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**EFFECT OF EXERCISE ON GROUP ANXIETY REDUCTION OF HIGH SCHOOL
STUDENTS 2013**

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ABSTRACT

Current paper aims at investigating effect of exercise on anxiety reduction of high school students in Qom in 2013. Current paper aims at answering this question: whether selected exercises are effective in reduction of anxiety. This research is of experimental type including pre-test and post-test. Statistical population of the research includes high school students of Qom. Sampling was done in random clustering method. Cattell Anxiety Scale was performed on 275 students and 50 of them, who had scores between 41 – 45, i.e. average level, were selected and assigned in case and control groups randomly. Selected exercises included 6 stages of exercise daily for 1 months. After implementation of the exercises, Cattell anxiety scale was performed again and data were analyzed using statistical methods including independent t- test for small groups. Considering obtained results it can be concluded exercise is effective in anxiety reduction.

Key words: Exercise, Selected Exercise, Anxiety, Student

INTRODUCTION

Human nature inherently tends to activity. Life style in the past periods was so that the human had to do considerable physical activities for living, and it eliminated his natural need for movement and activity, and there was no threat for his physical and

mental health. However, human physical activities were significantly reduced by gradual industrialization of communities in recent centuries, and hence human physical and mental health was essentially threatened. Today heart disease, stature anomalies,

overweight, anxiety, depression, etc. are disorders which are faced by today human, and according to many research studies, its reasons can be sought in lack of motor activities of the people (Khosravi, Hadavi, and Farahani, 2012).

Thus, human being should be in optimal situation in terms of physical readiness so that he can effectively play roles. Education period is the most sensitive and suitable opportunity for promoting body general readiness level and increasing awareness of people in this regards because of its concurrence with period of growth and puberty.

On the other hand, movement is the foundation of physical education and exercise and basis of exercise is physical activities and movement. Exercise and physical education is one of the tools which play significant role in increasing body general readiness.

Exercise is a movement, interaction, relationship, participation, purpose, motivation, decision making and thinking. One, who exercises, manifests his behavior and personality.

Daneshvar 2000, Sport is an institutionalized activity which involves the use of strong physical force using the complex physical

skills by the participants who are stimulated by internal and external factors.

Physical activities and exercise is as a behavioral science and tool for providing positive changes in behavior. Purpose of using physical activities in treatment and rehabilitation aspect is helping people to reach their maximum abilities, repair, stabilization, and improvement of physical, social and mental affairs. General goal in using physical activities and exercise is involving people actively in physical growth, behavioral changes, mental growth, communicative skills, treatment of diseases and active participation in society.

Azad (1994), Extent and variety of views about anxiety is wide. Hippocrates provided one of the first theories of personality. Freud believed anxiety is the cost which the human pays for civilization and later he provided his mental analysis theory which is one of the most coherent theories on anxiety

Daneshvar (2000) In Freud's opinion, anxiety appears as a warning sign of "I" base and new behaviors are considered as a way of expressing anxiety or a defense against it. Freud developed the theory of anxiety in two stages. In the first one, he considers anxiety as the direct outcome of repression. In the revision, he didn't believe repression is the

basis of anxiety, but rather considered it as the outcome of anxiety.

Worry is the main feature of anxiety and generalized anxiety disorder is the most natural type of anxiety disorders. Worry has a decisive role in anxiety.

Trait anxiety refers to the individual differences and sustainable characteristics of a person in dealing with and encountering mental threats and tensions; whereas in state anxiety, the emotional system is temporarily active in dealing with environmental threats and special situations and in order to reduce the tension, the autonomous system is extremely active.

Borcock, Robinson, Prozesniki and Depri believe that worry includes a chain of negative and relatively uncontrollable imaginations and thoughts which are involved with some mental issues or subjects whose outcome is one or multiple negative consequences.

Heydari Tabar (2005)The anxiety consists in a diffused, unpleasant and vague sensation of fear and inquietude with the unknown origin to which the individual is exposed, and it includes the lack of assurance, prostration and physiological arousal. Recurrence of the situations that previously has produced stress, or through them the individual has been hurt,

makes anxiety in individuals. All humans in their life are exposed to anxiety, but the chronic and strong anxiety is unusual and troublesome. Anxiety is the reaction of individual to a threatening situation, a situation in which the individual is not able to control the external or internal stimuli.

Anxiety is a sensational-emotional status that one featured property of it is the inquietude mood that is proportionate to the events in time and the conditions of space.

Anxiety shows itself in individual when the stressful conditions in his life are extremely long-lasting, or frequently occur, or the nervous system of body could not terminate the stress resistance stage, and the body for a long time stays so mobilized. Thus the body becomes worn-out and against physical and psychical illnesses (like anxiety) vulnerable.

Physiologists always have been interested in issues of wellbeing and physical and mental health of human and mutual effects of mental health and physical health and various research works have been done in this regards (Kachel, Bam, tr. by Khoynejad, 1998).

On the other hand, relationship between mind and body and vice versa has always been controversial topic of debate among

philosophers, psychologists and physicians. Are experiences purely psychological or quite physically or there is interaction between body and mind? (Kirimer, Oskali, tr. by Kubaee, 1997).

Kosravi, Hadavi, Farahani (2012), Today most experts believe that body and mind are not two separate entities and change in emotional states is accompanied by change in physiological responses and change in physiological actions is often associated to change in emotions. For understanding wellbeing and disease perfectly, the individuals should be studied as “physical – mental complexes which are constantly interacted to their physical – social environment”.

Exercise and physical activities both have psychological and physical aspects. Thus, in order to achieve this goal, i.e. effect of exercise on mental variables; they should be also taken into account in terms of physical matters (Ahola, Hetfield, tr. by Falahi, Hajiloo, 1993).

In addition to physical benefits, exercise has various psychological benefits including reduced anxiety and depression and increased self-esteem. Campbell’s study showed half of the population under study believed physical

activities can lead to positive mental feeling (Fathi Ashtiani, Asgari, 2002).

Kertis (2000), Also studies which compared exercise with stress relieving showed both methods were successful in reducing anxiety.

In fact, one of the main motivations in this regards is attempt for supporting and describing mechanisms which are available beside intuitive beliefs. Exercise has positive effect on psychological and physiological states (Kirimer, Oskali, tr. by Kubaee, 1994).

Shahin (1992), believes that studying life effects suggests the fact that mental and intellectual movement cannot be separate from mind and body. Jacobson states that mind and body are both the same practical unit and both focus on the muscle.

Also evidence suggests increased cortisol level during exercise. High severity of exercise causes increased release of Catecholamines. Acetylcholine and Norepinephrine are two main mediators that regulate the body's physiological responses to exercise. Secretion of these hormones plays an important role in emotions and emotional states (Wilmor, Castel, tr. by Moeeni et al., 1999).

Kertis (2000), many psychologists consider close relationship between two variables (exercise and anxiety). By increase or decrease

in one variable there are changes in the other variable .

Dneshvar(2000)According to studies by Harvard University,boredom and anxiety are two factors that have an influence on a person's mental disorder.

Grist et al (1984) in a research specified that the sport made to reduceanxiety and the subjects had a significant improvement compared to prior treatment.

McMahon (1990) achieved in his research this conclusion that sportive exercises produce changes on the anxiety level of participants, and it is observed a significant improvement in individuals compared to prior sport activity.

Brand (1991) achieved in his research this conclusion that aerobic exercises are the important factor in reducing the stress and anxiety of subjects.

HeydariTabar(2005)In the other research by Brandon it was specified that the aerobic exercises play an important role in reducing the stress of participants compared to prior exercise.

Also in the researches of Prank et al (1995) was specified that the strong exercises can have much influences on the habits of individuals, and they concern with the reduction of stress and tension, and

with the increase of the participants' self-confidence.

Joise and Nickel (1998) in their researches deal with the effects of exercise in anxiety, and they specify that the sport exercises make to reduce the anxiety level in individuals.

Daneshvar(2000),Considering significance of adolescence age and the fact that students constitute considerable parts of students in the young population, and significant costs are spent on education and consequences of anxiety in this class iseducation, dropout, and social abnormalities, importance of treatment of these people and necessity of research in this area is evident .

Considering these findings, current research aims at investigating effect of exercise in anxiety reduction and attempts to answer this question: does selected exercise influence anxiety reduction in students?

METHODOLOGY

Research statistical population includes high school students who were studying in 2013 in Qom. Cluster random sampling method was used for selecting research sample and District 1 was selected among education districts and 275 students were selected from two schools and Cattell Anxiety Scale was performed on them. Students who had scores

between 41 – 45, i.e. average level, were selected and assigned in case and control groups randomly (n = 25).

Following selection of sample, selected exercises were performed during 1 month daily in 6 stages, except holidays.

1. Jogging for 5 minutes. Subjects ran a distance of 400 meters in a time of 5 minutes.
2. 2.5 minutes of static stretching exercises that consists of 6 phases.
3. Rotation of joints for 2.5 minutes.
4. Exercise with simple movements and dynamic and stretching exercise were performed on a total of 5 minutes.
5. Exercises with the ball for 13 to 17 minutes.
6. Return to the initial state for 4 minutes.

-Cattell's Anxiety Test

This test was prepared by R. B. Cattell in 1957 with 40 questions. This test can be used for all ages more than 14 years and it is a useful test for an overall evaluation of a person's anxiety.

Kosravi, Hadavi, Farahani, (2012), The reliability of this test, which has been done repeatedly and for various times, has always been more than 70%. Validity of this test has also been proven among

various groups. In Iranian normality test done by Mansoor and Dadsetan in 1988 with a number of 16342 girls and 5832 boys, this test was specified to be a proper tool for the diagnosis of anxiety. In the research of Salarifar and Poor Etemad in 2011, the reliability of this test was calculated through Cronbach alpha method and the coefficient of this alpha for the subscale of trait anxiety was obtained to be 0.59 and for state anxiety 0.69 and for the whole scale, it was 0.77.

In this research, Pretest- Posttest Control group design was used which is among experimental designs. And t statistical methods in small independent groups were used for data analysis.

Results

Following specifying case and control groups in random manner and performing independent variable and Cattell test, statistical stages were performed.

1. Comparison of pretest of case and control groups using significance test of difference between independent averages of two small groups.
2. Following implementation of independent variable, i.e. exercise for case group and implementing pretest

and posttest, t test was used for effect of independent variable.

3. Following pretest and posttest on control group, t test was used using score difference.
4. Comparison between posttest of two case groups was used for influence of

independent variable using t test and significance test of independent averages of two small groups.

- Considering obtained data for t it is observed 0.18 is smaller than expected t (2.42) at level $P > 0.01$, that is, both groups have anxiety.

Group	Sample	Average	SD	t
Pretest in case group	23	12.48	1.85	0.18
Posttest in control group	24	12.55	1.70	

- Considering obtained data for t, it is observed 8.65 is larger than expected t (2.81) at level $P > 0.01$. Given difference between pretest and posttest scores, there is significant difference in anxious case group, and anxiety has been reduced.

Group	Sample	SD	t
Pretest	23	3.07	8.65
Posttest	23		

- Considering obtained data for t, it is observed 1.53 is smaller than expected t (2.80) at level $P > 0.01$. Thus, there is no significant difference between posttest and pretest scores in anxious case group.

Group	Sample	SD	t
Pretest	24	2.12	1.53
Posttest	24		

- Considering obtained data for t, it is observed 4.23 is smaller than expected t (2.42) at level $P > 0.01$. Thus, there is significant difference resulting from effect of independent variable, i.e. exercise and physical activity.

Group	Sample	Average	SD	t
Pretest of case group	23	7.16	4.02	4.23
Posttest of control group	24	11.75	3.02	

It should be noted equal variance test was performed and assumption of equality of variances was supported during the stages.

DISCUSSION AND CONCLUSION

Human nature inherently tends to activity and lack of activity causes many physical and mental problems for the person. Exercise is one of the tools which can have important influence in human health. This influence results from hormone changes and mental and social issues.

There are different ways for treatment of anxiety, one of which is using exercise and physical activities. To this end, a hypothesis was formulated that exercises influence anxiety education of students.

To support this hypothesis, Pretest- Posttest Control group design was used. For independent variable, 6 stages of exercise were used. T test for difference of scores and significance of independent averages of 2 small samples were used.

Considering statistical stages, research hypothesis, i.e. effect of selected exercises on anxiety reduction, was supported at level 0.01.

Obtained results in this work are consistent with findings by Meshkani (1995), Poorranjbar and Nematolahzade (2005), Yusefi et al. (2010), Khosravi (2012), Keshavarz (2012), Devin, Kelin (1978), Kuein (1989), Harel Hunford (1988), Royak Shaller (1984), Silva (1985), Austin, Mota

(1992), Peg (1995), Benjamin (2003), Marleen (2008) in supporting use of exercise in anxiety treatment and reduction.

Blumenthal (1999) with the study of carried-out researches specifies that the sport activities have the positive impacts on the individuals' psychical health, and it was proved that in the athletic environments the factors such as exhilaration, sincerity, warmth, interaction, being dynamic bring to pass the acquirement of positive self-image and increase of self-confidence.

Also Marlin's studies (2008) show that the subject-participants in sportive exercises acquire the new skills which they can use after treatment completion; this is even one of the reasons of the impact of sport activities.

The results of different researches show that the sportive exercises can reduce the individuals' anxiety level, and bring them to the more favorable condition in respect of the psychic health. In regard to this research and the carried-out researches it can be said the sport is one of the therapeutic methods in reducing anxiety.

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