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Research Paper: The Association between Physical Activity with Mental and Social Wellbeing among Employees of Police Guard

Mir Hamid Salehian [*1], Zahra Ezzati Arbat[1]

[1] *Department of Physical education, Tabriz Branch, Islamic Azad University, Tabriz, Iran*

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Abstract

The purpose of the current research was to determine the level of physical activity of the male employees of the police guard and also to investigate the relationships between physical activity and mental and social wellbeing in the male employees of the police guard. The current research was descriptive-correlation research. The statistical population of this research included all the male employees of police guard of Tehran in 2021. The statistical sample of the current research included 146 men who were selected through convenience sampling. Physical activity was measured using the international physical activity questionnaire (IPAQ), mental health was measured using depression anxiety and stress scale 21 (DASS-21), and social health was measured using the Keyes's social well-being questionnaire (KSWBQ). Pearson's correlation test and structural equations were used for data analysis. Results showed that the research subjects had a body mass index with an average of 24.40 which is at an average level, but close to overweight. Also, a total of 52% of the subjects had moderate-to-vigorous physical activity. In addition, the mental and social health scores were in the average range. Moreover, physical activity had significant relationships with mental health and social health. The results of the model fit showed that the research model had a good fit. Our findings indicated the positive effects of physical activity on psycho-social health components in the male employees of police guard. These findings show that the use of strategies and interventions to improve the physical activity status of the staff of police guard is of special importance.

*** Corresponding author:**
Mir Hamid Salehian
Address:. Department of Physical education, Tabriz Branch, Islamic Azad University, Tabriz, Iran
Tel: +98 (914) 417 4072
E-mail: mh.salehian@gmail.com

1. Introduction

Physical activity is defined as any body movement produced by skeletal muscles that results in energy expenditure. Physical activity can be done as part of sports activities, work activities, active transportation, household activities, and recreational activities (Baniasadi et al., 2022c; Chaharbaghi et al. 2022a, Chaharbaghi et al., 2022b; Malm et al., 2019; Seyedi Asl et al., 2016; Taghva et al. 2020). Research has shown that physical activity leads to better cardio-respiratory and muscular fitness, stronger bones, better memory function and cognitive control, as well as reduced symptoms of depression and obesity (Saeedpour-Parizi et al. 2020, 2021; Lahart et al., 2019; Schwartz et al., 2019). Also, some researches have pointed out the benefits of participating in physical activity and sports on people's mental, mental, and social health (Khosravi et al. 2023; Lahart et al., 2019; Schwartz et al., 2019). Due to the many benefits of physical activity, the World Health Organization (WHO, 2020) recommends that all people, from children to the elderly, should do a certain amount of moderate to vigorous physical activity every day. For example, for adults, WHO guidelines recommend that adults should get at least 60 minutes of moderate-to-vigorous physical activity per day during the week (Mohammadi et al., 2022; Hazrati et al. 2022; Hashemi Motlagh et al. 2022; WHO, 2020). In addition, they should limit the duration of inactivity, especially the use of smart communication devices (such as mobile phones or tablets) and computers. However, many studies that have examined the participation of adults in physical and sports activities have shown that adults around the world do not follow WHO's (2020) guidelines for daily participation in moderate-to-vigorous physical activity (Baniasadi et al., 2022c; Chaharbaghi et al. 2022a; Chaharbaghi et al., 2022b; Ekblom-Bak et al., 2022; Husu et al., 2016; Baniasadi et al., 2022c; Hukkanen et al., 2018; Du et al., 2019; Hamer et al., 2011; Seyedi Asl et al., 2021). This lack of participation in regular physical activity can have many negative consequences for current and future health. They include obesity, which is one of the most effective factors in the occurrence of many diseases. Due to the very low participation of adults in daily physical activity, WHO (2020) has planned a plan according to which the participation of adults in physical activity will grow by 15% by 2030. Therefore, according to these facts, adult physical activity has become a key topic in sports and health research during the last decade, and examining the level of moderate-to-vigorous physical activity in adults has been a constant concern of researchers to determine the amount of physical activity of adults over the years.

One of the groups in the age group of adults who must participate in regular physical activity due to the nature of their job and maintaining their physical and mental health, are the police force employees (Baniasadi et al., 2022a; Chaharbaghi et al., 2022a; Farhangnia et al. 2020; Abdi et al., 2020; Ghorbani et al., 2020; Sheikh et al., 2021, 2022). The nature of the work of police guard makes this job very dangerous and exhausting. Therefore, one of the effective

components of the efficiency and performance of police guard is increasing their physical strength, which can be achieved by increasing their physical activity level. Therefore, it can be said that the issue of physical activity and its consequences should be seriously addressed in the employees of the police guard. Therefore, the purpose of the present research was to investigate the level of physical activity of the employees of the police guard in Tehran. Also, their psycho-social health status and the relationship between physical activity and the psycho-social health of the employees of police guard in Tehran were investigated.

2. Method

According to the objectives of the research, the method of conducting the present research is descriptive-correlation based on the structural equation method. The statistical population of this research included all the male employees of police guard of Tehran in 2021. The statistical sample of the current research included 146 men who were selected through convenience sampling.

2.1. Instruments

International Physical Activity Questionnaire (IPAQ): This questionnaire was designed by Baniasadi et al. (2022a) and has 7 questions. By using this questionnaire, it is possible to obtain information about people's physical activity during the last seven days. According to the instructions of this questionnaire, the total intensity of the physical activities performed by a person, according to the energy consumed in the last seven days, is placed in one of the three groups of light, moderate, and intense physical activity. Activities whose duration is less than 11 minutes are not considered in the calculation (Committee, 2015). In this questionnaire, walking as 3.3, moderate physical activity as 4, and vigorous physical activity as 8 are considered as metabolic equivalent of work (MET). A MET represents the amount of energy consumed per minute for a person while performing work (Committee, 2015). To calculate the total amount of physical activity per week, the amount of walking (metabolic equivalent × minutes × days) with the amount of moderate physical activity (metabolic equivalent × minutes × days) and the amount of intense physical activity of the person (metabolic equivalent × minutes × days) in the last week (Committee, 2015). This questionnaire is suitable for determining the physical activity of adults aged 18-65 and has been used in many studies so far, and its validity and reliability have been reported very well (Jafarpour et al., 2016).

Depression, Anxiety, Stress Scale-21 (DASS-21): This scale was designed by Lovibond and Lovibond (1995) and in this study was used to measure the mental health status of the subjects. The DASS-21 is a self-report scale designed to assess negative affective states including depression, anxiety, and stress This 21-item scale consists of three subscales (depression, anxiety, stress), each of which contains seven items. Respondents used a 4-point Likert scale (from 0 for "never" to 3 for "most of the time") to rate how often they applied each item in the past week. Higher scores indicate higher levels of symptoms.

Keyes's social well-being questionnaire (KSWBQ): This questionnaire was developed by Keyes (1998) and is a valid survey to assess the social health of adults. This questionnaire has 20 questions that are evaluated using a five-point Likert scale from completely agree (5) to completely disagree (1). In this study, Cronbach's alpha of this questionnaire was equal to 0.89.

In this research, descriptive statistics including mean and standard deviation were used to describe the research variables. The Kolmogorov-Smirnov test was used to check the normality of the research data. In addition, Pearson's correlation test and structural equations were used for inferential analysis of relationships between research variables. The significance level was considered at 0.05.

3. Results

Table 1 shows the individual characteristics of the research subjects, including age, activity history, height, weight, and body mass index. As it is known, the average age of the subjects is 35.28 years and they have an average of 15.61 years of experience in the police guard. Also, the research subjects have a body mass index with an average of 24.40 at an average level, but close to overweight.

Table 1
Demographic data of the subjects

Variable	Age (year)	Experience (year)	Height (cm)	Weight (kg)	BMI
Mean ± SD	35.28 ± 8.19	15.61 ± 8.36	176.12 ± 7.92	75.61 ± 8.94	24.40 ± 2.86

Also, the mean and standard deviation of the subjects' scores in all research variables, as well as the results of the Kolmogorov-Smirnov test to determine the normal distribution of the data, are given in Table 2. Regarding the physical activity status of the employees of police guard Headquarters, it can be stated that the research subjects had a level of physical activity lower than the value recommended by WHO. Regarding the physical activity pattern of the subjects, the results showed that a total of 52% of the subjects had moderate-to-vigorous physical activity; which indicates that about half of the employees of police guard do not have proper physical activity for physical and mental health. Also, mental health scores were in the average range. Finally, the subjects' social health scores were also average. The results of the Kolmogorov-Smirnov test also showed that all research variables have a normal distribution (P>0.05).

Table 2
Description of research variables along with normal distribution results

Variable	physical activity (day of the week)	physical activity (minutes per week)	physical activity (intensity)			Mental wellbeing			
			light (people/percent)	moderate (people/percent)	vigorous (people/percent)	Depression	Anxiety	Stress	Social wellbeing
Mean ± SD	3.21 ± 2.25	157.55 ± 48.82	67(48%)	52(37%)	27(15%)	9.54 ± 5.21	8.09 ± 3.92	10.54 ± 6.92	62.52 ± 17.82
K-S	P=0.95	P=0.20	P=0.32	P=0.10	P=0.11	P=0.08	P=0.20	P=0.30	P=0.30

Table 3 shows the results of the Pearson correlation test. The research results showed that 1) there was an indirect and significant relationship between physical activity (days per week) and depression (r=0.528, p<0.001), 2) between physical activity (minutes per week) and depression. There was an indirect and significant relationship (r=0.764, p<0.001), 3) There was an indirect and significant relationship between the intensity of physical activity and depression (r=0.424, p<0.001), 4) There was an indirect and significant relationship between physical activity (days per week) and anxiety (r=0.692, p<0.001), 5) There was an indirect and significant relationship between physical activity (minutes per week) and anxiety. (r=-0.394, p<0.001), 6) there was an indirect and significant relationship between physical activity intensity and anxiety (r=0.416, p<0.001), 7) between There was an indirect and significant relationship between physical activity (days per week) and stress (r=0.552, p<0.001), 8) There was an indirect and significant relationship between physical activity (minutes per week) and stress (439 9) There was an indirect and significant relationship between the intensity of physical activity and stress (r=-0.325, p>0.001), 10) between physical activity (days per week) and social health, there was a direct and significant relationship (r=0.284, p<0.001), 11) there was a direct and significant relationship between physical activity (minutes per week) and social health (0.641) r = 0.001, p < 0.001), 12) there was a direct and significant relationship between the intensity of physical activity and social health (r = 0.432, p < 0.001), 13) there was an indirect and significant relationship between depression and social health There was a relationship (r=0.458, p<0.001), 14) there was an indirect and significant relationship between anxiety and social health (r=0.531, p<0.001), and 15) There was an indirect and significant relationship between stress and social health (r=0.397, p<0.001).

Table 3

The results of the relationship between physical activity and mental and social wellbeing

Variable	Depression	Anxiety	Stress	Social wellbeing
physical activity (day of the week	r=-0.528 p<0.001	r=-0.692 p<0.001	r=-0.552 p<0.001	r=0.284 p<0.001
physical activity (minutes per week)	r=-0.764 p<0.001	r=-0.394 p<0.001	r=-0.439 p<0.001	r=0.641 p<0.001
physical activity (intensity)	r=-0.424 p<0.001	r=-0.416 p<0.001	r=-0.325 p<0.001	r=0.432 p<0.001

The results of structural equation modeling are given in Table 4 and Figure 1. The results showed that: 1) physical activity (days per week) significantly reduced depression, 2) physical activity (minutes per week) significantly reduced depression, 3) the intensity of physical activity significantly reduced depression, 4) physical activity (days

per week) significantly reduced anxiety, 5) physical activity (minutes per week) significantly reduced anxiety, 6) physical activity intensity significantly reduced anxiety, 7) physical activity (days per week) significantly reduced stress, 8) physical activity (minutes per week) significantly reduced stress, 9) the intensity of physical activity significantly reduced stress, 10) physical activity (days per week) significantly increased social health, 11) Physical activity (minutes per week) significantly increased social health, 12) Physical activity intensity significantly increased social health, 13) depression significantly decreased social health, 14) anxiety significantly decreased social health, and 15) stress It significantly decreased social health.

The results of fitting the research model showed that the current research model has a good fit (RMSEA = 0.06).

Table 4
Structural equation modeling results

Path	β	T-value	Result
physical activity (day of the week) => depression	0.537	- 7.574	confirm
physical activity (minutes per week) => depression	0.724	- 10.827	confirm
physical activity (intensity) => depression	0.410	- 4.658	confirm
physical activity (day of the week) => anxiety	0.701	- 9.208	confirm
physical activity (minutes per week) => anxiety	0.367	- 3.021	confirm
physical activity (intensity) => anxiety	0.420	- 6.221	confirm
physical activity (day of the week) => stress	0.550	- 7.793	confirm
physical activity (minutes per week) => stress	0.428	- 6.297	confirm
physical activity (intensity) => stress	0.369	- 3.121	confirm
physical activity (day of the week) => social wellbeing	0.280	2.036	confirm
physical activity (minutes per week) => social wellbeing	0.693	9.057	confirm
physical activity (intensity) => social wellbeing	0.450	6.968	confirm
depression => social wellbeing	0.483	- 6.529	confirm
anxiety => social wellbeing	0.553	- 7.864	confirm
stress => social wellbeing	0.395	- 3.854	confirm

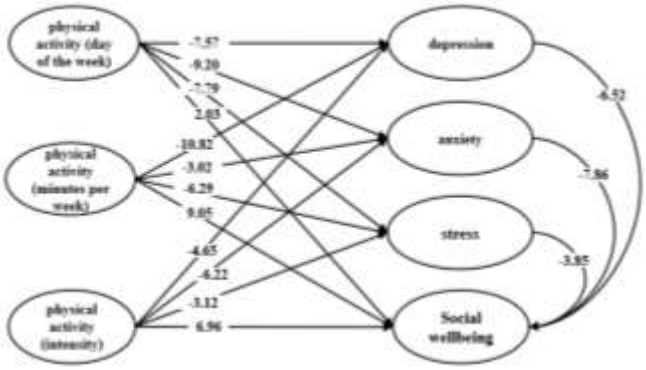

Figure 1. The results of the structural relationships of the research model in the form of T data

4. Discussion

Previous studies have shown relatively low levels of adult participation in physical activity. Also, people who regularly participated in physical activity had a higher level of psychosocial health (Granero-Jimenez et al., 2022; Fouladi et al., 2020; Peluso et al., 2005; Hamer et al., 2012; Hallam et al., 2022). Nevertheless, the level of physical activity and its relationship with psycho-social health in the employees of the police guard has not been investigated. Therefore, the purpose of the current research was to investigate the level of physical activity in the employees of the police guard and also to investigate the relationship between the level of participation in physical activity and the psycho-social health of the employees of the police guard.

In relation to the level of physical activity of the employees of police guard, the results of this research showed that on average, the subjects of this research had a level of physical activity lower than the value recommended by WHO (2020). The results showed that the pattern of physical activity of the employees of the police guard is such that a total of 52% of the subjects had moderate-to-vigorous physical activity; Which indicates that about half of the employees of police guard did not have the level of physical activity recommended WHO (2020). These results are consistent with the findings of previous research (Baniasadi et al., 2022a) and indicate a relatively low level of physical activity among the employees of the police guard. Considering the many benefits of regular participation in physical activity, it seems necessary to investigate ways to increase the participation of employees of the police guard in physical activity and sports and to adopt appropriate intervention strategies for this. In the meantime, strategies for creating and increasing motivation among the employees of the police guard for regular participation in physical activity can be of particular importance.

In terms of mental health, the results of the research showed that the employees of the police guard had moderate levels of depression, high levels of anxiety, and moderate levels of stress. These results show

that these people have moderate to low mental health. The present findings are in accordance with previous studies (Granero-Jimenez et al., 2022; Fouladi et al., 2020; Peluso et al., 2005; Hammer et al., 2012; Hallam et al., 2022) which show the levels Average mental health in people in military organizations. The average to low level of mental health in the employees of the police guard is probably related to the difficulty of their jobs or financial components. Hard working conditions and high job stress related to the security of the country's borders, as well as possible economic problems caused by high living costs and not very suitable income conditions, can be among the factors that make military personnel suffer from depression and anxiety. and faces stress. Therefore, it is necessary to adopt appropriate strategies to improve the level of mental health in the employees of the police guard. The results of two-way communication as well as structural equation modeling showed that more participation in physical activity improved mental health (decreasing depression, anxiety, and stress) in the employees of police guard. These findings are in accordance with the results of previous studies that show the positive effects of physical activity on the mental health of people in different age groups, including adults (Granero-Jimenez et al., 2022; Fouladi et al., 2020; Peluso et al., 2005; Hammer et al., 2012; Hallam et al., 2022). Research has shown that regular participation in physical and sports activities causes a variety of changes in the brain, including neural growth, reduction of inflammation, and new activity patterns that promote a sense of relaxation and well-being in a person. Also, regular participation in physical and sports activities releases powerful chemicals in the brain, i.e., endorphins, which boost morale and make a person feel good. Also, regular participation in physical and sports activities can act as a distracting factor and allows a person to be quiet and calm and can get rid of the cycle of negative thoughts that cause depression, anxiety or become stressed (Peluso et al., 2005; Hammer et al., 2012). Therefore, it can be said that regular participation in physical and sports activities improves the mental health of people, including the staff of the police guard.

Regarding social health, the results of this research showed that the employees of police guard have moderate to high social health. The present findings are consistent with the findings of previous researches (Keyes & Shapiro, 2004), which indicate moderate to high levels of social health among military personnel. Despite the very difficult job nature of the military class as well as several factors that make life difficult for this class, the results of this research show that these people are capable of appropriate social interactions at the community level and have good social behaviors and good social vitality. Also, the results of the present research showed that there is a direct and meaningful relationship between physical activity and social health, so that with the increase in the amount of physical activity in people, the amount of social health also increases. One of the existing models in this field is Sunström's psychological model. According to this model, regular participation in physical and sports activities positively

affects a person's self-confidence and ultimately increases a person's self-esteem. It is obvious that the increase in self-esteem brings about positive changes in interpersonal relationships and the social network of a person and improves the social health of people. On the other hand, not participating in physical and sports activities prevents a person from being absorbed in social frameworks, and the person feels that there is no common ground between his personal and social values, and becomes indifferent and distrustful of social values and norms. It leads to a decrease in his social cohesion. Therefore, a person feels that the fate of the society is related to external forces or structures, not to the constituent parts of the society, and does not consider the society to have a potential power in its evolutionary path, and this causes a decrease in social prosperity in him (Baniasadi et al., 2022a). Therefore, it is necessary to adopt appropriate strategies to improve the level of physical activity and subsequently social health among the employees of the police guard.

5. Conclusion

In short, the current research is one of the first researches that investigated the impact of physical activity on mental and social health in the staff of police guard. First of all, it should be stated that the physical activity of the police guard staff who participated in this research was less than the WHO's (2020) recommended amount of 60 minutes of moderate-to-vigorous physical activity per day, which indicates that it is of particular importance to use solutions and interventions to improve the physical activity status of the employees of the police guard. Also, physical activity had a positive effect on improving the level of mental and social health in the employees of the police guard, which highlights the role of regular participation in physical activity in improving the mental and social health of the employees of the police guard. These findings can also be practical, so that the officials and decision-makers of the police force organization can expect that their health level increases and possibly their work quality will improve by emphasizing the implementation of regular physical activity and sports programs in the employees of the police guard.

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Conflict of interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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