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Investigating the Relationship between Quality of Life and Adherence to Physical Activity with Life Expectancy at Leisure time in the Elderly*

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Abstract

This study was conducted to determine the relationship between quality of life and adherence to physical activity and their impact on life expectancy in the elderly of Mashhad who spends their leisure time exercising and physical activity in the parks of this city. The research method was descriptive-correlational, and the investigation was carried out as a field study. The statistical population of the study consisted of 565 individuals who do exercise and physical activity in public parks of Mashhad city in 2021. Quality of Life scale (QLS, SF26), Adult Life Expectancy Scale ((ALES), Snyder et al., 1991), and Adherence to Physical Activity Scale ((APAS) Derakhshanpour et al., 2016), were used as data collection tools in this research. The results showed that there was almost moderate to strong positive correlation between quality of life with life expectancy, factor thinking and strategic thinking. There was also a moderate negative correlation between physical problems dimension with life expectancy and strategic thinking, but there isn't any correlation between physical problems with factor thinking. Also, there was moderate correlation between psychological and social dimensions with life expectancy, factor thinking and strategic thinking. Also, it has been seen that there was strong positive correlation between adherence to physical activity with life expectancy, factor thinking and strategic thinking. There was also strong positive correlation between awareness and equipment with life expectancy, factor thinking and strategic thinking. And, there was moderate correlation between reinforcement with life expectancy, factor thinking and strategic thinking. According to the results of the present study, increasing adherence to physical activity can lead to improving the life expectancy of the elderly, ultimately providing a good quality of life for them.

Key Words: Quality of life, Life expectancy, Adherence to physical activity, Elderly, Public parks, Leisure time

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INTRODUCTION

Every country at any stage of history is facing the problem of people's leisure time and having leisure time and how to spend it is related to various social, political, and economic factors. The elderly are an important part of society, a group that educates the next generations, so it is important to pay attention to their needs, their leisure, recreational, and especially sports and mobility needs (Razavi & Pesarkoloo, 2013). According to research, exercise and physical activity increase self-confidence, avoidance of drugs, no sexual dysfunction, and academic achievement and reduce crime in people, and have a positive impact on their lives and guarantees their health in old age (Monazami & Shetab-Boushehri, 2011).

To achieve the quality of life, each person takes various measures in the field of physical and mental health, one of which can be sports and recreational activities. It seems that a person who participates in various sports and recreational activities benefits from the physical and psychological benefits of these activities increases his quality of life and may even be at a higher level in this regard (Vaez Mousavi, 2000). Quality of life is a multidimensional concept that has become very important in recent years due to its role in people's social and mental health. In this regard and considering the growing population of the elderly and the fact that the health of society depends on their health, it seems necessary to pay attention to their quality of life. Also, one of the concepts that are assumed to be the same as welfare and health is quality of life (Ghahremani et al., 2006).

Rereading the various concepts of quality of life has led to a definition by the World Health Organization Quality Group. This definition is provided to understand one's position in the context of cultural and value systems and in relation to their goals, expectations, standards, and interests. In this view, quality of life is a comprehensive concept that includes physical health, psychological states, and degree of independence, social relations, and relationship with the environment, which is also based on the individual's perception of these dimensions (Kwak et al., 2017). Over the past few decades, quality of life has been recognized as an important measure of health, leading to the belief that the results of health services should not only increase life expectancy but should also improve quality of life (Katschnig & Sartorius, 2006, Kaplan & Baron-Epel, 2003).

The new issue about the quality of life today is life expectancy. Although the idea of expectancy has existed since the creation of man, its scientific study has a short history in human life and spends its childhood (Feng et al., 2021). Snyder et al., (2006) Consider expectancy as a mental set that is based on the mutual sense of will and planning to achieve the goal. Because life expectancy is related to life-related attitudes and structures, every person who hopes for life should be sensitive to how life is lived and its quality and improve the quality of life. Improving the quality of life depends on improving the level of health. Improving the level of health is also accepted as the axis of community development and according to the policies of the world health organization is the ultimate goal of all governments (Tafran et al., 2020).

In this regard, Mcauley et al., (2006) also examined the effect of physical activity and quality of life with emphasis on physical health and self-confidence, and life expectancy in the elderly, which showed that there is a significant relationship between physical activity and quality of life, self-confidence, and expectancy and quality of life directly affects self-confidence and expectancy, and they also stated that women have more life expectancy than men. According to 2010 reports, 55% of adults aged 50 and over in the world do not meet the minimum recommended physical activity needs (World Health Organization, 2014).

It has also been reported that the participation of the elderly in regular physical activity has been very low in some countries. In the United States, people aged 65 and overspend an average of fewer than 20 minutes a day practicing, exercising or engaging in recreational activities (Kwak et al., 2017). Meanwhile, weekly sports participation in Canadian elderly was only about 12% (Yazdi Feyzabadi et al., 2013), and monthly sports participation in the UK for elderly aged 65 to 74 and elderly over 75, was 36% and 16.7% respectively (Jones, Millward & Buraimo, 2011). A cross-sectional study in 2013 and 2014 in Australia also found that only 18% of older people aged 65 and over have been regularly involved in physical activity over the past year (Yazdi Feyzabadi et al., 2013).

In this regard, parks and recreational places attract millions of visitors each year, and although they can be used for a variety of purposes and public access to places for physical activity, many people in the community do not use these places regularly. Although the level of visiting the outdoor recreation places has increased steadily over the past 40 years, only one-third of the U.S. population has visited (Cordell et al., 1999). In addition, the growth of parks and recreational places in the last 10 years has not corresponded to a significant increase in levels of physical activity in leisure time. Also, the increase in adult participation in the recommended levels of physical activity has remained almost constant (45.3% in 2001, 45.9% in 2003). Parks and recreation places can also create healthier communities by increasing opportunities for physical activities in leisure time. However, there is a need for more informed cooperation between parks, recreation organizations, and public health organizations in order to systematically monitor such activities in parks and recreation places. Such cooperation can increase the presence of the elderly in the parks (Mondal & Shitan, 2013).

Considering the cases mentioned about the importance of physical activity in the elderly and the effect it can have on their quality of life and life expectancy, in this study we have tried to examine the relationship between quality of life and adherence to physical activity and their effect on the life expectancy of the elderly in Mashhad.

METHOD

Research Model

In terms of research objectives, this was an applied study and regarding research type, it was descriptive-correlational.

Research groups

The statistical population of the study consisted of all individuals who do exercise and physical activity in public parks of Mashhad city in 2021. The sampling method used in this research was simple random sampling. According to the statistical methodology of the research, the sample selection was 5-10 times greater than the number of research questions (taking the correlational studies and return rate of the questionnaires into account). Finally, 600 questionnaires with 6% reduction were distributed among the individuals whom 565 of them returned.

Data Collection Tools

In order to collect information, three questionnaires were used. The first one was Quality of Life scale (QLS), The scale consists of 26 items and three sub-dimensions. Items 1-11 measure physical problems dimension, items 12-20 measure psychological dimension and items 21-26 measure social dimension. Questionnaire was prepared on 5-point Likert scale with anchors of 1 and 5. If score was close to 5, their level of quality of life was high, but if it was close to 1, it was low. Items 12, 15, 16, 19, 21, 22, 23, 24, 25, 26, were scored reversely. Cronbach α Coefficient values of the internal consistency for QLS including 26 items were analyzed and it was measured as 0.841. The second one was Adult Life Expectancy Scale (ALES), It was developed by Snyder et al., (1991). The scale consists of 12 items and two sub-dimensions. Items 1, 4, 6 and 8 measure factors thinking, items 2, 9, 10 and 12 measure strategic thinking and items 3, 5, 7 and 11 are deviation items. Questionnaire was prepared on 5-point Likert scale with anchors of 1 and 5. If score was close to 5, their level of life expectancy was high, but if it was close to 1, it was low. Cronbach α Coefficient values of the internal consistency for ALES including 12 items were analyzed and it was measured as 0.850. The third one was Adherence to Physical Activity Scale (APAS), It was developed by (Derakhshanpour, 2016). The scale consists of 11 items and three sub-dimensions. Items 1-4 measure awareness, items 5-7 measure equipment and items 8-11 measure reinforcement. Questionnaire was prepared on 5-point Likert scale with anchors of 1 and 5. If score was close to 5, their level of life expectancy was high, but if it was close to 1, it was low. Cronbach α Coefficient values of the internal consistency for APAS including 11 items was analyzed and it was measured as 0.858.

Collection of Data

Permission to distribute questionnaires among the elderly in the parks of Mashhad was obtained from their security unit and then they were distributed and collected. The data was collected by expert interviewers trained in this field in a quiet and convenient environment with face-to-face interviewing technique. Subjects were informed about the study and their oral approval was

received. They were encouraged to express their thoughts and in-formed that their answers will be kept as private. Besides, it was emphasized that they can have a short break time and continue when they feel themselves ready or they can leave the study if they were not able to finish the questionnaire due to any problem.

Analysis of Data

SPSS (Chicago, IL, USA) 23.0 program was used in order to analyze the data. Descriptive statistics were given as number, percentage, mean and standard deviation. Data were analyzed whether they were normally distributed. In order to identify correlations between factors in the scales Pearson Correlation Coefficient Test was implemented. In order to explain the dependent variable by the independent variable, Regression Test was used. Significance level was accepted as $p<0.05$.

FINDINGS

Of the individuals enrolled in the study 336 people (59.5%) were male and 229 people (40.5%) were female. The highest and lowest frequencies based on age status with 40% and 4.4% are related to the age groups "55 to 60 years" and "76 years and above", respectively. The highest and lowest frequencies based on marital status with 75% and 4.4%, respectively; belong to the "married" and "single" groups. The highest and lowest frequencies based on the number of days to visit the park in the last week with 30.6% and 19.5% are related to the group "1 to 3 days" and "1 day", respectively. The highest and lowest frequencies based on how to spend leisure time in the park with 61.4% and 11.7% are related to the group "Walking to the park and meeting peers" and "Doing group sports", respectively. The highest and lowest frequencies are based on the people with whom the research sample spends their leisure time with 61.1% and 17.9%, respectively, belonging to the group "with friends" and "with family". The highest and lowest frequencies based on the status of economic activity with 48.0% and 6.4%, respectively; belong to the "retired" and "disabled" groups. The highest and lowest frequencies based on the presence of a specific disease with 44.62 and 4.2%, respectively; belong to the "healthy" and "hypertensive" groups.

Then, using the skewness and kurtosis tests, the normality of data distribution was investigated and considering that all numbers were between +2 and -2, it was found that the distribution of research data was normal and parametric tests can be used.

Subsequently, the quality of life of the elderly participating in leisure sports activities was almost average. When its components were examined, their level was also close to average or slightly higher. The level of life expectancy and its components in these people was almost moderate. The level of adherence to physical activity was close to average, the components of awareness and reinforcement were below average, and the component of equipment was above average (Table 1).

Table 1. Quality of life, life expectancy and adherence to physical activity likert scores

Variable	N	Mean	Std. Deviation
Quality of Life	565	2.98	0.57
Physical Problems Dimension	565	3.00	0.98
Psychological Dimension	565	2.81	0.76
Social Dimension	565	3.12	0.93
Life Expectancy	565	2.97	0.76
Factor Thinking	565	2.98	0.94
Strategic Thinking	565	2.87	1.02
Adherence to Physical Activity	565	2.86	0.84
Awareness	565	2.71	1.00
Enforcers	565	2.51	1.18
Equipment	565	3.37	0.95

When the correlation between quality of life and life expectancy was analyzed, it was seen that there was almost moderate to strong positive correlation between quality of life with life expectancy, factor thinking and strategic thinking. There was also moderate negative correlation between physical problems dimension with life expectancy and strategic thinking, but there isn't any correlation between physical problems with factor thinking. Also, there was moderate correlation between social dimensions with life expectancy, factor thinking and strategic thinking, but there isn't any correlation between psychological dimensions with life expectancy (Table 2).

Table 2. Correlation between Quality of life and Life expectancy of elderly

Variable	1	2	3	4	5	6
1- Quality of Life	-					
2- Physical Problems Dimension	0.752** 0.000					
3- Psychological Dimension	0.804** 0.000	0.687** 0.000	-			
4- Social Dimension	0.381** 0.000	-0.236** 0.000	0.231** 0.000			
5- Life Expectancy	0.664** 0.000	-0.226** 0.000	0.029** 0.061	0.307** 0.000	-	
6- Factor Thinking	0.241** 0.000	-0.081** 0.054	0.161** 0.000	0.395** 0.000	0.889** 0.000	-
7- Strategic Thinking	0.221** 0.000	-0.111** 0.008	0.157** 0.000	0.391** 0.000	0.861** 0.000	0.795** 0.000

**p<.01

When the correlation between adherence to physical activity and life expectancy was analyzed, it was seen that there was strong positive correlation between adherence to physical activity with life expectancy, factor thinking and strategic thinking. There was also strong positive correlation between awareness and equipment with life expectancy, factor thinking and strategic thinking. Also, there was moderate correlation between reinforcement with life expectancy, factor thinking and strategic thinking (Table 3).

Table 3. Correlation between Adherence to Physical Activity and Life expectancy of elderly

Variable	1	2	3	4	5	6
1- Adherence to Physical Activity	-					
2- Awareness	0.851**	-				
	0.000					
3- Reinforcement	0.784**	0.485**	-			
	0.000	0.000				
4- Equipment	0.790**	0.611**	0.355**	-		
	0.000	0.000	0.000			
5- Life Expectancy	0.525**	0.675**	0.134**	0.517**	-	
	0.000	0.000	0.000	0.000		
6- Factor Thinking	0.614**	0.717**	0.298**	0.508**	0.889**	-
	0.000	0.000	0.000	0.000	0.000	
7- Strategic Thinking	0.598**	0.683**	0.283**	0.520**	0.861**	0.795**
	0.000	0.000	0.000	0.000	0.000	0.000

**p<.01

DISCUSSION

The findings of the study show that there is a positive and significant relationship between quality of life and its psychological and social dimensions with life expectancy and its components. Also, there is a negative and significant relationship between the dimension of physical problems with life expectancy and the component of strategic thinking, but no significant relationship was found between physical problems and factor thinking.

This finding is consistence with the results of research by Madhi & Najafi (2018), Pourabdol et al., (2015), Klar et al., (2021), and Mcauley et al., (2006) so that Mcauley et al., (2006) showed that there is a relationship between physical activity and quality of life, self-confidence and expectancy and quality of life directly affects self-confidence and hope. Madhi & Najafi (2018), stated that there was a significant and positive relationship between hope with quality of life and happiness. This means those people who had better spiritual well-being and hope experienced better happiness and quality of life. Pourabdol et al., (2015) found that there is a significant positive relationship between life expectancy and quality of life in the elderly people. Also, Klar et al., (2021) stated that health promotion efforts should be strengthened for people of middle and later working age to support healthy aging. But it is inconsistence with the findings of Sanaei et al., (2013) because, in the research of Sanaei et al., (2013), only the psychological dimension of quality of life affects life expectancy, which can be stated in the difference between the research samples.

Since there is a negative and significant relationship between physical problems and life expectancy, the reason for this can probably be explained by the fact that the fewer physical problems the elderly have, the healthier they are physically and the longer they live, as a result, their life expectancy will be higher.

The results also showed that there is a positive and significant relationship between the social dimension of quality of life with life expectancy, which is probably due to the fact that as mentioned earlier, about 60% of the sample stated that in their leisure time, they spend more time to talk and being with friends or peers in the park, which can affect the social dimension of the elderly, and since these people cannot ignore the problems of others, these conversations can probably be the reason for the lack of impact of psychological dimension on life expectancy in these people.

Also, the research findings show that there is a positive and significant relationship between adherence to physical activity and its components with life expectancy and its components. Probably, the reason for this is the fact that the more the elderly are aware of the benefits of physical activity in old age, the more their attention to physical activity and their health is guaranteed, and therefore increases their life expectancy. Also, the more complete the sports equipment, the fewer excuses they have for not being physically active, and on the other hand, the more encouragement and support they get from their family and acquaintances, the more they tend to engage in physical activity, which in turn increases their efforts to engage in physical activity, improve their health and thus increase their life expectancy.

This finding is consistent with the findings of Rivera-Torres et al. (2019), Keshavarz et al. (2013), Sanaei et al. (2013), Zare et al. (2016), and Dodge et al. (2003), which they reported a significant relationship between physical activity and life expectancy. Rivera-Torres et al. (2019), stated that improving adherence could have a significant impact on longevity, quality of life, and health care costs. However, it inconsistence with the findings of Reimers et al., (2012) who failed to report a significant relationship between physical activity and life expectancy. The reason for this discrepancy may be the cultural differences between the research communities and the type of society they study with this research.

So it can be said that having a good quality of life and active participation in physical activities improves and increases life expectancy in the elderly. These people can solve their physical, mental, and social problems by engaging in physical activity and having proper awareness of the benefits of regular physical activity, having proper sports equipment, as well as the support of friends and acquaintances, will help to achieve this. Doing so is important because it can significantly increase life expectancy in the elderly and increase their life long. It can also improve the physical and mental health of these people. However, latitudinal, and longitudinal studies were so vital to obtain more meaningful results.

CONCLUSION

Based on the research findings, it can be concluded that exercise and physical activity and adherence to it in the elderly improve the quality of life and life expectancy; therefore, it is suggested that sports and physical activity for the elderly, which is very low cost and cost-effective in terms of implementation, in nursing homes and complexes, and even at the community level as a factor to increase quality of life and life expectancy of the elderly. In the field of facilities for the sports of the elderly, it is possible to build and design health roads, cycling routes, do group exercises in the morning, health clubs for the elderly, light ascents to the heights, group camps with sports movements, do correction movements for musculoskeletal pain and exercise counseling for the elderly. Of course, it is worth mentioning that in order to improve the quality of life and life expectancy of the elderly, all institutions and individuals in society should cooperate in order to improve their mental and physical health.

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Research Ethic Information: That is especially important when conducting research with humans. The major principle for making sure that no harm is done to any participants in the research. Also, as this was not an interventional study, 'permission form' and 'voluntar confirmation letter' were taken from all the participants. This article is taken from Ms. Nafiseh Mobaraki's master's thesis.

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