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Health indicators (physical and mental) Case study: University of Tehran students*

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A B S T R A C T

Physical activity in adulthood decreases as the age increases. This fact has a relationship with mental factors as well. The aim of the present study was to investigate anger, self-esteem, sedentariness and body fat mass percent among university students. The statistical population consisted of all students of University of Tehran and 320 students were selected through the simple randomized sampling method. Independent t test and Pearson correlation coefficient were used to analyze the data. Findings of this study showed that 62% and 38% of students were sedentary and active respectively. Furthermore, total percent fat of subjects was 26%. Also, 79% of students had high self-esteem while 21% had low self-esteem. Also, a high negative correlation was reported between anger and self-esteem level. The mean physical activity showed a significant difference in physical activity between men and women. Also, there was no significant difference in fat mass between sedentary and active subjects. The present study showed no significant relationship between physical activity and high and low self-esteem although there was a high positive relationship between obesity and anger in subjects.

Keywords: Sedentariness, Self-Esteem, Fat Mass, Anger, Students.

INTRODUCTION

Resulting from an intervention either in an individual's genes or the surroundings, obesity is a chronic condition. It is influenced by social, cultural, mental, metabolic, biochemical and genetic conditions as well [1, 2, and 3]. It was well proven that physical activity level decreases during adulthood and in parallel with increased age which is also accompanied by obesity. There is not much evidence which proves the relationship between physical activity in youth and obesity in adulthood in longitudinal studies[4]. It is possible that those who do not perform physical activity and consequently suffer from obesity are genetically obesity-prone because genetic factors influence both physical activity and body size[5]. Research on sedentariness and general health showed that increased sedentariness was accompanied with increased obesity and decreased physical activity and general

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health[4]. In addition to the fact that regular physical activity increases physical fitness, a relationship was observed between high physical fitness and high self-esteem[6]. Physical activity programs are among the most common ways to increase self-esteem. In addition, simple activities such as aerobic exercises, influence self-esteem more than complex and heavy activities[7].

A relationship was observed between low self-esteem and depression, low mental health and lower progress in university education[8]. Some researchers reported a relationship between self-esteem and body image dissatisfaction among overweight women seeking weight loss[9]. Generally, it is proven that decreased self-esteem and decreased general health are linked together[10]. Of course, the relationship between self-esteem and obesity has not yet well proven[11]. Although challenges of the effects of self-esteem on general health have obtained dramatic results, the issue that whether low self-esteem is a consequence or a problem should be discussed[10].

Anger is an important mental aspect in societies; anger is one of the most important and effective emotions in human beings' lives and plays a key role in their lives. Theorists assert that anger is one of the most drastic emotions which can be formed in many different ways and greatly influence various mental and physical dimensions. Anger experience like other emotions can be linked to various personal variables such as gender, personality and social and cultural parameters. One of the reasons why we pay more attention to anger is that it bears a relationship with many physical and mental health indicators and that many suffer from anger-related problems[1].

On the other hand, anger is involved in identifying the cause for many important physical and mental disorders. It is a natural mood in which individuals inappropriately express their emotion. As a natural mood, anger is neither a bad emotion nor a good one; it is a sign like thirst and hunger to which often attention should be paid. It is stated that anger can be investigated from three perspectives: physiological, social-cognitive and behavioral-reaction. Physiological perspective is related to the changes of body internal systems when anger rises; social-cognitive dimension is that the individuals themselves interpret their anger; behavioral-reaction dimension of anger is a state of anger which shows whether it is expressed or not and if it is expressed, how it will be expressed. This last dimension shows that each individual expresses his/her anger differently. Anger in the youth is observed with two health-related problems; the first problem is linked to the aggressiveness the youth who are dislodged from society express and the other one is the chronic anger which shows stimulations of sympatric system which results in cardiovascular diseases. Research shows that anger and body fat or obesity are related and these factors bear a relationship between anger and blood pressure[12].

Generally, anger is related to not only health-related factors but also behavior-related factors. It is reported that physical activity treats anxiety and depression in

different classes of society. As a result, physical activity is a way to control anger so it can be concluded that there is a relationship between anger and physical activity level; research shows a correlation between high levels of aerobic fitness and low level of anger in adults[2]. Therefore, this study aimed at determining anger, self-esteem, physical activity and fat mass percent in students of University of Tehran.

METHODOLOGY

Subjects: statistical population consisted of all male and female students of University of Tehran studying in B.A., M.Sc. and Ph.D. After a pilot study, 320 subjects were randomly selected as the sample of the study using Morgan table (170 females and 150 males). Table 1 shows demographic features of subjects.

Table 1. Demographic features of subjects

Features	Males		Females		Total	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**
Age (yr)	24.13	±3.29	20.42	±2.30	22.16	±3.36
Height (cm)	174.97	±1.06	162.34	±5.74	168.26	±1.04
Weight (kg)	72.55	±8.94	56.30	±7.72	63.92	±1.16

Research Instruments:

Anger: After consent forms had been collected, State-Trait Anger Expression Inventory (STAXI-2) was distributed. This inventory (for 16-35 age group) is a 57-item inventory which consists of six scales and five subscales. The items consist of three parts: the first part (I am feeling right now) measures the intensity of anger as an emotional state (State Anger) and the subjects rank the intensity of their emotion based on a 4-point scale from “never=1” to “very much=4”. This part consists of 15 items and includes state anger (S-Ang) and three subscales of state anger-feelings (S-Ang/F), verbal expression of anger (S-Ang/V), physical expression of anger (S-Ang/P). The second part (I usually feel) measures the disposition to experience angry feelings as a personality trait (Trait Anger) and the subjects rank their emotion as mentioned above. Trait anger (T-Ang) scale consists of two subscales of trait anger-temperament (T-Ang/T), trait ager-reaction (T-Ang/R). The third part (when I am angry, what reaction or behavior I have) controls anger which consists of four scales of anger expression-out (AX-O), anger expression-in (AX-I), anger control-out (AC-O), anger control-in (AC-I).

Self-esteem: Coopersmith Self-Esteem Inventory is designed to measure a personal judgment of worthiness that is expressed in the attitudes the individual holds toward himself. The subjects who fill out this inventory should consider which item exactly shows their internal feeling. This inventory consists of 58 items and each item consists of two choices (yes/no). The score over 25 is considered as high self-esteem and score under 25 as low self-esteem. It should be mentioned that this inventory had test-retest reliability as 0.88[25].

Physical activity: International Physical Activity Questionnaire was used to measure physical activity. The questions ask about the time the subjects spent being physically active in the last 7 days and those activities performed longer than

10 minutes were recorded. These activities included activities to do at work, to get from one place to place, house chores and activities in spare time for recreation. This questionnaire asks about vigorous and moderate activities and walking in the last 7 days.

Fat percentage: body fat percentage of subjects was measured by a caliper (Saehan, SH5020 model made in England) in three regions (males: chest, thigh, abdomen and females: triceps, iliac crest, thigh) [13]. To increase the reliability, skin-fold fat of each region was measured three times with specific time intervals and all measurements were carried out in the right side of the body[14]. To determine BF% of subjects, fat percentage was determined by Jackson/Pollock formula. Subjects' height while standing was measured by a stadiometer (Seca 216) and their weight by a weighing scale (Seca).

Statistical analysis: the present study was a descriptive survey. To analyze the data, descriptive (mean, standard deviation…) and inferential statistics were used. Kolmogorov-Smirnov and Leven tests were used to investigate data distribution and homogeneity of variance. Independent t test was sued to investigate mean differences and Pearson correlation coefficient to investigate the relationship of variables. SPSS16 software was used to analyze the data and statistical significance was considered as $P<0.05$.

RESULTS

As females comprise a higher percentage of university educated subjects, 53% of the subjects in this study were female and 47% were male. The findings showed that 62% (198 subjects) were sedentary and 38% (122 subjects) were active. Among 62% (198 sedentary subjects), 47% (93 subjects) were female and 53% (105 subjects) were male. On the other hand, among 38% (122 active subjects), 63% (76 subjects) were female and 37% (45 subjects) were male. Table 2 shows physical activity and BF% of the subjects.

Table 2. BF% comparison in males and females based on their physical activity

		BF%		
Gender	**Activity**	**Mean**	**Number**	**SD**
Male	Active	20.58	45	5.86
	Sedentary	21.53	105	5.21
	Total	21.27	150	5.39
Female	Active	29.73	76	4.10
	Sedentary	30.97	93	3.72
	Total	30.44	170	3.92

54% of female students were sedentary and 46% were active while 70% of males were sedentary and 30% were active. In addition, the results showed that mean BF% of all subjects was 26.14% (SD±6.53). Mean BF% in male students was

21.27% (SD±5.39) and in females was 30.44% (SD±3.92) and this difference between males and females was significant (P<0.05).

The findings showed that 79% [54% (137 female students) and 46% (115 male students)] of all subjects (n=252) had high self-esteem while 21% (68 subjects) had low self-esteem. On the other hand, 48% (n=33) of female students and 52% (n=35) had low self-esteem. Also, no significant difference was observed between physical activity and self-esteem. Table 3 shows physical activity and self-esteem of subjects.

Table 3. The comparison of self-esteem between males and females based on their physical activity

Self-esteem				
Gender	**Activity**	**Mean**	**Number**	**SD**
Male	Active	29.66	115	5.73
	Sedentary	28.62	35	6.10
	Total	28.94	150	5.99
Female	Active	31.82	73	7.31
	Sedentary	29.22	97	6.45
	Total	30.7	170	7.05

Self-esteem of all subjects was 29.8 (SD±6.6) and mean score of those with high self-esteem was 32 while that of those subjects with low self-esteem was 20. The self-esteem scores for males and females were 28.94 and 30.7 respectively and this difference was significant (P<0.05).

The findings showed no significant difference in most (STAXI-2) indexes between male and female students. Independent t test showed that except for state anger and anger control-out, no significant difference was observed in other subscales between these two groups, that is, the mean of state anger and anger control-out was higher in female group than males. Trait anger subscale was higher in males than females while no significant difference was observed in anger expression-out and anger expression-in subscales between males and females. The anger control-in and anger control-out subscales of female students were higher than males while this difference was not significant (P>0.05).

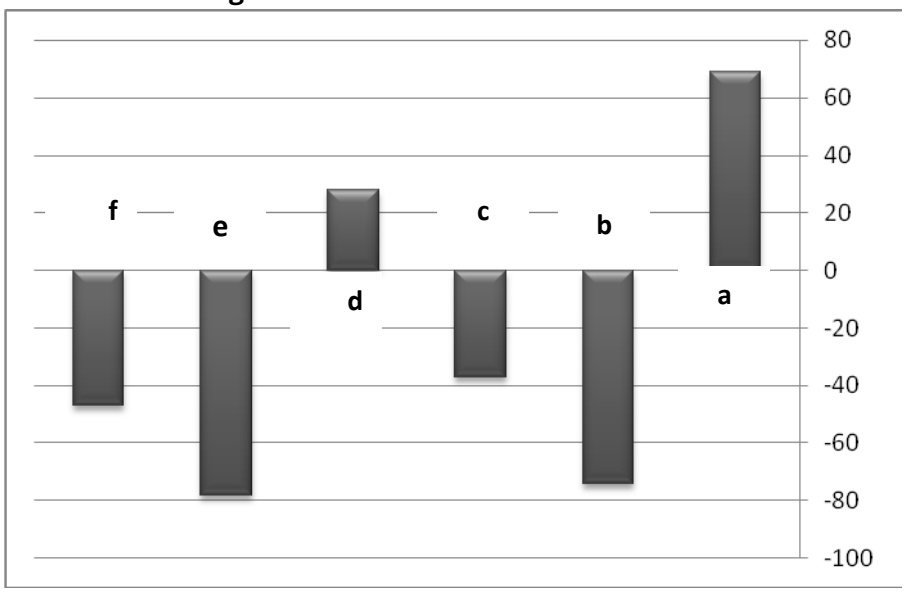
Table 4. Anger subscales

Anger			
Variable	**Gender**	**Mean**	**SD**
State anger	Male	21.21	7.52
	Female	22.33	8.58
Trait anger	Male	20.26	4.83
	Female	19.87	4.92
Anger expression-in	Male	18.52	3.71
	Female	18.28	3.76
Anger expression-out	Male	17.14	3.84
	Female	17.09	3.65
Anger control-in	Male	19.98	3.26
	Female	20.13	4.96

Anger control-out	Male	20.35	4.81
	Female	21.27	4.85

The correlation between anger and physical activity was -0.37, between self-esteem and anger was -0.74, between BF% and physical activity was -0.78, between self-esteem and physical activity was +0.28 and finally between self-esteem and BF% was -0.47.

Figure 1. Correlation between variables



a) BF% / anger
b) Self-esteem / anger
c) Physical activity / anger
d) Physical activity / self-esteem
e) Physical activity / BF%
f) Self-esteem / BF%

CONCLUSION

The results of this study showed that incidence of sedentariness in educated individuals is high and 62% of all people do not participate in any vigorous and moderate physical activities. In Saudi Arabia, the incidence of physical sedentariness is more than 43%[15]. Contrary to the results of some researches[16-18], females showed more physical activity than male students in our study. The results of the present study showed 38% of subjects enjoyed a low level of physical activity while other researchers[19] showed that physical activity decreases in subjects with little education. On the other hand, another research[15] showed no significant relationship between physical activity and level of education. These results are in line with other researches[20, 21] while the mean physical activity in this study showed

a significant difference in physical activity between male and female students, that is, males enjoyed lower physical activity than females.

In three last decades, obesity has been prevailed among adults and children [22] to the extent that BF% of people increases along with their education level (20) while other researchers reported results contrary to this finding [23]. In the present study, educated subjects did not have a high BF%. On the other hand, incidence of obesity was 74% for men and 56% for women in Venezuela (24) which is in line with the findings of our study while this incidence was 48% for men and 65% for women in Palestine[37] which is contrary to our finding.

The present study showed no significant difference in BF% between sedentary and active subjects, that is, sedentary students did not have higher BF%. Also, the anger results showed that although there was a negative relationship between physical activity and anger, this relationship was not significant. It is stated that the reasons for anger are frustrating situations of life, situations in which individuals' efficiency and security is in danger, when there is no balance between individuals' behaviors and their expectations (self-esteem and anger source). With respect to these three factors and review of literature, it seems that physical activity may influence the above three factors. A research showed that as subjects' participation in educational plans decreases, their self-esteem decreases as well and this correlation was positive[28], that is, as their study hours decrease, their self-esteem decreases as well and this finding is in line with our study because our subjects had high self-esteem. So it can be concluded that when educational level decreases, self-esteem rises as well.

In various researches, a negative significant relationship was observed between self-esteem and trait anger while there was a positive significant between self-esteem and anger control. Also, there was no significant relationship between self-esteem and internal and external anger. A theory about self-esteem and anger is that those with low self-esteem get easily angry when compared to those with high self-esteem. It should be mentioned that self-esteem determines the extent of anger[29] and our study showed a high but negative correlation (-0.74) between self-esteem and anger, that is, when self-esteem increases, anger decreases; one reason may be that the high patience of those who are more aware of their inner perception which is a reason for decreased anger; other reason may be the educational level of educated subjects as they express less anger due to their social positions. Our findings showed no significant relationship between physical activity and high and low self-esteem, that is, both sedentary and active groups show high score of self-esteem. Other researchers showed no significant relationship between self-esteem and obesity[26] which is in line with our findings while another research proved that obese women had lower self-esteem[27]. A research[30] showed that self-esteem does not significantly change along with BF%

changes which is in line with our study as no significant difference was observed in BF% between sedentary and active students (correlation -0.47). Researchers in an opposite report[25, 31] showed a converse relationship between body weight and self-esteem, that is, when body weight decreases, self-esteem increases and vice versa. Other researchers[36] claimed that self-esteem was significantly lower in overweight children than their counterparts with normal weight which is not in line with the present findings as no significant difference was observed between BF% and physical activity with self-esteem. The reason for this difference may be attributed to age differences between children and adults as children participate in short-term and group activities more than adults. In addition, overweight children due to their lower ability to be active will be dislodged from participating and playing with other children and therefore this fact can influence their low self-esteem. Meanwhile, a research showed sedentary overweight subjects could control their anger more after a period of aerobic activity. Decreased BF% (direct effect of physical activity) could significantly influence anger scores[2]. This finding is in line with our findings and the relationship between BF% and anger was almost +0.69 in students, that is, as BF% increases, anger increases and vice versa.

Generally, the findings of this study are similar to global statistics of worldwide obesity and it seems that obesity has been increasing in countries such as Iran in recent decades; this fact shows that obesity is increasing in developing and developed countries and the reason can be attributed to changes of lifestyle and lower physical activity especially in urban population. Therefore, it can be concluded that educational level cannot drastically influence physical education in society as educated people who always study recent scientific resources and are aware of obesity and sedentariness risks are prone to such problems. Also, the findings of self-esteem and anger showed that as educational level increases, self-esteem increases as well. This decrease was higher in women than men and as self-esteem increases, anger decreases.

It is suggested that physical activity increase in order to reduce BF%, to increase self-esteem and to decrease anger. Simple Physical activity can be programmed as the results of a research showed that simple aerobic activity increases self-esteem and decreases anger more than complex activities[28].

REFERENCES

1. Coskun, A. (2009). Anger, self-esteem, and perceived social support in adolescence. Social behavior and personality, 37(4), 555-564.
2. Tkacz, J., Hyman, D. Y., Boyle, C. A., Davis, C. L. (2008). Aerobic Exercise Program Reduces Anger Expression Among Overweight Children. Pediatr Exerc Sci. 20 (4): 390–401.
3. Lyzinicki, J. M., Young, D. C., Riggs, J. A., Davise, R. M. (2001). Obesity: assessment and management in primary care.American Family Physician, 63,2185-2196

4. Lopez, R. P., & Hynes, H. P. (2006). Obesity, physical activity, and the urban environment: public health research needs.Environmental Health: A Global Access Science Source.
5. Pietiläinen, K. H., Kaprio, J., Borg ,P., Plasqui ,G., Yki-Järvinen, H., Kujala, U. M.,. Rose, R. JWesterterp,K. R., & Rissanen, A.(2008). Obesity :Physical Inactivity and Obesity: A Vicious Circle .Nature publishing group 16, 409–414
6. Lampinen,P.,&Heikkinen,R.(2002).Gender differences in depressive symptoms and self-esteem indifferent physical activity categories among older adults.Women in Sport&Physical Activity Journal,11(27),171.
7. Naismith, J., Gloucester.(1994).Self-Esteem and Body-Image:Structure, Formation and Relationship to Health Related Behaviours ien vous adressant a l'Institut canadien de la recherche sur la condition physique et le mode de vie, 313-1600
8. Crocher,J.(2002).The costs of seeking self-esteem. Journal of Social Issues,58(3),597.
9. Matz,P.E.,Foster,G.D.,Faith,M.S.,&Waden,T.A.(2002).Correlates of body image dissatisfaction among overweight women seeking wright loss.Journal of Consulating and Clinical Psychology,70(4),1040.
10. Marmot M(2003). Self esteem and health ,Autonomy, self esteem, and health are linked together. BMJ VOLUME 327, 574-575.
11. Ozmen, D., Ozmen, E., Ergin, D., Cetinkaya, A. C., Sen ,N., Dundar, P. E., and Taskin, E. O. (2007). The association of self-esteem, depression and body satisfaction ; with obesity among Turkish adolescents ;BMC Public Health7,80,1-7.
12. Mueller W., Grunbaum J A., Labarthe D. R(2001) Anger Expression, Body Fat, and Blood Pressure in Adolescents: Project HeartBeat. American journal of human biology 13:531–538.
13. online body tracker]http://www.linear-software.com]
14. Katzman, M. A., Jacobs, L., Marcus, M., Vermani, M., Logan, A. C. (2007). Weight gain and psychiatric treatment: is there as role for green tea and conjugated linoleic acid?. Lipids in Health and Disease, 6:14, 1-4 .
15. Al-Hazzaa HM.(2007).Health-enhancing physical activity among Saudi adults using the international physical activity questionnaire (IPAQ). Public Health Nutr; 10(1): 59-64.
16. Hajian Tilaki KO, Heidari B(2007). Prevalence of obesity central obesity and the associated factors in urban population aged 20-70 years in the North of Iran: a population based study and regression approach. Obes Rev; 8(1): 3-10.
17. Wilsgaard T, Jacobsen BK, Arnesen E (2005). Determining lifestyle correlates of body mass index using multilevelanalysis: The tromso study, 1979-2001. Am J Epidemiol; 162(12): 1179-88.
18. Gomez LF, Duperly J, Lucumi DI, Gomes R, Venegas AS(2005). Physical activity levels in a adults living Bogot? [Colombia]: prevalence and factors associated. Gac Sanit; 19 (3): 206-13.
19. Hernandez, B., de Haene, J., Barquera, S. (2003). Factors associated with physical activity among Mexican women of child bearing age. Rev Panam Salud Publica; 14(4): 235-45
20. Lewise, L. O. (2005). Relationship of physical activity, self-esteem,and percent body-fat to grade point average in higher education students.a dissertation submitted to the graduate school of Tennessee state university
21. Trickel,M.T.,Barnes,M.D,.&Egget,D.L.(2000).Health-related variablrs and academic performance among first-year college students:implication for sleep and other behaviors.Journal of American College Health,49(3),125.
22. Carter P J,Taylor B J,Williams S M,Taylor R W(2011). Longitudinal analysis of sleep in relation to BMI and body fat in children.BMJ,1-7

23. Morrill, C. M., Leach, J. N., Sheeve, W. C., Radebaugh, M. R. (1991). Teenage obesity: an academic issue. INTERNATIONAL JOURNAL OF ADOLESCENCE AND YOUTH, 2,245-250 .
24. Campose,G.,Ryder,E.,Dize-Ewald,M.,Rivero,F.,Fernandez,V.,Raleigh,X.,Arocha-pinango,C.L.(2003).Perevalevce of obesity and hyperinsulinemia:its associations with serum lipid and lipoprotein concentration in healthy individuals from Maracaibo,Venezuela.44:5-19
25. Coopersmith S. The antecedents of self-esteem. Palo Alto, CA: Consulting psychologists Press1967.
26. French, S.A., Story,M., Perry, C.L.(1995). Self-esteem and obesity in children and adolescents: a literature review. Obes Res,3:479-490
27. Pesa, JA., Syre, TR., Jones, E. (2000): Psychosocial differences associated with body weight among female adolescents: the importance of body image Adoles Health, 26:330-337.
28. Suss, A. L., Tinkelman, B. K., Freeman, K., Freeman, S. B. (1996). School tendance, Health –risk Behaviors, and Self-esteem in Adolescents Applying for Working Papers; Bulltin of The New York Academy of Medicine,255-266
29. Aschroder, M., Rudolph, A., Schutz, A. (2007). High Implicit Self-Esteem is not Necessarily Advantageous: Discrepancies between Explicit and Implicit Self-Esteem and Their Relationship with Anger Expression and Psychological Health. European Journal of Personality; 21: 319–339
30. Gordon-Larsen P(2001), Obesity-related knowledge, attitudes, and behaviors in obese and non-obese urban Philadelphia female adolescents, Obesity Research, 9(2), 112-8
31. Davis, H., Gergen, P. (1994). Self-described weight status of Mexican American adolescents. Journal of Adolescent Health. 15:407–409.
32. Guinn, B., Semper, T., Jorgensen, L., Skaggs, S. (1997). Body image in female Mexican American adolescents. Journal of School Health. 67(3):112–115.
33. Snow, J. T. (1989). Harris MB. Disordered eating in South-western Pueblo Indians and Hispanics. Journal of Adolescent health; 12:329–336.