



The Effect of Physical Activity on Depression, Anxiety and Marital Satisfaction of Police Personnel

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Abstract

Background and Objectives: Physical activity is highly salient in improving the mental health of people in the community, and it has a great impact on improving the mental health of the population. The purpose of this study was to investigate the effect of physical activity on depression, anxiety and marital satisfaction of police personnel.

Methods: In this scientific comparative study, 120 employees of the police station of Marvdasht city were selected based on Morgan's table. The data collection tools included a physical activity questionnaire, beck depression inventory, beck Anxiety inventory and enrich marital satisfaction inventory. To analyze the data, Kolmogorov-Smirnov test, Pearson correlation coefficient, and one-way analysis of variance (ANOVA) with LSD post hoc tests were used ($P \leq 0.05$).

Results: There was no significant difference in marital satisfaction ($P = 0.10$) and anxiety ($P = 0.27$) among the high physical activity, moderate physical activity and low physical activity groups. However, the level of depression was significantly lower in the high physical activity and moderate physical activity groups compared to those with low physical activity ($P = 0.008$ and $P = 0.03$, respectively), and there was no significant difference in the severity of depression among the personnel with high and moderate physical activity ($P = 0.30$). Also, there was a significant correlation between physical activity and depression ($P = 0.03$) among the police personnel. However, there was no significant correlation between the level of physical activity and anxiety and marital satisfaction in the police personnel.

Conclusions: It seems that the level of depression in police personnel with high and moderate physical activity is lower than those with low physical activity.

Keywords: Physical Activity, Depression, Anxiety, Marital Satisfaction, Police

1. Background

Human resources and their appropriate utilization are among the most effective ways to evade bottlenecks and difficulties of economic, social and educational development since efficient human resources is one of the most fundamental factors in production, construction, development and evolution. This attitude results in new advances in administration, leadership styles, resource management, development of participatory management ideas and attention to employees' behaviors, personality and psychological characteristics. In other words, the most important barrier to achieving organizational optimization is human resources (HR) (1).

The psychological pressure of the work environment may cause many problems in the occupational and social life of police personnel. Psychological stress can lead to various illnesses, and when brought to families, it can

make families also develop negative feelings about the job; this is another form of psychological pressure that police personnel need to deal with (2). This psychological stress can affect marital relationships as well. On the other hand, marriage as the basis for the formation of the family institution has always been respected in public affairs, as well as in scientific and academic research.

Marriage is an important social and legal entity that supports the provision of a certain set of rights, privileges, obligations, responsibilities and expectations; sustains marital relationships, and leads to the survival and continuity of the family and social structure (3). By marrying and starting a marital relationship, many psychological and physical needs are met in a secure environment (4). Marital satisfaction is one of the most important indicators of life satisfaction that affects mental health, life satisfaction and even income, academic success, and job

satisfaction of couples. On the other hand, incompatibility in marital relationships can lead to disturbances in social relations, disintegration of the family, and eventually, divorce (3). Based on a report by Esere et al. (5), Salifo indicated that couples who have good and healthy communication styles benefit from a good relationship. In addition, many studies show that married people are happier and healthier than singles, and the quality of marriage is the strongest predictor of mental health in married individuals (6).

The relationship between family and work is a gradual evolutionary process from independence to interactive dependence, from dependence to reciprocal dependence, and finally, it forms a complete circle and again turns into interactive dependence. The tension between the two main themes of individualism and socialism is reflected in this evolutionary relationship. Considering the link between work and family life, attention to the family life of military servicemembers is considered critical (7). In addition, police personnel and their families need a high mental health in order to withstand the stresses of the military environment and special military missions. The security of each country and each nation rests first and foremost upon the military power of that country and nation, and if security is established on the borders, and thereafter, on a national level, creating the necessary security in other areas and development of economic and political power will be facilitated. In this regard, military power comes from three components, which include physical factors of combat power or tangible factors, non-physical factors of combat capability or intangible factors, and third factors related to the superiority of combat power.

In fact, by enhancing the psychological factors in military servicemembers, the two other factors can be improved (8).

In the same vein, researchers have argued that attention to mental health and its effective factors can control mental disorders, thereby maintaining the health of employees and increasing their efficiency (9). Physical and mental health of an individual, which is one of the most important factors affecting the quality of marital relationships, is highly influenced by physical activity (10). The benefits of exercise are not limited to the body, but it is effective in reducing mental illnesses and occurrence of depression and anxiety. Today, most diseases are caused by poor mobility due to improper handling of food and eating habits, hence, regular exercise and proper dietary choices are a good means of preventing many diseases (11).

Studies showed that depression, which reduces marital adjustment, is largely reduced by participation in group and physical activities (12). Therefore, due to the increase in the level of depression and dissatisfaction of cou-

ples in the society, the effect of occupational stress on the quality of marital relationships and depression, and the impact of physical activity on the level of depression (13), we sought to investigate the effect of physical activity on depression, anxiety and marital satisfaction of police personnel.

2. Methods

This scientific comparative study was conducted on all the 180 employees of Marvdasht police office. According to Morgan's table, 120 volunteers from the police personnel were selected as the study population. To perform this study, the researchers first visited the police center of Marvdasht city, Iran, and after announcement of the implementation of the study, volunteers were registered. A 30-minute briefing session was then held for all the subjects, where it was explained how to fill out the questionnaires correctly. After distributing the questionnaires, and completion by the subjects, all the questionnaires were collected. In this study, a physical activity questionnaire was used to assess the level of physical activity, which is the Persian translation of the short version of an international questionnaire (14). This questionnaire consists of seven self-report items to measure the level of subjects' physical activity during the past week. This questionnaire is standard and its validity and reliability have already been established (14). Content validity method was used to determine the validity of the questionnaire, and its reliability was estimated at 0.90 using Cronbach's alpha. In this questionnaire, walking was considered 3.3 the metabolic equivalent of task (MET), moderate physical activity 4 MET and high physical activity 8 MET. To calculate the total level of physical activity per week, the amount of walking ($\text{day} \times \text{min} \times \text{MET}$) was added to moderate physical activity ($\text{day} \times \text{min} \times \text{MET}$) and high physical activity ($\text{day} \times \text{min} \times \text{MET}$) per week (15). According to the formula in the short version of the MET-min/week international scale, energy consumption during walking, and moderate and high activity was calculated, and if the sum of MET-min/week in each of the activities was at least 3,000 or more for seven days, it was considered high physical activity, between 600 and 3000 moderate physical activity, and below 600 low physical activity (15).

Beck depression inventory (1961) was used to assess the subjects in terms of depression. The questionnaire was initially developed by Aaron T. Beck in the 1960s to evaluate the presence or absence of depression and its severity in adolescents and adults. The questionnaire was revised in 1971 and published in 1978. This tool has 21 items rated using a 4-point Likert scale (i.e., 0, 1, 2, 3). Subjects answer the questions by drawing a circle around the number that best

suits their feelings that week. Fifteen items of the questionnaire are related to psychological symptoms and six items are related to physical symptoms. The total score of depression is calculated by adding the item scores, and its range varies from 0 to 63. In this questionnaire, scores zero to nine indicate no signs of depression, scores 10 to 16 are indicators of mild depression, 17 to 29 indicate moderate depression, and scores above 30 show severe depression (16). According to Zarepoor et al. in a study performed in Tehran University of Medical Sciences, Roozbeh Hospital, this questionnaire was found to have a validity of 0.77 and a reliability of 0.77 (16).

We used Beck anxiety inventory to evaluate anxiety in the subjects, which is a 21-item scale rated using a 4-point Likert scale (from 0 to 3). Each item describes one of the common symptoms of anxiety (i.e., mental, physical and psychotic symptoms). The total score of the questionnaire ranges from 0 to 63. The proposed cut-off points for this questionnaire are as follows: none (0 - 7), poor (8 - 15), moderate (16 - 25), and high (26 - 63). The internal consistency and reliability of this questionnaire were reported to be 0.92 and 0.67, respectively (17). According to Davoudi et al., this questionnaire is highly reliable and valid in Iran. Its internal consistency coefficient is 92% and its reliability is 0.75 with a one-week interval test-retest approach (17). Finally, we exploited Marital Satisfaction Inventory to assess marital satisfaction, which is a 47-item instrument. The validity of this questionnaire was calculated to be 93% (18).

To analyze the data, Kolmogorov-Smirnov test, Pearson correlation coefficient, one-way analysis of variance (ANOVA) with post hoc LSD tests were run. P value less than 0.05 was considered statistically significant.

3. Results

Table 1 presents the number, age, marital status, level of education, level of depression, anxiety and marital satisfaction of the subjects in the three groups. The results of one-way ANOVA test showed no significant difference in anxiety ($F = 1.31$, $P = 0.27$) between the groups of police personnel. However, there was a significant difference in depression among the groups ($F = 3.77$, $P = 0.02$; Table 2). The results of post hoc LSD test reflected that the levels of depression in employees with high physical activity ($P = 0.008$) and moderate physical activity ($P = 0.03$) were significantly lower than those with low physical activity (Table 3). However, there was no significant difference in the level of depression between the high and moderate physical activity groups ($P = 0.30$). The results of Kruskal-Wallis test revealed no significant difference in marital satisfaction ($F = 2.26$, $P = 0.10$) among the groups (Table 4). The

results of Fischer's exact demonstrated a significant correlation between physical activity and depression ($P = 0.03$) among the police personnel (Table 5). However, there was no significant correlation between the level of physical activity and anxiety ($P = 0.29$) and marital satisfaction ($P = 0.97$) in the police personnel.

4. Discussion

The purpose of this study was to investigate the effect of physical activity on depression, anxiety and marital satisfaction of police personnel. According to the results of this study, there was no significant difference in marital satisfaction and anxiety among the police personnel. However, the level of depression in those with high and moderate physical activity was significantly lower than those with low physical activity. Overall, our findings suggest that depression rate in personnel with high physical activity is lower than those with low levels of physical activity.

In this regard, Kalantari et al. pointed out that exercise can reduce the level of depression (19). Fasting investigated the relationship between mental health and physical activity. Their results showed that high physical fitness reduces anxiety, frustration and anger, and those who are in a better condition in terms of physical fitness have superior mental health (20). Studies also revealed that exercise and physical activity improve psychological and physical well-being and reduce such mental disorders as anxiety, tension and depression (21, 22). Increase in physical fitness improves the power of people in coping with stress and hardships, and thus, reduces neurological stress and depression in the workplace. Sports programs are known as one of the most powerful triggers for the endocrine system (23). Physical activity, through the release of endorphin, serotonin and norepinephrine and the reduction of cortisol level, affects humans and is a factor in reducing depression (24).

Also, the results of this study indicated no significant correlation between physical activity and marital satisfaction. This result is in contrast with the results of studies that have shown a positive correlation between regular physical activity and sexual function (25), also the studies that pointed to the positive effect of physical activity on sexual function (26). One of the problems of today's world is the lack of sufficient activity. Exercise is now used as a treatment method. Studies demonstrate that exercise not only serves as a recreational activity, but also as a training-educational tool with psychosocial goals. Exercise helps to grow people's personality, strengthens social cohesion and facilitates fulfilling social and individual responsibilities (10). Exercise helps to increase adaptability, responsibility

Table 1. Number, Age, Marital Status, Educational Level, Level of Depression, Anxiety and Marital Satisfaction of Subjects in the Three Groups

Group Variable	Low Physical Activity	Moderate Physical Activity	High Physical Activity
Number	6	39	47
Age	31.16 ± 18.33	31.79 ± 6.84	31.44 ± 5.14
Marital status			
Married	4	26	40
Single	2	12	7
Level of education			
Diploma	1	12	6
AA/AS	1	7	4
MA/MS	4	16	28
Graduate	-	4	8
Depression			
None	1	17	26
Poor	2	3	6
Moderate	3	11	10
High	-	8	4
Anxiety			
None	-	8	17
Mild	2	11	12
Moderate	4	18	4
High	-	2	4
Marital satisfaction			
Median	123	115	130
Percentiles			
25	0	84	102
50	123	115	130
75	157.75	135	146

Table 2. The Results of One-Way Analysis of Variance to Investigate the Effects of Physical Activity on Marital Satisfaction, Anxiety and Depression of the Police Personnel

Variable	Sum of Square	Mean of Square	P
Anxiety			0.27
Between groups	194.21	97.10	
Within groups	6565.46	73.76	
Total	6759.68		
Depression			0.02
Between groups	2204.85	1102.42	
Within groups	25976.36	291.86	
Total	28181.21		

and tolerance, which may be effective in improving their marital quality.

Regular physical activity improves sexual performance via creating beneficial physiological and psychological effects. Improved physical fitness after exercise recovers the capability of people who are less likely to experience appropriate sexual intercourse. Better blood circulation in organs, especially the genital organs resulting from exercise, makes sexual function more enjoyable (26). Changes in neurotransmitters and hormones, which are due to increased androgen, cortisol (27), catecholamines and testosterone (28), also improve sexual performance (29). Physical activity, through increasing the level of androgen, enhances exhilaration and libido and results in improved sexual function (29). Changes in adrenaline, noradrenaline and dopamine play a two-fold role in sexual performance following exercise: one is the use of catecholamines to increase testosterone level (27), and the other is the improve-

Table 3. Results of LSD Post Hoc Test to Compare Depression in the Three Groups

Group	Moderate Physical Activity		High Physical Activity	
	M	P	M	P
Low physical activity	16.28	0.03	20.10	0.008
Moderate physical activity	-	-	3.83	0.30

Table 4. The Results of Kruskal-Wallis Test to Investigate the Effects of Physical Activity on Marital Satisfaction

Group	Mean Rank	Chi-Square	P
Low physical activity	47.25	4.09	0.12
Moderate physical activity	40.08		
High physical activity	51.73		

Table 5. Results of Fischer's Exact Test for the Relationship Between Physical Activity and Marital Satisfaction, Anxiety and Depression in the Police Personnel

Variable	Physical Activity	
	P	Fischer's Exact Test
Marital satisfaction	0.97	0.84
Anxiety	0.29	0.28
Depression	0.03	0.25

ment of psychosocial and joyous conditions (30).

The higher the mental health of individuals, the greater their marital compatibility (12). Since one of the dimensions affected by exercise and physical activity is mental and psychological dimension (19), it seems that exercise can be effective in increasing mental and physical health and, consequently, reducing depression and improving the quality of marital relationships. Therefore, effective marital relationships can be an important source of physical and psychological well-being of couples, and it can be stated that the effectiveness of these relationships is an important aspect of family life that shapes the psychological well-being of individuals. Despite the fact that today marriage is recognized as the most important and the uppermost social model for achieving emotional and security needs, there is ample evidence that couples in today's society face severe problems in establishing and maintaining friendly and intimate relationships (31). In this vein, regarding the results of this study on the improved quality of marital relationships in individuals with physical activity and their lower level of depression, identifying the causes and factors that lead to the lack of participation in sports and physical activities, as well as using appropriate methods and strategies to attract further security agencies into our sport, can be the ways to promote public health, reduce depression and help to improve the sustainability

of marriages and community health.

The limitations of this study include lack of access to female employees, as well as employees working in various departments, such as social, human resources, operations, information and communication technology, parliamentary and parliamentary affairs, and health. Therefore, it is suggested that in the subsequent studies, the effect of physical activity on the depression, anxiety and marital satisfaction of male and female police personnel be compared. Also, future studies are recommended to investigate the effects of a certain sport for performed for a specific period on depression, anxiety and marital satisfaction of police personnel.

4.1. Conclusions

According to the findings of this study, it seems that the level of depression in police personnel with high and moderate physical activity is lower than those with low physical activity.

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