



Journal of Fundamentals
of Mental Health



Mashhad University
of Medical Sciences



Psychiatry and Behavioral Sciences
Research Center

Brief Report

The relationship between anger control and physical activity

Reyhaneh Malmir¹; *Tahereh Nedae²

¹Bachelor of sport sciences, Faculty of Humanities and Literature, Qom University, Qom, Iran

²Associate professor, Department of Physical Education and Sports Sciences, Faculty of Humanities and Literature, Qom University, Qom, Iran

Abstract

Introduction: Increasing social tensions and aggressive behaviors is one of the problems in all societies. It seems that physical activity can impact on anger control so the present study aimed to assess the relationship between anger control and physical activity.

Materials and Methods: The statistical population of this study consisted of all girl students who educating in Qom University. Number of 280 students who selected randomly fulfilled demographic questionnaire, Baecke's physical activity questionnaire and anger control questionnaire. Data were analyzed using SPSS, Pearson correlation test and regression analysis.

Results: The findings indicated that there was a significant inverse correlation between anger and physical activity ($r=-0.125$, $P=0.037$). Physical activity was also effective on anger control and work index and exercise index were predictors of anger control.

Conclusion: It seems that there is an inverse correlation between physical activity, the work index, and the exercise index with the control of anger and anger trait.

Keywords: Anger, Aggression, Physical activity, Sport, Students

Please cite this paper as:

Malmir R, Nedae T. The relationship between anger control and physical activity. *Journal of Fundamentals of Mental Health* 2019 Jul-Aug; 21(4): 284-91.

***Corresponding Author:** Department of Physical Education and Sports Sciences, Faculty of Humanities and Literature, Qom University, Qom, Iran

tahereh.nedae@yahoo.com

Received: Jan. 3, 2019

Accepted: May. 22, 2019

Fundamentals of Mental Health, 2019 Jul-Aug

<http://jfmh.mums.ac.ir> 284

Introduction

Nowadays, one of the problems of all developed and developing societies is the increasing prevalence of social tensions and, consequently, an increase in aggressive behaviors and anger in society (1). Anger is a kind of emotion which associated with humans at all stages of life (2).

Aggression and violence are the related concepts with anger. Aggression is an instinctive reaction to failure and competition for access to resources, which manifests itself mainly through physical encounters. Orsonson has defined anger and aggression as behaviors that aimed to hurt, harm, and suffer (3).

There are different strategies to control anger. Pause and think about subject, express the correct cause of the discomfort, slow breathing, resting, leaving the scene, walking, drinking water, examining possible solutions to the problem, learning to control the anger and relaxation skills are among these strategies. Another effective factor in controlling anger is having regular physical activity and exercising regularly (4). Exercise helps secreting hormones to control and reduce anger. When you are exercising, excess energy is evacuated. In case of lack of mobility, this excess energy is evacuated through violent behavior and causes many problems in society (5,6).

Physical activity through the evacuation of exceed energies, creating psychological enjoy, increasing endorphins and enhancing self-esteem lead to sense of calm (7).

Assigning too much time to cyber networks is a major dilemma for today's societies. Long-term use of cybernetics leads to an

increase in neurological tics, stress, anger, aggression, decreased physical activity, obesity, and social isolation and Internet addiction (8).

The use of cyber in students is associated with an increase in anger and aggression. In the study of Shojaei et al., there was a direct relationship between the incidence of aggressive behaviors and the use of computers (9).

Studies have also shown that by increasing the use of virtual spaces, people's mental health will be damaged and aggressive behaviors will increase while daily physical activity reduces the time spent using cyber networks (10).

In terms of physical activity and control of anger, Buchman et al. assessed 200 medical students and they concluded that anger has a negative correlation with fitness and exercise habits. Washburn et al. in a study on 76 students reported that the level of anger was related to their physical activity (11).

Nazer et al. in a study on 360 female high school students concluded that there was a significant difference between the scores of anxiety, aggression, depression, physical complaints and interpersonal sensitivity before and after intervention performed in 8 forty-five minute sessions (12).

In a study by Teymoori et al. on 300 female students, two months of daily exercise were associated with reduced anger and improved social relationships (13).

Considering the importance of physical activity, its role to control anger and the limited researches in this field, this study aimed to investigate the relationship

between physical activity and anger control in female students.

Materials and Methods

The statistical population of this descriptive-correlational study is all female students who educating in of Qom University, (n=1000).

Based on the Morgan table, 280 students were considered as sample of study. Then 300 students were selected by classified sampling based inclusion criteria included: educating in Qom University, female gender and willingness to cooperate.

Finally, due to 20 incomplete questionnaires, data related to 280 students were analyzed.

This research is approved by the Ethics Committee of Qom University.

Research instrument

A) *Demographic Information Questionnaire:* Includes age, sex, educational level, history of sport and history of the disease.

B) *Anger Control Questionnaire:* This questionnaire assessed through Spielberger's standard scale of anger and includes 57 questions. The questionnaire has state of anger (feeling anger, feeling the need for verbal expression of anger and feeling the need for physical expression of anger) (15 questions), trait of anger (anger temperament and anger reaction) (10 questions), expression of anger (outburst and internal anger) (16 questions) and control of anger (control of outburst and internal anger) (16 questions).

The final scores are in range from 0 to 96. A higher score indicates more anger and no control over it. Validity and reliability of

this questionnaire have been investigated in Iran by Navidi and the Cronbach alpha coefficient has been reported at various scales between 0.56 and 0.88 (14).

The questionnaire was also examined by Spielberger in 1999 and the Cronbach alpha coefficient was reported at a range of 0.86 to 0.93 (15).

C) *Baecke Physical Activity Questionnaire:* It contains 16 questions and 3 indicators: work (8 questions), exercise (4 questions) and leisure (4 questions). The validity and reliability of this questionnaire was assessed as acceptable (5).

In the present study, physical education specialists assessed its validity. The content validity ratios of all questions were above 0.64 and content validity index of them exceeded 0.88 that is acceptable.

In order to assess the reliability of the questionnaire, the internal consistency (alpha Cronbach) method was used.

At this stage, 30 female students of Qom University who were not included in the sample responded to questionnaires with a 4-week interval.

The Cronbach alpha is reported equal to 0.748. Validity and reliability of this questionnaire have been investigated in similar demographic groups in Iran (16) and in foreign countries (17).

In this research, descriptive statistics method was used to calculate frequency and percentages.

The distribution of data was first examined by the Kolmogorov-Smirnov test and Pearson correlation test was used to determine the relationship between the variables. Then, by using hierarchical

regression analysis, predictive variables were obtained.

SPSS software version 21 was used to analyze the data.

Results

Based on the demographic variables of this study, 33.9% of participants aged 18-20 years, 57.1% aged 20-24 years, 1.6% aged 24-28 years, 2.5% aged 28-32 years, and 0.4% aged 32-38 years.

In term of educational degree, 9.3% had associate degree, 82.5% had bachelor degree

while 9.9% and 0.4% had master and Ph.D. degree respectively.

Also, 53.9% of the participants had a history of physical exercise and only 4.3% of them had a history of disease.

Based on the results of Pearson correlation coefficient for anger and physical activity ($r=-0.123$, $P=0.027$), there was a significant inverse correlation between anger rate and physical activity.

In Table 1, Pearson correlation coefficient for each index is presented.

Table 1. Relationship between physical activity and its indices with control, anger and anxiety trait by means of Pearson correlation coefficient (r)

	Physical activity	Work index	Exercise index	Leisure index
Anger control	-0.125 *	0.048	-0.130 *	-0.125 *
Anger state	-0.066	0.052	-0.086	-0.011
Anger trait	-0.168 *	-0.012	-0.151 *	-0.229 **

* $P<0.05$, ** $P<0.01$

In order to analyze the statistical data, the statistical preconceptions such as normalized distribution of the variables scores and the

correlation coefficients between them were first examined, the results of which are reported in Tables 2 and 3.

Table 2. Analytic hierarchical regression analysis for the relationship between physical activity and anger control

Components	B	Standard coefficient	t	R square	level of significance
Physical activity	- 0.432	11.215	- 2.101	0.016	0.037
Fixed	41.245		0.826		0.001

According to the results of Table 2, the prediction equation is: Anger control= 41.245-0.432 (Physical activity) Indices of leisure index, exercise index and work index entered the regression model. With hierarchical regression, work index and exercise index were the conditions for entering the equation (level of significance

less than 0.05) and 4% of the changes in anger control. The index of work with positive coefficient and exercise index with negative coefficients were included in the model. The index of leisure time did not have an entry condition.

Table 3. Hierarchical regression analysis for work, exercise and leisure indicators with anger control

Components	B coefficient	Standard deviation	t	R square	Level of significance
Work index	3.124	1.384	2.258		0.025
Exercise index	-0.753	0.322	-2.343		0.020
Leisure index	-1.443	1.124	-1.284		0.200
Fixed	36.869	3.677	10.027		0.001
Regression model		11.11619		0.04	0.01

According to Table 3, the prediction equation is:

Anger control=3.124 (work index) – 0.753 (exercise index) +36.869

As shown in Table 3, the index of work with positive coefficient and exercise index with a negative factor influenced anger control.

For each unit of change in the rate of work index, an increase of 0.15 occurs in the control of anger (a positive factor), and per unit of variation in the rate of exercise index, a decrease of 0.17 in control of anger occurs.

The variables of anger state and anger trait did not have normal distribution. Therefore, they did not enter the hierarchical regression analysis.

Discussion

In this case study, which was conducted on female students of the University of Qom, there was an inverse correlation between the students' physical activity and control of anger and trait of anger. An inverse relationship was found between the amount of exercise and leisure indices with anger control. There was also an inverse correlation between the rate of exercise and leisure indices with anger trait. Anger state was not related to any of the indicators of work, exercise, and leisure.

According to the results, physical activity has reduced anger among students. Physical activity can reduce the incidence of tension, stress, anxiety, depression, and increased sense of relaxation, self-esteem and joy (18). It seems that physical activity to be an anger suppressor. The results of this study were concordant with the results of study by Buchman et al. (19), which showed anger has a negative correlation with exercise habits and fitness. Also, in the study conducted by Washburne et al. in 2007, the

rates of anger were related to the amount of physical activity (11). In the present study, there was no correlation between students' physical activity and anger state. Designing different studies, not considering the effect of confounders and using different tools to measure physical activity and anger in individuals, can explain the different results in these studies. The exercise index with anger control ($r = -0.130$) and anger trait ($r = -0.151$) showed a significant reverse correlation. The results were concordant with the results of the clinical trial which showed significant differences in the scores of anxiety, aggression, depression, physical complaints and interpersonal sensitivity before and after intervention (12).

Also, in the study by Teymoori et al. (13), two months of daily exercise were associated with a reduction in anger rates and improved social relationships. The previous studies have shown that increased physical activity and exercise in leisure time are associated with a reduction in aggression and anger (7,13).

This study has strong points such as novelty, randomized sampling from all educational levels. Also, physical activity and anger are examined by standard questionnaires. There are also limitations in the implementation of the study. The study is conducted only on female students, and this can lead to bias in the results. A cross-sectional study has been done and interventional and prospective studies are suggested.

Conclusion

Based in the results, there is an inverse correlation between physical activity, work

index and exercise index with anger control and anger trait.

Acknowledgment

The authors thank the professors, officials and staff of Qom University. This research

is approved by the Ethics Committee of the University of Qom and the authors declare any conflict of interest.

References

1. Salamat Online. [cited 2016]. Available from: <http://www.salamtonline.ir> (Persian)
2. Ghaemi A. [Family and difficulties of children's behavior]. Tehran: Parents and Instructors Association; 1999. (Persian)
3. Mohseni RA. Analysis of behavioral aggression and exercise of violence with emphasis on social psychosocial approach]. *Journal of sociology* 2009; 3: 51-72. (Persian)
4. Shapshire M, Riley PE. [Anger management: a guide to cognitive-behavioral therapy]. Karimi M, Sobhi N. (translators). Tehran: Cultural Attitude; 2014. (Persian)
5. Baecke JA, Burema J, Frijters JE. A short questionnaire for the measurement of habitual physical activity in epidemiological studies. *Am J Clin Nutr* 1982; 36: 936-42.
6. Gilson ND. Health- enhancing physical activity and health-related risk in a sample of north Mexican, office-based employees. *Promot Educ* 2007; 14: 12-6.
7. Forouzanfar F. [Mental relaxation by exercise]. [cited 2013]. Available from <http://www.iaufala.ac.ir> (Persian)
8. Biaby. [Pathology of family and cyberspace: threats and challenges]. [cited 2018]. Available from <http://www.pajohe.ir> (Persian)
9. Shojaei S, Dehdari T, Noori Jalani K, Duran B. [Investigating the predictive factors of aggression in adolescents' users of computer games in Qom]. *Journal of Qom University of Medical Sciences* 2012; 7: 71-9. (Persian)
10. Shirazi P. [Mental health in the threat of the virtual world]. Tehran: Jam-e-Jam Newspaper; 2014: 3965. (Persian)
11. Washburn R, Pritchard MY, Book P, Clark C. Correlation between exercise and anger in students of Christian College. *Percept Motor Skills* 2007; 104: 1310-12.
12. Nazer M, Hassani S, Sardouei G, Sayadi Ansari AR. [The effectiveness of designed exercise on mental health of teen girls]. *Journal of community health* 2012; 6: 1-8. (Persian)
13. Teymoori S, Ghahreman MA, Ghahreman M. [The effect of exercise on reducing aggression in adolescents]. *Proceeding of Conference of the Role of Exercise in Children's Health*. Mashhad: Mashhad University of Medical Sciences, 2012. (Persian)
14. Naveedy A. [The efficacy of anger management training on adjustment skills of high school male students in Tehran]. *Iranian journal of psychiatry and clinical psychology* 2009; 14: 394-403. (Persian)
15. Spielberger CD. *State-Trait Anger Expression Inventory-2TM: Professional manual*. 2nd ed. Florida: Psychological Assessment Resources, Inc.
16. Sadeghi Sani M. [Validity and reliability of the Baecke habitual physical activity questionnaire in the Persian healthy people]. *Proceeding of the 26th Congress of Physiotherapy*; Tehran, Iran. 2015. (Persian)

17. Baecke JA, Burema J, Frijters JE. A short questionnaire for the measurement of habitual physical activity in epidemiological studies. *Am J Clin Nutr* 1982; 36: 936-42.
18. Mohammady S. [Effect of exercise on neuropsychiatric health]. [cited 2016]. Available from: <http://www.ifsm.ir> (Persian)
19. Buchman BP, Sallis JF, Criqui MH, Dimsdale JE, Kapla RM. Physical activity, physical fitness and psychological characteristics of medical students. *J Psychosom Res* 1991; 35: 197-208.

