

Obesity and Exercise in Relation to Gender Role Identity and Exercise Avoidance Motivation in Adults

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The study intended to determine whether Gender Role Identity and Exercise Avoidance Motivation vary in terms of gender (male/female), Body Mass Index (BMI – normal weight / overweight / obese) and Exercise Habit (regular exercise/no exercise) in adults. The sample consisted of 480 participants (240 males and 240 females) between 25 to 40 years of age, subdivided into twelve groups according to their BMI and exercise habit. A Detailed Information Schedule and General Health Questionnaire (GHQ-28) were administered for screening purpose. Indian Gender Role Identity Scale (IGRIS) and Exercise Avoidance Motivation Scale were finally administered to the subjects to assess their gender role identity (masculinity and femininity) and exercise avoidance motivation. Results revealed that both gender role identity and exercise avoidance motivation varied in terms of gender, BMI and exercise habit. Males and regular exercisers and persons with normal BMI had low exercise avoidance motivation, while females, overweight and obese individuals as well as no exercisers had greater exercise avoidance motivation.

Keywords: Obesity, Exercise habit, Exercise avoidance motivation, Gender role identity.

The issue of weight-control has become especially urgent in recent years because of galloping levels of obesity in the population. The World Health Organization (WHO) estimates that 300 million people worldwide are obese and a further 750 million are overweight including 25 million children under age of five years (Arnst, 2004). This global epidemic of obesity stems from a combination of genetic susceptibility, increasing availability of high fat and high energy foods and low levels of physical activity or exercise (Kopelman, 2000), along with sedentary living pattern (Bouchard, 2002).

The relationship between weight-gain and physical activity or exercise is controversial. It is evident that lack of exercise leads to overweight and obesity. It is also true that weight stigma present in the overweight and obese person leads to decreased participation in weight management efforts resulting from exercise-avoidance motivation (Bauer, Yang, & Austin, 2004; Hayden-Wade, Stein, Ghaderi, Saclens, Zabinski, & Wifley, 2005). From earlier literature, it can be said that obesity-exercise relationship is a vicious-cycle, where it is difficult to identify the predictor. Studies also reveal that there are

other important predictors of regular exercise such as self-image, attitude towards exercise, gender, motivation, overweight, social support, health status, self-efficacy, depression and family exercise habit (Dishman, 1982; Molt, Dishman, Saunders, Dowda, Felton & Word, 2002; Salmon, Owen, Crewford, Bauman, & Sallis, 2003). Certain factors are also associated with overweight and obesity in adults such as childhood obesity, family history, socio-economic status, culture, value, diet, stress, anxiety, depression etc. (Bouchard, 2002; Koretz, 2003; Oliver, Wardle, & Gibson, 2000; Wardle, Wolfer, & Jarvis, 2002).

For the present study, it is assumed that gender role identity and exercise avoidance motivation of the individual might vary in terms of Gender, Body Mass Index (BMI) and Exercise Habit. Gender difference is important in exercise behavior. Females are found to have lower exercise scores than males (Saklofske, Austin, Rohr & Andrews, 2007) eventually leading to obesity. The Body Mass Index (BMI) of an individual determines whether a person is normal, overweight or obese in terms of his/her height-weight ratio. According to the Body Mass

Index Table (National Heart, Lung and Blood Institute, 2004):

- a) BMI for normal persons ranges from 19 to 24.
- b) BMI for overweight person ranges from 25 to 29.
- c) BMI for obese person ranges from 30 to 39.

The typical exercise participation for a normal adult is to accumulate 30 minutes or more moderate intensity activity on most, preferably all days of the week and 20 minutes or more vigorous activity at least three days a week (Centre for Advancement of Health, 2000). In this study regular exercise is meant by at least 45 minutes of moderate intensity daily exercise. The no exercise group participants are involved only in normal day-to-day light physical activities at home and work place.

The present study intends to assess the role of gender role identity, exercise avoidance motivation in normal, overweight and obese persons participating in regular exercise programs and persons with no regular exercise habit. The concepts of the variables are stated in the following:

Gender Role Identity: This refers to one's perception of oneself as psychologically male or female. It develops on the basis of gender specific norms of a specific society and societal expectations about a particular gender. Men are expected to be strong, masculine, adventurous, athletic while women are expected to be domestic, feminine, quiet, tender submissive, etc. Accordingly men and women of a particular society acquire a gender identity. According to Bem (1974, 1984), both males and females can have their share of masculine and feminine traits. Earlier literature reveals that people who perceive them as athletic are more likely to get involved in exercise programmes (Salmon et al., 2003). Boys get more exercise than girls (Sallis & Owen, 1998) and women report significant barriers to getting exercise including care giving responsibilities (domestic gender role) and concomitant lack of energy (King et al., 2000). Hence, it may be assumed that those with a relatively masculine role identity

may, irrespective of biological gender, engage in more exercise.

Exercise Motivation: Motivation is considered to be an important predictor of exercise behaviour. Considering motivation as an important predictor of exercise, the present study intends to measure the exercise-avoidance motivation in normal, overweight and obese persons with a regular and absent exercise habit. Findings reveal that weight stigma and comments about weight from individuals who are trying to be helpful can (perhaps unintentionally) be emotionally damaging and can also be counterproductive to weight management efforts resulting from exercise avoidance motivation (Puhl & Brownell, 2006). Weight stigma can influence exercise avoidance motivation through the feeling of embarrassment and shame. Embarrassment caused by actual or anticipated negative evaluations from others might motivate some people to actively avoid public exercise situations (Boll, Crewford, & Owen, 2000). In addition, stigma experiences can cause targets to feel shame, which is characterized by a wish to hide, withdraw and avoid thinking about shameful aspects of the self (in this case one's weight) (Tangney & Dearing, 2002). Feeling of shame might in turn lead to an overall decrease in motivation and withdrawal from activities, including exercise.

Selection of the two self related variables, namely, Gender Role Identity and Exercise Avoidance Motivation as predictors of obesity and exercise habit is significant. As masculinity is associated with traits like strong, athletic, hardworking, adventurous, and energetic, a person with greater masculinity is likely to have less exercise avoidance motivation leading to weight control. Both can work to promote exercise and reduce obesity.

On the basis of earlier findings and related concepts predicting weight gain and exercise the objectives of the present study are here as follows:

1. To determine whether gender role identity of the individuals varies in terms of his/her Gender, BMI and Exercise Habit.

2. To determine whether the exercise avoidance of the individual varies in terms of his or her Gender, BMI and Exercise Habit.

Hypotheses:

- (1) Gender Role Identity comprising two categories—(i) masculinity and (ii) femininity vary in terms of their gender (i.e., male and female) of the subjects.
- (2) Gender Role Identity comprising two categories—(i) masculinity and (ii) femininity vary in terms of BMI or Body Mass Index (normal weight, overweight and obese) of the subjects.
- (3) Gender Role Identity comprising two categories—(i) masculinity and (ii) femininity vary in terms of Exercise Habit (regular exercise or no exercise) of the subjects.
- (4) Exercise Avoidance Motivation varies in terms of Gender (i.e., male and female) of the subjects.
- (5) Exercise Avoidance Motivation varies in terms of BMI or Body Mass Index (normal weight, overweight and obese) of the subjects.
- (6) Exercise Avoidance Motivation varies in terms of Exercise Habit (regular exercise and no exercise) of the subjects.

Method

Sample:

The sample consisted of 480 participants (240 males and 240 females) between 25 to 40 years of age, divided into 12 categories on the basis of their Body Mass Index (Normal weight, Overweight, Obese) and exercise Habit (No exercise and Regular exercise). The educational qualification for the subjects was at least Higher Secondary with a family income of Rs. 15,000 to Rs. 40,000. Both married and unmarried persons free from any chronic mental and physical disease and regular medication were selected as subjects. Regular exercisers participated in the Exercise package of the gymnasiums including medium intensity exercise and aerobics for 45 minutes every day. Non exercisers were engaged only in light household work and office

work. Non exercisers were engaged only in light household work and office work. Subjects residing in and around Kolkata and engaged in exercise packages in gyms of Kolkata city were selected.

Measures used:

- 1) General Information Schedule for collecting personal and familial information.
- 2) *General Health Questionnaire* (GHQ-28) for screening out the mentally and physically diseased persons, developed by Goldberg and Hiller (1979). It consists of four sub-scales for somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. Each item has four alternative responses. The GHQ-28 has been adapted in Bengali Culture by Basu and Dasgupta (1996). In this adaptation, item analysis was done. The split-half reliability was found to be 0.97.
- 3) *Indian Gender Role Identity Scale* (IGRIS) developed by Basu, (2010) consists of 30 items (10 masculine, 10 feminine and 10 neutral). It is used for measuring the gender identity of individual in terms of his/her masculinity and femininity scores. The reliability coefficient by Test Retest Method for Masculinity and Femininity are 0.90 and 0.85. The split-half reliability for Masculinity and Femininity are 0.89 and 0.85. Whereas Cronbach's Alpha (after 1 month) are 0.80 and 0.79.
- 4) *Exercise-avoidance Motivation Scale* developed by Vartanian and Shaprew (2008). The scale contains eight items that reflect individuals' reactions to experiencing 'negative situations related to their weight', in particular with respect to exercise and weight control behavior. Each item was rated on a seven point scale ranging from 1 (not at all true) to 7 (completely true). Higher scores on this scale indicate greater avoidance motivation. The Cronbach's alpha reliability of the test is .969 and Spearman Brown Split-half Reliability of the test is .913.

Procedure and Statistical Treatment

samples were collected from different gymnasiums of Kolkata city. The gymnasiums were selected by using the Stratified Random Sampling method. The gyms from all the five zones of Kolkata (East, West, North, South and Central) were listed. From each zone five gyms were randomly selected. At least 30 people's data was collected from each gym. The participants were randomly selected from each gym after matching the inclusion criteria.

Initially the Detailed Information Schedule and GHQ-28 were administered for screening. Willing participants who met the inclusion criteria and who were free from any chronic physical or mental illness were finally assessed by Indian Gender Role Identity Scale and Exercise Avoidance Motivation Scale individually. Scoring was done and mean and standard deviation were calculated as a measure of descriptive statistics, 2×3×2 ANOVA was done to find out the F-values as a measure for inferential statistic.

Results

Table 1. The Means and Standard Deviations are presented for Gender Role Identity (GRI) and Exercise Avoidance Motivation (EAM) varying in terms of Gender (Male and Female), BMI (Normal weight, Overweight, Obese) and Exercise Habit (Regular exercise and No exercise)

Gender	BMI	Exercise Habit	GRI		EAM	
			Masculinity	Femininity		
Male	Normal Weight	Regular Exercise	M	56.27	44.15	15.20
			SD	8.28	9.77	7.58
		No Exercise	M	50.85	40.67	15.27
			SD	9.91	10.99	6.45
	Over Weight	Regular Exercise	M	56.42	41.92	22.77
			SD	9.21	13.02	7.26
	No Exercise	M	55.75	44.87	23.60	
		SD	9.58	12.43	8.54	
Obese	Regular Exercise	M	57.97	44.40	26.15	
		SD	9.06	9.83	8.82	
	No Exercise	M	54.52	42.70	26.85	
		SD	9.87	11.09	8.65	
Female	Normal Weight	Regular Exercise	M	47.37	57.65	20.15
			SD	7.61	7.33	6.65
		No Exercise	M	46.05	57.25	24.65
			SD	7.43	7.23	5.59
	Over Weight	Regular Exercise	M	47.67	59.57	29.10
			SD	9.47	7.20	8.74
	No Exercise	M	46.70	58.87	30.97	
		SD	8.69	6.91	9.48	
Obese	Regular Exercise	M	48.15	58.67	34.92	
		SD	9.25	8.80	7.42	
	No Exercise	M	48.00	57.17	36.95	
		SD	8.54	7.66	7.20	

Table 2. Results of 2 (Gender)×3 (BMI)×2(exercise habit) factorial analysis of variance for Gender Role Identity (Masculinity and Femininity varying in terms of Gender (male and female), BMI (normal weight, overweight, obese) and Exercise Habit (regular exercise and no exercise)

Source	DV	Df	F	Significance Level
Gender	Masculinity	1, 468	95.31**	.0001
	Femininity	1, 468	296.93**	.0001
BMI	Masculinity	2,468	2.21	.111
	Femininity	2,468	0.84	.433
Exercise Habit	Masculinity	1, 468	5.99*	.015
	Femininity	1, 468	0.84	.359
Gender and BMI	Masculinity	2, 468	0.54	.583
	Femininity	2, 468	0.23	.795
Gender and Exercise Habit	Masculinity	1, 468	2.09	.148
	Femininity	1, 468	0.01	.943
BMI and Exercise Habit	Masculinity	2, 468	0.83	.438
	Femininity	2, 468	1.23	.294
Gender, BMI and Exercise Habit	Masculinity	2, 468	0.69	.504
	Femininity	2, 468	1.24	.291

*p<0.05; **p<0.01.

Interpreting the Results of ANOVA Test for Gender Role Identity (Masculinity and Femininity)

Masculinity: From the table above, it may be observed that Masculinity varies in terms of Gender and Exercise Habit (Gender at 0.01 levels and Exercise Habit at 0.05 levels). Therefore, hypotheses 1(i) and 3(i) are accepted and 2(i) is rejected. From the mean table, it may be observed that Male group (55.30) is higher than Female group (47.33) significantly in masculinity and female group scored higher (58.19) in femininity than male group (43.11). In case of exercise habit, regular exercise group (52.31) has higher masculinity than no exercise group (50.31).

Femininity: Femininity varies significantly in terms of gender (at 0.01 level). Therefore, hypothesis 1(ii) is accepted and hypothesis 2(ii), and 3(ii) are rejected. From the mean table, female group (58.20) has greater femininity than male group (43.12) significantly.

Table 3. Results of 2×3×2 factorial analysis of variance for Exercise Avoidance Motivation varying in terms of Gender (male and female), BMI (normal weight, overweight, obese) and Exercise Habit (regular exercise and no exercise)

Source	Df	F	Significance Level
Gender	1, 468	120.98**	.0001
BMI	2, 468	103.72**	.0001
Exercise Habit	1, 468	5.50*	.019
Gender, BMI	2, 468	1.32	.269
Gender, Exercise Habit	1, 468	2.54	.111
BMI, Exercise Habit	2, 468	0.19	.826
Gender, BMI, Exercise Habit	2, 468	0.58	.561

*p<0.05; **p<0.01.

Table 4. Results of least significant difference table, Exercise Avoidance Motivation as independent variable and BMI as dependent variable with three levels (1-Normal weight, 2-Overweight, 3-Obese)

BMI		Mean Difference	Significance Level
1.00	2.00 3.00	- 7.79** -12.40**	.0001 .0001
2.00	3.00	- 4.61**	.0001

*p< .05 ; **p< .01

Interpreting the Results of ANOVA Test and Post-hoc Test for Exercise Avoidance Motivation

Exercise Avoidance Motivation varies significantly in terms of Gender, BMI and exercise habit (at 0.05 level). Therefore, hypothesis 4, 5, and 6 are accepted. From the mean table, it may be found that female group (29.458) has greater Exercise Avoidance Motivation than the male group (21.64). In case of BMI, obese group (31.22) is highest and normal group (18.82) is lowest in Exercise Avoidance Motivation significantly. On the other hand, no exercise group (26.38) has greater Exercise Avoidance Motivation than the exercise group (24.72).

Discussion

As male subjects had greater masculinity than females, while females possessed more feminine traits than males, their gender role identity matched with their biological sex as mentioned in earlier works (Bem, 1974, 1984; Dasgupta & Basu, 2011). Presence of masculinity also varied in terms of exercise habit. Regular exercisers had greater masculinity than their counterparts. Earlier research evidences (Hargreaves, 2000; Vertinsky, Batth & Naidu, 1996) were in-line with the notion that sports and physical activities are a traditionally male preserve. Male figures like father and brothers were viewed as key sources of athletic knowledge and athletic training and providers of verbal encouragement for sports to the junior members of the family in the Indian family setting (Ramanathan & Crocker, 2009). Thus, persons idealizing and modeling masculine gender role identity eventually developed regular exercise habit resulting from the identification with the male figure. Researchers also discussed the

pressures in sport and exercise practices and confirmed that females were preferentially affected by a drive for thinness while males are affected by a drive for muscularity. Here, also gender stereotype prevails (Stevens, Gammage & Waddell, 2007).

It was also noted that females had greater exercise avoidance motivation than males. Earlier evidences stated that females value the fun and enjoyment outcomes of physical activities more than competition or winning, which are often primary values of males (Lenskyj, 1995; Sirard, Pfeiffer & Pate, 2006). Exercise for fun, an example of intrinsic motivation is not considered a significant predictor of exercise behaviour (Edmunds, Ntoumanis & Duda, 2006). Thus, solely intrinsic reasons of fun and enjoyment cannot promote or maintain regular repetitive, exercise habit, which needs psychological organization and commitment (Mullan, Markland & Ingledew, 1997). Presence of intrinsic motivation in females, therefore, enhanced their exercise avoidance motivation, which hinders long term exercise behaviour. Moreover, greater prevalence of feminine traits was found in female subjects in the present study, which denotes a decreased score in masculine traits like athletic, adventurous, hardworking, aggressive, strong, etc. This feminine gender role identity in females encouraged them to follow the socially stereotyped norms (Fouts & Burggraf, 1999). This phenomenon of females disciplining their bodies to please others and the society at large can be explained by the Objectification Theory (Fredrickson & Roberts, 1997), where it posits that females internalize the observer's perspective of their physical selves.

On the other hand, competence need satisfaction and self-efficacy (Bandura, 1997; Sallis & Owen, 1998), as strongest predictors of strenuous exercise behaviour, can explain the presence of lower exercise avoidance motivation in males, as males value competition and winning outcomes of physical activity (Sirard et al., 2006). Masculine gender role identity in males might also have encouraged men's regular exercise habit by decreasing their exercise avoidance motivation.

In the present study, obese group possessed highest exercise avoidance motivation, which

gradually declined in the overweight and normal groups. Moreover, regular exercisers had lower exercise avoidance motivation than no exercisers. As mentioned earlier, the relationship between obesity and exercise is complex, producing a vicious-cycle, where it is hard to find out the predictor. Earlier studies revealed that weight stigma and discrimination can lead to exercise avoidance motivation, eventually resulting in decreased motivation and withdrawal from weight management efforts (Puhl & Brownell, 2006; Tangney & Dearing, 2002). Thus, exercise avoidance motivation in overweight persons discourage them to participate in regular exercise programmes, consequently leading them to weight gain and becoming victims of weight stigma. As the negative attitudes toward overweight and obese individuals are formed as early as age three (Cramer & Steinwert, 1998) the developmental process of obesity, exercise habit as well as exercise avoidance motivation might be overlapping, making their relationship more complex.

Conclusion and Limitations

Gender role identity and exercise avoidance motivation can be considered as important predictors of obesity and exercise habit. Masculinity in individuals promotes regular exercise behaviour by reducing exercise avoidance motivation. Females possessed greater exercise avoidance motivation, leading to non-participation in physical activities. Gender stereotype and weight stigma worked as influencing factors in the present study.

There are some limitations of this study. An increased sample size would have been appropriate as this is a survey type study. Only one type of exercise involvement had been taken into consideration. Variation in type of exercise might have elicited a different result. Exercisers were divided mainly into two groups – no exercisers and regular exercisers. There is definitely a third group who engage themselves in physical activity on part time basis. Absence of this type of group is a major limitation of the study.

Applicability of the Proposed Study

Although, the health and mental health benefits of exercise are well established, most people's participation in exercise programme is erratic. Many children get regular exercise through required physical education classes in school. However, by adolescence, the practice of regular exercise declines substantially, especially among girls and boys not involved in formal athletics (Crosnoe, 2002). Adults cite lack of time and other stressors in their lives as factors that undermine their good intentions (Myers & Roth, 1997). Many people seem to share this attitude toward exercise. Evaluations of exercise programmes indicate that six months participation programme is common in most people (Dishman, 1982). On average, only half of those people who initiate voluntary exercise programme are still participating in that programme after six months. People may begin an exercise programme, but find it difficult to make exercise a regular activity. Paradoxically, although exercise seems to be a stress buster, stress itself is one of the most common reasons that people fail to adhere to their exercise regiments. Accordingly research has attempted to identify the factors that lead to regular exercise participation. Results remained controversial as well as confusing. Thus, the present study intends to identify some self related variables, which might have some influence in exercise participation of normal, overweight and obese persons. Moreover, identification, of those variables and assessment of the extent of their influencing power can prevent gym dropouts and enhance better physical as well as mental health of overweight persons.

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