 to 15 year old adolescent girls.Since the age – range of the population of the present study is quite wide, it was divided into age - based strata. Equal number of subjects was selected from each age – based stratum to form a representative sample. The sample belonged to the middle socio – economic status families (as ascertained from their parental occupations), they studied in English – medium schools of Kolkata and they did not take private lessons in art.

Techniques of Statistical Analyses: Mean, Standard Deviation and Product – moment correlation coefficient and regression analyses was calculated.

Procedure: At first relevant literature were reviewed. Then the problem of research was selected. The variables was selected for the investigation. The standardized test selected for the study was Anorexia Test (Chouhan and Banerjee, 2011) and Coopersmith Self Esteem Inventory School Form (1967, 1981). Another tool was drawings of female figures by participating adolescent girls. Stratified random sample of 100 adolescent girls (11-15 years) was selected. Of these, 50 were adolescent girls of 11 to 13 years and 50 were adolescent girls of 13 to 15 years. Data were collected by administering the tools to groups of participants in school. Responses of the subjects to item in the Anorexia Test and Coopersmith Self Esteem Inventory were scored by following the manual. Each drawing of female figure was rated independently by three raters. These raters were told to judge whether the figures drawn looked thin,

medium and fat. Raters were told to give score of 1 to drawings which seemed to depict thin figures; score of 2 to figures which appeared medium; score of 3 to figures which looked fat. For each participant's drawing, the scores awarded by the three raters were averaged. This was the participant's score for the drawing of female figure. Scores on Anorexia Test, Coopersmith Self Esteem Inventory and drawings of female figures of all the participants were tabulated. The mean, SD and correlation coefficients were calculated. Correlation coefficients were subjected to tests of significance at .05 level. Two Way ANOVA and regression analysis was also calculated. Results were discussed and conclusions were drawn.

RESULT AND DISCUSSION

In this chapter the results of the present investigation will be interpreted. This chapter will be divided into the following four sections for the sake of convenience

- Means and Standard Deviations
- Analyses of Variance
- Correlation Coefficients
- Multiple Regression Analyses

Means and Standard Deviations: At the outset, the descriptive statistics i.e., the mean and standard deviation values for the two age – groups and also the entire sample were calculated with respect to the tendency towards anorexia nervosa,self esteem and female figure drawings scores. These values are reported in the following Tables.

Table I. Means And Standard Deviations of Tendency Towards Anorexia Nervosa and Self – Esteem Scores

Age Group	Variables	Mean	Standard Deviation
11 - 13 years (N=50)	Female Figure Drawings	1.94	0.19
	Tendency towards Anorexia Nervosa	13.14	2.08
	Self esteem	67.52	3.99
13 - 15 years(N=50)	Female Figure Drawings	2.63	0.45
	Tendency towards Anorexia Nervosa	21.14	1.16
	Self esteem	53.64	2.6
11 - 15 years (N=100)	Female Figure Drawings	2.37	0.51
	Tendency towards Anorexia Nervosa	17.14	4.35
	Self esteem	60.58	7.73

From observation of Table 1, it is clear that the mean values of tendency towards anorexia nervosa, and female figure drawings scores have on the average increased with the increase in age - level of the subjects. However, the mean value of the self-esteem scores appear to decrease with increase in age. The standard deviation values reported in this Table are moderate indicating that the tendency towards anorexia nervosa, female figure drawings and self-esteem scores of the entire sample (N = 100), the two age – groups are more or less homogeneous.

Correlation Coefficients: To probe the relations among the pertinent variables of the investigation, correlation coefficients between pairs of these variables were computed for the entire sample and for the two age – groups separately because the influence of age on the scores of the relevant variables were found to be highly significant. The Table represents the correlation matrix of the three variables, tendency towards anorexia nervosa and self-esteem. It is clear from the table that tendency towards anorexia nervosa is positively and significantly related to female figure drawings. So, the first null hypothesis is rejected in favour of the corresponding alternative hypothesis.

Moreover, the relation is positive indicating that higher the tendency towards anorexia nervosa scores greater is the scores for female figure drawings. This finding was also revealed by Stice *et al*. (2011).

Table II. Correlations Among Relevant Variables (N = 100)

	Tendency towards Anorexia Nervosa	Female figure Drawing	Self-esteem
Tendency towards Anorexia Nervosa	1	**0.66	**-0.86
Female figure Drawing	--	1	**-0.64
Self-esteem	--	--	1

** p < .01

The table also shows that there is significant correlation between tendency towards anorexia nervosa scores and self-esteem. Therefore, the second null hypothesis is rejected. It is clear from the table that this relation is negative which means that with the increase in the tendency towards anorexia nervosa scores there is and decrease in self-esteem scores of the adolescents.

This was also visible in the study by Ghaderi (2001) and Button *et al*. (1996). Female figure drawing and self-esteem scores are also significantly related thereby rejecting the third null hypothesis and accepting the corresponding alternative hypothesis.Female figure drawings and self-esteem have a negative correlation which means that increase in the female figure drawing scores will lead to decrease in the self esteem scores of the adolescents.

Regression Analyses: In view of the close associations among the relevant variables, to find out whether the subjects' scores on the performance variable i.e., tendency towards anorexia nervosa could be predicted on the basis of their scores on the psychological variable of the investigation viz., female figure drawing, Regression Analyses were conducted for the entire sample (N = 100).

Table IIIA. Results Of Regression For Tendency Towards Anorexia Nervosa and Female Figure Drawing Scores of The Entire Sample (N = 100)

Variable	Regression Coefficient	Standard Error
Female Figure Drawing	6.46	0.54

Intercept = 1.852; Multiple R = 0.76**
Multiple R^2 = 0.59; ** p < .01

Table IIIB. Summary of ANOVA: Regression For Tendency Towards Anorexia Nervosa and Female Figure Drawing Scores of The Entire Sample (N = 100)

	df	SS	MS	F
Regression	1	1107.760559	1107.7606	140.9365601**
Residual	98	770.2794414	7.8599943	

** p < .01

Significant R and F - values reported in Tables indicate that tendency towards anorexia nervosa scores of the subjects can indeed be predicted on the basis of their female figure drawings.

The value of R^2 (= 0.59) indicated that as much as 59 % of the variance in the tendency towards anorexia nervosa scores can be predicted on the basis of female figure drawing scores or 59% of the variability in tendency towards anorexia is explained by regression of tendency towards anorexia and female figure drawing scores . On the basis of the above results the ninth null hypothesis is rejected in favour of the corresponding alternative hypothesis for the entire sample.

Table IVA. Results Of Regression For Self-Esteem and Female Figure Drawing Scores of The Entire Sample(N=100)

Variable	Regression Coefficient	Standard Error
Female Figure Drawing	-11.26	2.4

Intercept = 87.25 Multiple R = 0.75** Multiple R^2 = 0.57 ** p < .01

Table IVB. Summary Of ANOVA: Regression For Self-Esteem and Female Figure Drawing Scores of The Entire Sample (N = 100)

	df	SS	MS	F
Regression	1	3371.772937	3371.77294	129.147**
Residual	98	2558.587063	26.1080313	

** p < .01

The R and F values reported in Tables reveal that self esteem scores of adolescent girls can be predicted on the basis of their female figure drawing scores. So the tenth null hypothesis is rejected and the tenth alternative hypothesis is upheld for the entire sample. The value of R^2 shows that only 57 % of the variance in self-esteem scores can be predicted on basis of female figure drawing scores of adolescent girls.

Conclusions of the Investigation

On the basis of the results obtained from the study, the following conclusions can be drawn

- There seems to be strong influence of age on tendency of anorexia nervosa, self-esteem and female figure drawings.Age seems to have a positive impact on tendency towards anorexia nervosa. The tendency towards anorexia nervosa scores tend to increase with the increase in age. Therefore it can be opined that thirteen to fifteen year old adolescent girls show greater tendency towards anorexia nervosa rather than their younger counterparts. The female figure drawing scores are also influenced by age. The scores of the female figures are high for the thirteen to fifteen year old girls. There seems to be a significant change in the female figures drawn by the older age group (13 – 15 year old's) than that drawn by the younger group (11 – 13 year old's). This was also stated by Jacobi *et al*. (2004). The self esteem scores of the adolescents are also influenced by age. Whereas self-esteem scores seem to reduce in the older age group (13 – 15 year old's). This may be because of the impact of the tendency towards anorexia nervosa.
- ii. The results also show that the three variables, tendency towards anorexia nervosa, self-esteem and female figure drawings are highly interrelated. Lower the score for tendency towards anorexia nervosa higher is the self- esteem. There is a negative correlation among female figure drawings and self-esteem too. That is higher the score for female figure drawings lower id the self-esteem. The opposite is true for tendency towards anorexia nervosa and female figure drawing scores. Adolescents scoring high on tendency towards anorexia nervosa also score high on there female figure drawing scores.
- iii. Since the above pertinent variables of the study were highly interrelated so whether two of the variables could be predicted on the basis of the other was the obvious question. In order to answer the question, thefemale figure drawing was chosen as the predictor and tendency towards anorexia nervosa and self-esteem was the dependent variable. The results of the regression showed that tendency towards anorexia nervosa and self-esteem could be predicted on the basis of the female figure drawings of the adolescents for the entire age group. The result of the present study indicates the importance of the female drawings as the predictor of the other two variables. Female figure drawings could be a window to the minds of the adolescents. It can serve as an effective tool of therapy for the adolescent suffering from anorexia nervosa. Therefore, female figure drawings can be used as valuable tools for the assessment of adolescents tendency of anorexia nervosa and self esteem.

Therefore it is clear from the results of the present study that female figure drawings, self esteem and tendency towards anorexia nervosa of 11 – 15 year old adolescent girls are significantly correlated to each other. The research also concludes that female figure drawings of adolescent girls could be used as a predictor of self esteem and anorexia nervosa. Thus female figure drawings can be used as the preliminary screening method for detecting anorexia nervosa and self esteem in adolescents. Using a projective test like female figure drawings would help in stress free psychological assessment instead of other psychological tests. Further research in this area would provide us with a more comprehensive outcome which could be used for psychological assessment of adolescents.

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The data for the present study is available an uploaded, the link is https://docs.google.com/spreadsheets/d/18uob6aM0atF2VnsJ6XB 2LCwcVUe-eq9I/edit?usp=sharing &ouid=114367 9684620162183 81 &rtp of=true&sd=true

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