



An Investigation of Macro and Micro Factors Affecting Sport Participation in Tehran Citizens, Iran

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Abstract

Today, people's life style is changing due to technology and urbane life development. Not participating in physical activities, inactive and motionless life style has put all individuals of the society into danger. Meanwhile, participating in physical activities has been advised as a way of fighting against side effects of such life style. Inactive life has also been introduced as a main factor of heart disease and the risk of heart disease has been estimated as two times more in the people who have no activity. Regular physical activity, as an important factor improving health, prevents or postpones various kinds of chronic disease and leads to early death. Further, there are various evidences indicating that regular physical activities leads to mental health improvement, depression and stress signs reduction, life satisfaction, and life quality improvement. The purpose of the present paper is to investigate macro and micro factors affecting sport participation conducted as a case study in Tehran city.

Keywords: Participation, sport, education, age, leisure.

Introduction

As the world health organization (WHO) reported, Iranian national reviews' results indicate that the prevalence of inactivity in rural and urban areas with a focus on doing physical activities in leisure times is 76/3% and 58/8% among men and women of 15-64 years old, respectively. In this regards, the research findings have shown barriers individual face as one of the deterministic factors in physical activity, while the abilities of overcoming these barriers have a positive significant relation with increasing physical activities¹. Further, physical activity has a direct relation with the appropriate place to do exercises, equipment and providing the ease of going to the exercise place. Advocating and financial supporting on behalf of people increases social, cultural and economic value of this phenomenon. Exercise makes individuals happy and energetic. Happy is referred to as developing the spirit of participation, contribution and appreciation as well as a mixture of simplicity and contribution in activity environments affecting citizens positively².

The background of sport has experienced tragic stories showing the impression of the neglects and indicating that they have nothing to do with the exercise functions. Exercise has a strong association with the complex of social institutes and structures. That is, the exercise achievements can be considered as a general index. Social and cultural status of a society can be judged through exercise, i.e. the exercise development depends on social factors governing on the society³.

Based on the research done by Dr Auliffin Oregon health and Science University of America, memory and reaction time of

the elders who had an exercise program including fast walking on treadmill, 3 times a week and 1 hour each session during 4 months was improved. More studies have indicated that slow running, demonstration, biking, and dancing can also accelerate elders' memory and reactions improvement. Researchers also found out that the elders participating in a regular exercise program outperformed in implementing memory tests⁴. Although such memory improvement is seen in the elders participating in aerobic exercises, the studies have shown that there is no priority among the exercises to improve the memory. In other words, there is no significant difference between sport exercises in terms of improving the memory. As a result, regular exercise increase blood circulation in the brain leading to supply of Oxygen and nourishing neurons and preventing narrowing brain's arteries. These effects can prevent mental disease in the elders. Sport and exercises also cause to release a kind of growth factor namely B.D.N.F reinforcing neurons against hurt and damage and preventing incidence of Alzheimer and Parkinson disease to some extent⁴.

Many researchers believe that physical activities lead to happiness and vitality and increase physical self-concept since depressed people either have no or little self-confidence. Physical activity raises internal satisfaction⁵; also it has a significant effect in many diseases such as depression. Exercising 30 minutes each day can reduce the signs of depression as much as some mental-therapeutic methods and anti-depressant drugs. As internet site of Texas University's medical center reported, psychiatrists have revealed that 30 minutes exercising in a day can minimize the depression symptoms as much as common medical methods and anti-

depressant drugs but all of these depend on social supports of each country for the individuals. Considering the lack of focal policies of the governments, local organizations in many municipalities have adopted some policies to increase sport individual participation during the recent years. Municipalities believe that sport infrastructures are very important and municipality cannot change individual factors such as gender and residents' dispersal. In fact, municipalities can only provide appropriate sport infrastructure to improve sport participation⁶.

In the present paper, the theoretical framework proposed in the article of Wicker (2012) has been used as the theoretical framework of the study. Based on the applied framework, sport participation is influenced by internal and external factors. Internal factors or micro factors focus on the factors associating with individual such as available time, income, ethnicity, gender, and so forth while external or macro factors emphasize on the sport spaces, parks, number of gyms, municipalities programs, and so forth⁷.

According to the research done by Furlong, Campbell and Roberts (1990), economic and social statuses affect directly and indirectly the youth interest to participate in sports. Low price

of sport and recreational facilities, as an economic factor, can affect the amount of their participation. Regarding the relation between equipment and participation to spend free time, Ziaii and Mansouri also stated that in summer, students have not the opportunity to make the best use of their free time due to the lack of sport and recreational facilities. Rural youth and girls have less sport-recreational spaces and camps leading to tend to unhealthy entertainments and activities due to these shortages⁸.

Main body: The conceptual model of the research: Considering the dependent and independent variables, the model used in the research can be depicted as in the figure-1.

Methodology

The present study investigates macro and micro factors affecting sport participation conducted as a case study in Tehran city in 2012. Based on the last census of 2012, the population of Tehran is 8,244,533 that is considered the most populated city of Iran and the seventh big city of the world. The population of Tehran has been estimated between 1700 to 1100 people each kilometer and it is the sixteenth dense city of the world⁹.

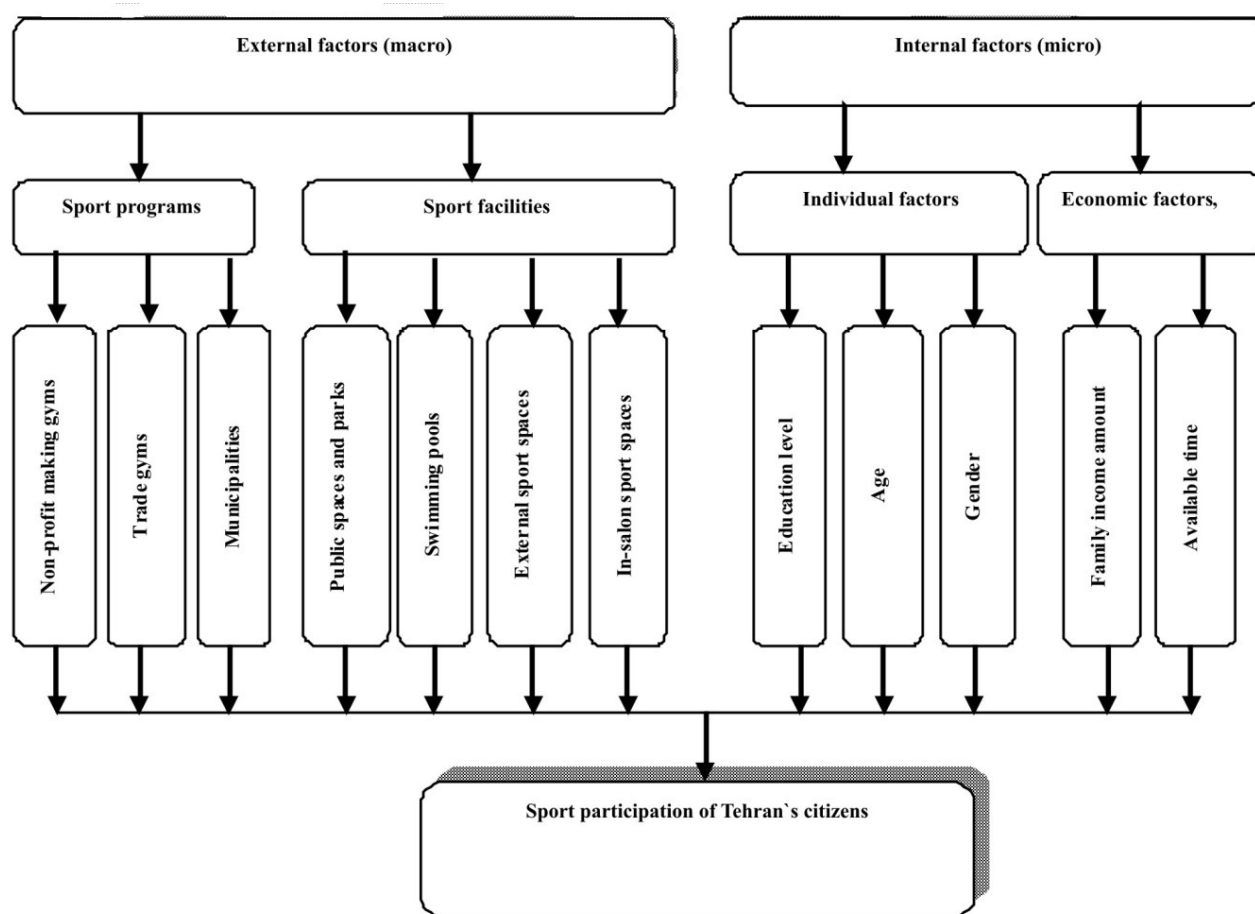


Figure-1
Conceptual model of the research

Football is the first and most popular sport in the city. Additionally, wrestling has been highly considered and is the traditional and national sport of Iran. There are 140 state sport places in Tehran. During the research, the data related to macro and micro factors have been collected. Then, the required data has been gathered from the statistical population using designed questionnaires¹⁰.

Statistical population and sample: Considering the fact that statistical population includes a group of individuals, objects, variables, concepts, or phenomena which are common in one feature at least and the purpose of the present study has investigated the effect of micro and macro factors in sport participation of Tehran's citizens, all the people who lived in Tehran during the study time are considered the population of the study¹¹. With respect to the dependent variable (sport participation) and the need of continuous participation of individuals in the plan, all age ranges cannot be interviewed. In this regards, men and women of 15-65 years old have taken into the investigation due to avoiding the other inappropriate age ranges.

Sample volume estimation and sampling method: Considering the research limitations such as lack of enough human force, time, and financial costs, it is not possible to study all the statistical population. Therefore, a small part of the population is selected from the population presenting all the population and is called sample. The sample should present the statistical population; otherwise, the results obtained from the sample cannot be generalized to the population¹².

$$n = \frac{Z_{(\alpha/2)}^2 \bar{p}(1 - \bar{p})}{d^2} = \frac{Z_{\alpha/2}^2 pq}{d^2} = \frac{(1.96)^2 \times (0.5) \times (0.5)}{0.05 \times 0.05} = \frac{0.96}{0.0025} \cong 384$$

According to the above formula, d is the sampling error, z is the normal variable of unit corresponding to the confidence level of $1 - \alpha$, P is the estimation of the considered attribute proportion, and q equals with $1 - P$. in such researches, P value will be considered 0/5 if it is not determined. In the present study, P equals with 0/5, the sampling error is 5% and the sample size is approximately 384¹³.

In the present study, stratified random sampling method was used to select the sample due to heterogeneity of individuals in the population. In this method, the population individuals were classified into different categories regarding their inter-group features where the sample individuals were selected from all the categories proportionally. In the present paper, the population was divided into several categories based on some distinctive features such as age, gender and residential region, and then the table of the population's real distribution, the percentage proportion of each categories was estimated in the whole population and real population was determined with respect to each category's proportion. Afterwards, the number of the sample was selected from all the people of the same category using simple random sampling method¹⁴.

Considering the above mentioned, the research sample was determined based on Morgan's table for determining sample size so that the minimum size of the sample is 384 people. Computing the return rate of 90%, 425 questionnaires were distributed among the Citizens who has weekly sport program and of the considered age range to achieve the desired data. The questionnaires were distributed in the considered sport places among the sample randomly¹⁵.

To investigate the significant difference between sport participation in various regions as well as the significant difference between sport participation based on each index, variance analysis test (ANOVA) was used. Notably, all the analyses were done at the confidence level of 95% using SPSS software.

Results and Discussion

The proposed model is a multi-layer theoretical model of sport participation (figure-1) based on economic performance theory investigating the applicability of economic options in non-market spaces of domestic productions theory. According to the theory, in producing and consuming domestic goods such as sport products, market goods, time allocation, and human capitals, individuals should be considered to making decision to participate in sport activities¹⁶. The model includes individual factors divided into economic factors of family (income, time and capital) and the factors based on demand (age, gender, immigration). The macro factors involve sport programs and facilities.

The economic factors of family refer to family theory of Becker. Income is a financial limitation influencing sport participation since sport activity is costly. Reviewing the literature has indicated a positive effect of income in sport participation¹⁷. The hypothesis of the positive effect of income in sport participation has been investigated in the present study. In addition to income, economic conditions of an individual also have been determined with respect to enough available time. As a result, money and time provide the opportunity for individuals' physical activity. Time framework is a vital factor in sport participation. Time framework can be limited to working hour and the time of taking and fetching children to/from school and taking care of family¹⁸.

As the earlier works reported, sport participation can be increased by increasing and decreasing working hour, decreasing the time of taking and fetching children to/from school and taking care of family. In the present study, it has been supposed that working hour and the time of taking children to school and taking care of family have a negative effect in sport participation. Moreover, economic status is determined by a third factor namely human capital. Usually, highly educated people have more physical activities since they are well informed from the positive effects of sport as it has been proved by many studies. Further, ethnicity can affect sport

participation since the importance and acceptance of physical activity can be different based on cultural background of each society¹⁹.

It is supposed that relocation background affects sport participation negatively. Also, age can be effective in this trend since social evaluation of sport participation can be variable among men and women²⁰. The effect of age on men performance has been investigated in the present study.

Additionally, sport participation may be influenced by macro factors. The macro level or infrastructures of sport refer to sport programs and facilities. According to the studies, high demand for all kinds of sport infrastructures affects sport participation positively. Therefore, the null hypothesis indicates that wide demand for sport programs and facilities affects sport participation of Tehran citizens positively²¹.

Here, descriptive statistics and the tables of the sample's features have been presented. Recognizing the sample's features is useful to investigate general characteristics of the population to be used by other researchers. Additionally, they can be used in generalizing the results to other populations²².

Table-1
Frequency distribution based on gender

Variables Categories	Frequency	Frequency Percentage	Valid Percentage	Mode
Man	223	52/5%	52/5%	1
Woman	202	47/5%	47/5%	
Total	425	100%	100%	

According to table 1, 52/5% of the sample includes men and 47/5% of the sample includes women. Also, the value of mode is 1 indicating that the most frequency is for men. In other words, mode is a central index determining the most frequency in a distribution and here, male gender has the most frequency.

Table-2
Frequency distribution based on doing weekly physical activity in hour

Variables categories	Frequency	Frequency percentage	Valid percentage	Mode
Less than 1 hour	221	52%	52%	1
Between 1 to 2 hours	108	25/4%	25/4%	
Between 2 to 3 hours	51	12%	12%	
More than 3 hours	45	10/6%	10/6%	
Total	425	100%	100%	

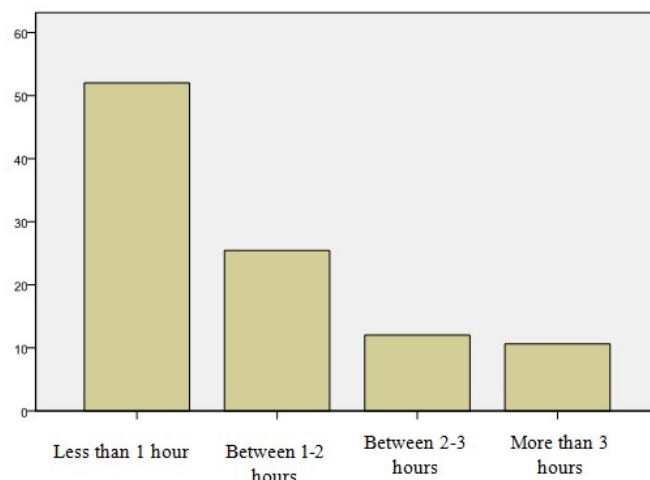


Figure-1

The percentage of doing weekly physical activity (in hour)

According to table 2, 52% of the sample does physical activity less than 1 hour, 25/4% of the sample does between 1 to 2 hours, and 10/6% dose more than 3 hours in a week. The value of mode is 1 indicating that the average of weekly sport exercise in Tehran's citizens is less than 1 hour.

The First Hypothesis: "There is a significant relation between education level and sport participation in Tehran's citizens".
 H_0 : There is no significant relationship between education level and sport participation in Tehran's citizens.
 H_1 : There is a significant relationship between education level and sport participation in Tehran's citizens. The first hypothesis investigates the relation between education level and sport participation in Tehran's citizens using non-parametric test of Kruskal Wallis due to the variable measurement level and multi-categorical variable.

Table-3
Descriptive statistics

Variable	Number	Mean	Standard Deviation
Sport participation	425	1/81	1/015
Education level	425	3/42	1/87

According to table-3, the mean value of education level is 3/24 which is more than the mean value of sport participation (1/87).

Table-4
Values Ranking

Variable	Number	Mean ranks
Sport participation	Below diploma	18
	Diploma	109
	Associates	49
	Bachelor	181
	Master	60
	Doctrine	8
	Total	425

Table-4 presents the categories of education level variable in Tehran's citizens based on ranked sport participation, number and mean of the ranks. As the table shows, bachelor grade has the greatest mean.

Table-5
Relation estimation

	Estimation
X^2 computed value	3/257
Degree of freedom	5
P-Value	0/660

Considering the value of Kruskal Wallis statistic and the observed error level (P-Value >0/05), it is concluded that the relation is not significant. In other words, there is no significant relationship between education and sport participation in Tehran's citizens. So, the null hypothesis is accepted and the alternative hypothesis is rejected. The second hypothesis: "There is a significant relation between age and sport participation in Tehran's citizens". H_0 : There is no significant relation between age and sport participation in Tehran's citizens. H_1 : There is a significant relation between age and sport participation in Tehran's citizens. The second hypothesis investigates the relation between age and sport participation in Tehran's citizens using non-parametric test of Kruskal Wallis due to the variable measurement level and multi-categorical variable.

Table-6
Descriptive Statistics

Variable	Number	Mean	Standard deviation
Sport participation	425	1/81	1/015
Age	425	2/56	0/931

According to table 6, the mean value of age is reported equal to 2/56 which is more than the mean value of sport participation (1/87).

Table-7
Values Ranking

Variable	Number	Mean ranks
Sport participation	15 to 25	61
	26 to 35	166
	36 to 45	125
	46 to 55	44
	Above 56	29
	Total	425

Table-7 presents the categories of education level variable in Tehran's citizens based on ranked sport participation, number and mean of the ranks. As the table shows, the age range of 26-35 has the greatest mean.

Table-8
Relation estimation

	Estimation
X^2 computed value	24/207
Degree of freedom	4
P-Value	0/000

Considering the value of Kruskal Wallis statistic and the observed error level (P-Value >0/05), it is concluded that the relation is significant at the confidence level of 99%. In other words, there is a significant relationship between age and sport participation in Tehran's citizens. So, the null hypothesis is rejected and the alternative hypothesis is accepted. The third hypothesis: "There is a significant relationship between gender and sport participation in Tehran's citizens". H_0 : There is no significant relationship between gender and sport participation in Tehran's citizens. H_1 : There is a significant relation between gender and sport participation in Tehran's citizens.

The third hypothesis investigates the relation between gender and sport participation in Tehran's citizens using Chi-Square test.

Table-9
Counting

Row	Sport Participation	Gender		
		Male	Female	Total
1	Less than 1 hour	101	120	221
2	1 to 2 hours	71	37	108
3	2 to 3 hours	17	34	51
4	More than 3 hours	34	11	45
5	Total	223	202	425

Table-10

X^2 value estimation and determining the significance level of the relation

Row	X^2 value	Degree of freedom	P-Value
1	5/178	3	0/147

Considering the value of X^2 value, degree of freedom of the variable and the observed error level (P-Value >0/05), it is concluded that the relation is not significant. In other words, there is no significant relationship between gender and sport participation in Tehran's citizens since X^2 value is less than critical value and the observed error value (alpha error) is greater than 0/05. So, the null hypothesis is accepted and the alternative hypothesis is rejected. The fourth hypothesis: "There is a significant relation between immigration background and sport participation in Tehran's citizens". H_0 : There is no significant relation between immigration background and sport participation in Tehran's citizens. H_1 : There is a significant relation between immigration background and sport participation in Tehran's citizens. The fourth hypothesis investigates the relation between immigration background and sport participation in Tehran's citizens using Chi-Square test.

Table-11
Counting

Row	Sport participation	Gender		
		Has	Has not	Total
1	Less than 1 hour	61	160	221
2	1 to 2 hours	37	71	108
3	2 to 3 hours	13	38	51
4	More than 3 hours	12	33	45
5	Total	123	302	425

Table-12

X^2 value estimation and determining the significance level of the relation

Row	X^2 value	Degree of freedom	P-Value
1	2/087	3	0/555

Considering the value of X^2 value, degree of freedom of the variable and the observed error level (P-Value > 0/05), it is concluded that the relation is not significant. In other words, there is no significant relationship between immigration background and sport participation in Tehran's citizens since X^2 value is less than critical value and the observed error value (alpha error) is greater than 0/05. So, the null hypothesis is accepted and the alternative hypothesis is rejected. The fifth hypothesis: "There is a significant relation between sport facilities and sport participation in Tehran's citizens". H_0 : There is no significant relation between sport facilities and sport participation in Tehran's citizens. H_1 : There is a significant relation between sport facilities and sport participation in Tehran's citizens. The fourth hypothesis investigates the relation between sport facilities and sport participation in Tehran's citizens using one-way variance analysis test (F test). To this end, the condition of variances equality should be established.

Table-13

Leven test (the condition f variances equality)

Row	Leven test value	The first degree of freedom	The second degree of freedom	Sig
1	16/368	4	420	0/000

As table 13 shows, the condition of variances equality is

Table-14
Variance Analysis

Variation resources	Sum of squares	Degree of freedom	mean of squares	F statistic	P-Value
Inter-group	17/359	4	42/840	67/748	0/000
Intra-group	265/582	420	0/632		
Total	436/941	424			

established at the confidence level of 99% and the variance analysis is allowed to be used.

According to table-14, considering the values of F statistic and the observed error level (P-Value < 0/005), it can be concluded that the relationship is significant at the confidence level of 99%. In other words, there is a significant relation between sport facilities and sport participation in Tehran's citizens. So, the null hypothesis is rejected and the alternative hypothesis is accepted. Also, the diagram of sport participation of Tehran's citizens based on sport facilities can be presented as in the figure-2.

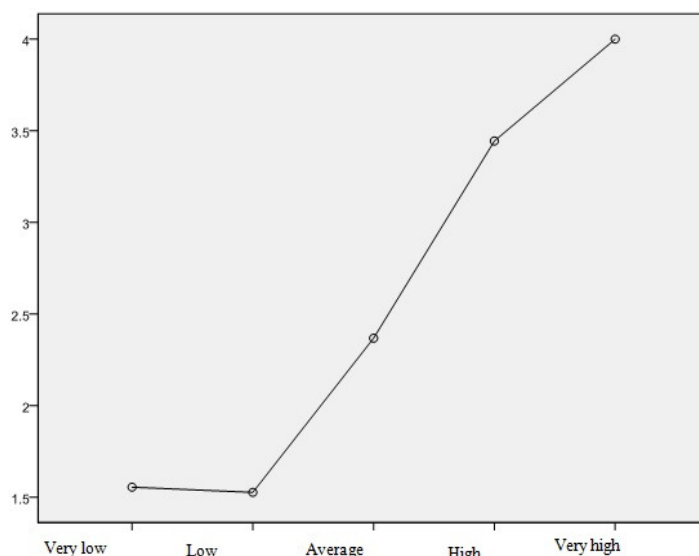


Figure-2

Sport Participation of Tehran's citizens based on sport facilities

The sixth hypothesis: "There is a significant relation between sport programs (non-profit making gyms, trade gyms and municipality) and sport participation in Tehran's citizens". H_0 : There is no significant relation between sport and sport participation in Tehran's citizens. H_1 : There is a significant relation between sport programs and sport participation in Tehran's citizens. The sixth hypothesis investigates the relation between sport programs and sport participation in Tehran's citizens using one-way variance analysis test (F test). To this end, the condition of variances equality should be established.

Table-15
Leven test (the condition f variances equality)

Row	Leven test value	The first degree of freedom	The second degree of freedom	Sig
1	7/989	4	420	0/000

As table 15 shows, the condition of variances equality is established at the confidence level of 99% and the variance analysis is allowed to be used.

According to table 16, considering the values of F statistic and the observed error level (P-Value < 0/005), it can be concluded that the relation is significant at the confidence level of 99%. In other words, there is a significant relation between sport programs and sport participation in Tehran's citizens. So, the null hypothesis is rejected and the alternative hypothesis is accepted. Also, the diagram of sport participation of Tehran's citizens based on sport programs can be presented as in the figure-3.

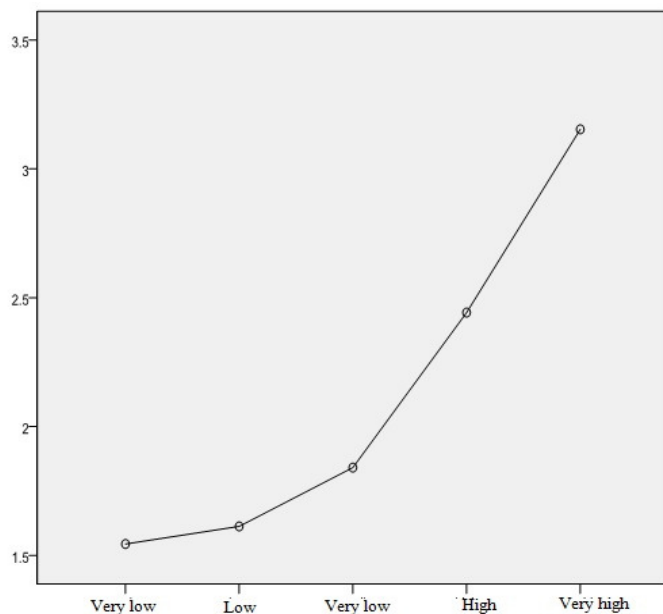


Figure-3

Sport Participation of Tehran's citizens based on sport programs

Conclusion

As mentioned earlier, regular and continuous sport and physical activity is followed by useful effects in individuals' mind and

spirit. Also, participating in sport activities and exercises has a lot of socially considerable effects including helping individuals to be socialized and adjusted with the environment; helping the individual to complete appropriate characteristic, filling leisure and avoiding social deviations; specifically in youth; modifying completing appropriate ethics; and providing individual to observe others rights; helping individuals in the process of culture building; having appropriate culture, and so forth. In addition to all above mentioned consequences, continuous physical activities cause to prevent many diseases such as depression, anxiety, stress, and Alzheimer.

The results obtained from the investigation can be stated as the follows: There is no significant relation between education and sport participation in Tehran's citizens, so the third hypothesis is rejected. There is no significant relation between age and sport participation in Tehran's citizens, so this hypothesis is also rejected. There is no significant relation between immigration background and sport participation in Tehran's citizens. There is no significant relation between gender and sport participation in Tehran's citizens and the amount of sport participation is the same among men and women. There is a significant relation between sport facilities and sport participation in Tehran's citizens. There is no significant relation between sport programs (trade gyms, non-profit making and municipality) and sport participation in Tehran's citizens. The first hypothesis investigating the relation between education and sport participation in Tehran citizens indicated that the greatest mean of the grades pertained to bachelor degree. After testing the hypothesis, it was revealed that there is no relation between education and sport participation in Tehran citizens and the hypothesis was rejected. The result of testing the first hypothesis is inconsistent with the research done by Breuer. Breuer believes that education level of individuals affect their sport participation. Also, Mpofo asserts that individuals with higher education have fewer barriers relative to individuals with lower educations. Haji Nia and Farid Nia based on their study, states that education level is correlated with sport participation²³.

Ramezani Nejad et al. also believe that individuals with lower education have more motivation relative to individuals with higher education which is inconsistent with Atkinson and Rassel's findings indicating that individuals with higher income and better job participate in sports exercises more²⁴.

Considering the inconsistencies in the different findings, it seems that this hypothesis should be investigated more accurately.

Table-16
Variance Analysis

Variation resources	Sum of squares	Degree of freedom	mean of squares	F statistic	P-Value
Inter-group	61/053	4	15/263	17/054	0/000
Intra-group	375/888	420	0/895		
Total	436/941	424			

Examining the relation between age and sport participation in Tehran's citizens revealed that there is no significant relation between age and sport participation and the greatest mean pertained to the age range of 26 to 35 years old. According to the similar studies done by Ramezani et al. (2009), middle aged individuals participate in sport exercises more than youth and elders indicating that youth have not the necessary motivation to participate in physical activities and elders are not so able to participate in these activities.

Gratton and Taylor based on their study indicates that younger people are more active than elders. Mpofo also asserts that people with the age of over 46 years participate in sport and recreation activities less than the youth²⁵.

Considering the comparison of the present study's results with the previous findings, it can be concluded that people in any age range can participate in sport activities and there is no direct relation between age and sport participation²⁶.

The second hypothesis investigated the relation between gender and sport participation in Tehran citizens. Testing the hypothesis revealed that there is no relation between gender and sport participation in Tehran's citizens^{27,28}.

While the results of Ramezani Nejad et al. indicate that men participate in physical activities more than women, low participation of women can be considered due to their responsibilities in family and cultural barriers. Wicker et al. evaluate this fact and conclude that men's sport participation is more than women^{24, 29}.

But Mpofo concludes that men face more barriers to participate in sport activities. Blair et al, based on their study, assert that gender is one of the demographic factors highly affecting sport participation. Although many sport are considered mainly due to men's attitude towards them, women have significantly attempted to participate in many sport areas³⁰.

Based on the study done by Lahsaii Zade et al., there is a significant relation between gender and sport interest. In fact, women are more interested in sport. Ehsani et al., Mehdi Pour and Atiqe Chi studying the deterrent factor in sport participation reveals that relative to men, women face more barriers to participate in sport activities including not having a partner to participate in sport activities, family commitments, lack of enough information, shyness, lack of vehicle, physical disability, and so forth. Based on ranking done by Tondnevis, sport is placed in the third rank for boys and in the ninth rank for girls regarding free time spent indicating that 15% of girls and 31% of boys do not exercise at all. Considering the results obtained from the present study, the amount of sport participation is similar among men and women and they do physical activity in the same extent³¹⁻³⁴.

Investigating the relation between immigration background and

sport participation in Tehran's citizens revealed that there is no significant relation between immigration background and sport participation.

Based on the study done by Wicker (2008), ethnicity can affect sport participation since the importance and acceptance of sport activities can be variable based on cultural backgrounds²⁹.

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