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RESEARCH ARTICLE

A COMPARISON BETWEEN HEALTHY LIFESTYLE BEHAVIORS AND PHYSICAL ACTIVITY LEVELS OF ELDERLY INDIVIDUALS RESIDING IN THE CITY CENTER AND RURAL AND ANALYZING THEIR RELATIONSHIP WITH DEPRESSION

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ABSTRACT

Purpose: This study aimed to determine the differences in the levels of physical activity and healthy lifestyle behaviors in elderly individuals living in urban and rural and to examine their relationship with depression.
Material and Methods: Individuals who are over >65 years old and residing in the city and rural were included in the study. The Healthy Lifestyle Behaviors Scale-II, the Physical Activity Scale for the Elderly, and the Geriatric Depression Scale-15 were used on the participants.
Results: Healthy Lifestyle Behaviors Scale-II scores were not significantly different between the two groups (p=0.430). Physical Activity Scale for the Elderly score in rural (p= 0.001); Geriatric Depression Scale-15 score were statistically higher in the city group (p= 0.01). While the relationship between the Healthy Lifestyle Behaviors Scale-II and Geriatric Depression Scale-15 scores was significant in both groups (p= 0.001 and p= 0.03), the relationship between the Elderly Physical Activity Scale-II and Geriatric Depression Scale-15 scores was significant only in the rural group (p= 0.001).
Conclusion: The elderly individuals in rural are more physically active than in the city, and the elderly living in the city have higher depression levels. This current study suggests that the difference in depression scale scores of individuals living in the city center and rural areas may be due to the difference in physical activity scores. The factors affecting depression in the elderly living in cities need to be examined in detail.

Keywords: Depression, elderly, healthy lifestyle behaviors, physical activity

INTRODUCTION

Until recently, World Health Organization defines individuals above age 65 as old and there has been a continuous rise in the elderly population. In Turkey, the elderly population by 7.7% in 2013 and climbed to 8.5% in 2017 and it is envisaged that by the year 2023, the ratio of the elderly population will have scored 10.5% (1). Aging is a period in which there is a decline in cognitive and physical functions and a wide range of negative effects such as loss, decrease and regression in productivity, health, role and status, independence, environmental relations, social life and support can all take place (2,3).

Negative changes born out of aging can be overcome by adopting a healthy lifestyle and integrating the "Healthy Aging" concept into one's life (4). An overview of developments in the field of medicine and health exhibits that humans, in the beginning, attempted to heal patients and in subsequent years they sought after ways to prevent diseases. The common goal in all of these attempts is to help humans live as healthy as possible. To achieve that goal, a good number of practices that can protect people from diseases and allow them to lead healthy life have been developed. In the modern age, these practices are collectively described as a "Healthy Lifestyle" (5). Among elderly individuals, health protection behaviors are associated with better physical functions and awareness levels, active life occupations, and independence. Among elderly individuals, health protection behaviors enable a rise in life quality, improvement in health conditions, and a decrease in healthcare spending (6,7).

As a consequence of aging, there is an inevitable decline in Physical Activity (PA) due to diminished body reserves (8). Such declines result in some difficulties such as long-distance walking, climbing stairs or the inability to carry heavy loads. In elderly individuals, inadequate PA is a risk factor for most chronic diseases. PA is likely to slow and delay the spread of non-communicable diseases and mortality rate (9,10). PA has a positive effect on physiological and psychological health in addition to its good effects on social health. Dense population, rapid increase in urbanization, skyrocketing crime rates, poor air quality, traffic density, malfunctions in parks, walking areas, sports, and recreation zones are just a few of the many factors hurting the PA performance of people (11). In elderly individuals, old age depression and dementia, as a consequence of ability loss, are the most common mental problems that impact life quality (12). Regular PA leads to a fall in depression or depression tendency symptoms (13).

Although the equivalent terminology of the rural concept in foreign languages is contextualized with the village notion, in reality, the reference meaning is the opposite of the "city" word (14). Rural-area concept relates to the type of areas with less population density, mainly dependent on agriculture and husbandry in the economy, having limited means for social services such as substructure, transportation, water, electricity, and communication as well as access to education and health services. Furthermore, rural areas are described such; as settlements forming strong social relations with the urban population and offering leisure services for the urbanites and providing valuable sources for the whole community (15).

Definitions of rural concept suggest that individuals living in these areas lead a more physically active life whereas those living in worse standards in terms of health and education. Nevertheless, socio-economic changes in the modern age facilitate the access of rural residents to education and health services. Analysis of the effect of residential places on physical activity and healthy lifestyle behaviors and conducting required research could contribute to healthy aging.

This study aimed to draw a comparison between healthy lifestyle behaviors, PA levels, and depression levels of elderly individuals residing in the city center and rural while also analyzing the interrelation of depression with physical activity and healthy lifestyle behaviors in both groups. Therefore, we first hypothesized that there is no difference between physical activity, healthy lifestyle behaviors, and depression levels of elderly individuals residing in the city center and rural. Additionally, it was the second hypothesis that there is a difference between physical activity, healthy lifestyle behaviors, and depression levels of elderly individuals residing in the city center and rural.

MATERIAL AND METHODS

Participants and Settings

The sample size of the study was calculated using the Physical Activity Scale for the Elderly (PASE) (16) in the G*Power 3.1 program, with 95% power, 0.05 margin of error and 0.50 effect size, and it was determined that there should be 40 participants in each group.

Inclusion criteria of the research were designated as being above 65, residing in the same place for a minimum of 20 years, and voluntary participation. Individuals diagnosed with dementia or chronic mental disorder (depression, schizophrenia, etc.), lacking comprehension and expression ability to understand and answer the research questions,

having an orthopedic or neurologic-borne chronic physical disease (spinal pains, ischemic lower limb pain due to osteoarthritis, stroke, Parkinson, etc.) that blocks the ability to perform independent physical activity were designated as exclusion criteria.

Data Collection Instruments

Demographics

Participants' age, gender, weight, height, marital status, education level, number of children, income level, social security, chronic diseases, medicine use, smoking and alcohol consumption habit, physical disability and assistance, and data on assistive device use were registered in the prepared sociodemographic data form.

Healthy Lifestyle Behaviors Scale-II (HLBS-II)

In detecting the range of HLBS-II that was developed in 1996 by Walker et al. (17). Turkish adaptation validity and reliability of the scale was done by Bahar et al. (18). This scale consists of six sub-factors that entail items on spiritual development, health responsibility, PA, nutrition, interpersonal relations, and stress management. There is a total of 52 items on the scale and the minimum score to get is 52, and the maximum score is 208. An increase in scale points to pieces of evidence that the person implements specified health behaviors at a high level (17). In the evaluation, the total score of the scale was utilized.

Physical Activity Scale for the Elderly (PASE)

In the analysis of PA levels, the PASE was utilized. The scale was originally developed in 1993. In 2011, Ayvat conducted its validity-reliability test for Turkey (16). The scale reviews physical activities performed by elderly individuals in the last one week and consists of factors related to components such as leisure time, house chores, and work-related physical activities (19). To obtain PASE scores of the activities, frequencies of activities are multiplied by activity weights and the total PASE score is computed by adding the score obtained for every single activity (20).

Geriatric Depression Scale-15 (Short Form) (GDS)

In this current study research participants' depression level was analyzed in GDS which was developed by Javaid and Yesavage in 1986 and the scale's validity-reliability was tested by Durmaz et al. in 2017. On this scale, there are 15 questions. In the analysis of scale negative (no), responses to positive questions (1, 5, 7, 11, and 13) and positive (yes) responses for negative questions are matched with one point in each. A total of seven points and above is accepted as a significant diagnostic indicator of depression and that was taken as exclusion criteria in our research (21).

Statistical Analysis

In the statistical analysis of research data, the "Statistical Package for Social Sciences" (SPSS) Version 21.0 (SPSS inc., Chicago, IL, ABD) statistical program was used. For the descriptive data percentage (%) distributions were computed and the Chi-square test was employed in the inter-group analysis. The Normality distribution of the data was examined in Kolmogorov-Smirnov and Shapiro-Wilk tests. To analyses, the difference between independent variables, the independent t-test -as one of the parametric tests- was used for the data that fit into normal distribution (HLBS-II and PASE) whereas for the data that does not fit into normal distribution (GDS) Mann-Whitney U test -being one of the nonparametric tests- was harnessed. Correlation between the data was examined in the Spearman test and the significance level was accepted as $p<0.05$ for all data.

Ethical Consideration

The research was conducted upon receiving İstanbul University-Cerrahpaşa Cerrahpaşa Medical Faculty Ethics Committee Approval (Date and Decision no: 01.10.2019, 59491012-604.01.02) and included 80 (City:40, Rural:40) volunteers above age 65 residing in Yalova City Sugören Village, Trabzon City Arsin District Çiçekli Village, and İstanbul City.

RESULTS

The distribution of participants' sociodemographic features is displayed in Table 1. In the rural group (RG), the mean age of participants was 69.95±5.55 years, in the city center group (CCG), it was 69.15±5.04 meaning that no significant difference exists concerning the mean age of participants ($p=0.502$). In the RG, 40% of participants were female and 60% were male whereas in the CCG 55% of participants were female and 45% were male indicating that no significant difference exists concerning gender distribution between groups ($p=0.179$). In the RG 75% of the geriatric individuals were married and 25% were widowed while in the

Table 1. Sociodemographic features of participants

	Rural		City		
	Mean	SD	Mean	SD	p Value
Age (year)	69.95	5.55	69.15	5.04	0.502

	Rural		City		
	n	%	n	%	p Value
Gender					
Female	16	40.00	22	55.00	0.179
Male	24	60.00	18	45.00	
Marital status					
Married	30	75.00	30	75.00	0.528
Single	0	0	1	2.50	
Widowed	10	25.00	9	22.50	
Education level					
Illiterate	3	7.50	0	0	
Elementary school	33	82.50	24	60.00	
Middle school	4	10.00	4	10.00	0.006
High school	0	0	7	17.50	
University	0	0	5	12.50	
Regular income					
Yes	30	75.00	32	80.00	0.592
No	10	25.00	8	20.00	
Social security					
Yes	37	92.50	38	95.00	0.644
No	3	7.50	2	5.00	
Number of children					
None	2	5.00	5	12.50	
1	1	2.50	2	5.00	0.279
2	9	22.50	13	32.50	
3	12	30.00	13	32.50	
Above 3	16	40.00	7	17.50	
Residence					
Owned house	38	95.00	35	87.50	0.235
Living with children	2	5.00	5	12.50	
Smoking habit					
Yes	2	5.00	13	32.50	0.002
No	38	95.00	27	67.50	
Alcohol consumption					
Yes	1	2.50	2	5.00	0.556
No	39	97.50	38	95.00	

Test: Pearson Chi-Square, SD: Standart Deviation, p: Significance level 0.05

Table 2. Health-related data

	Rural		City		
	n	%	n	%	p Value
Chronic disease					
Yes	27	67.50	30	75.00	0.459
No	13	32.50	10	25.00	
Medicine use					
Yes	24	60.00	19	47.50	0.262
No	16	40.00	21	52.50	
Assistive device use					
Yes	17	42.50	19	47.50	0.427
No	23	57.50	21	52.50	

Test: Pearson Chi-Square, p: Significance level 0.05

CCG 75% of participants were married and 2.5% was single and 22.5% were widowed; hence there was not a significant difference concerning marital status in both groups (p=0.528). In the RG, the most common education level was elementary school (82.5%) and there were no high school and university graduates whilst in the CCG the ratio of elementary school graduates was 60%, high school graduates was 17.5% and university graduates were in a ratio of 12.5%; hence it is clear that a significant difference exists concerning the education level of groups (p=0.006). For regular income, social security ownership, and condition of residence, no significant difference was detected between the two groups (regular income p=0.592, social security: p=0.644, residence: p=0.235). 95% of participants in the RG did not smoke but in the CCG the ratio of non-smokers was 67.50%; hence a significant difference was detected between the two groups (p=0.002). Regarding alcohol consumption, there was no significant difference between the two groups (p=0.556).

Health-related data of the participants are exhibited in Table 2. In terms of having a minimum of one chronic disease the ratio was 67.50% among the ones residing in rural while in participants living in the city center, the ratio was 75%; thus, not a significant difference was observed between the two groups for the presence of chronic disease (p=0.459). In the rural residents, the ratio of regular use of medicine was 60% and, in the city center it was computed as 47.50%, thus for medicine use, no significant difference was observed between the two groups (p=0.262). With the ratio of individuals using optical, hearing, and similar devices, no significant difference was observed between the two groups. (p=0.427).

A comparison of HLBS-II, PASE, and GDS scores of both groups are shown in Table 3. In terms of healthy lifestyle behaviors, no significant difference was observed between individuals residing in the city and rural (p=0.430). Yet a significant difference was computed in PASE and GDS scores. (p=0.001; p=0.010).

The relationship of HLBS-II scores with GDS scores in all groups and all participants is shown in Table 4. Among both groups and all participants, there was a moderately significant relationship between the healthy lifestyle behaviors score and depression score ($p<0.05$; r= 0.30-0.60).

In all groups and participants, the relationship between PASE scores and GDS scores is exhibited in Table 5. Among individuals in rural, the relationship between PA scores and depression scores was found to be highly significant (p=0.001; r=0.716), among those living in the city center, not no significant relationship was observed between PA scores and depression scores (p=0.372). In all participants, a moderately significant relationship was measured between PA scores and depression scores (p=0.001; r=0.506).

DISCUSSION

As a results in this current study, comparing sociodemographic features, PA levels, and healthy lifestyle behaviors of elderly individuals residing in the city center and rural we have detected that although sociodemographic features and healthy lifestyle behaviors draw parallelism, there are certain differences between PA levels and GDS scores. Results of our research manifested that except for

Table 3. Comparison of HLBS-II, PASE, and GDS scores between groups

	Rural	City	
	Mean ± SD	Mean ± SD	p Value
HLBS-II	129.45±21.63	133.38±22.62	0.430
PASE	197.06±95.91	105.86±55.91	0.001
GDS	1.75±1.98	2.93±2.34	0.010

Tests: (HLBS-II and PASE: Independent t-test; GDS: Mann-Whitney U test), HLBS-II: Healthy lifestyle behaviors, PASE: Physical Activity Scale for the Elderly, GDS: Geriatric Depression Scale, SD: Standart Deviation, p: Significance level 0.05

education level and smoking habit, no a significant difference was measured in sociodemographic and health-related data of the elderly individuals residing in the city and rural. According to 2018-data from the Turkish Statistical Institute (TSI) on the distribution of education levels, the ratio of elementary school graduates is (21.07%), middle school graduates are (28.34%), high school graduates is (23.90%), university and master's graduates is (17.70%) (22). In our research, 82.50% of elderly individuals residing in rural were elementary school graduates while in the city, 60% of elderly individuals were elementary school graduates. In our research the reason for detecting higher numbers of elementary school graduates than TSI ratios could be related to the old age of participants and limited means to access education in the past; particularly speaking, the lowness of education level in rural groups forms a significant difference between two groups (p=0.006).

In 2006-dated research from Ersoy and Çıtak Akbulut's nutrition and PA status of individuals above 65 from three different socioeconomic levels were analyzed and a higher socioeconomic level was associated with education level, financial means, and conditions of the physical environment. One frequently-cited regular PA was "walking" and it was identified that as the socio-economic level escalated ratio of walking lowered (23). Likewise, in this current study evidenced that in the city centers where the education level was significantly higher, conversely, physical activity was significantly lower. People living in rural areas have many environmental factors that make it necessary or easier for them to do more PA in daily life due to their living spaces and cultural habits. On the other hand, elderly people living in cities may have difficulty in doing PA due to many factors such as crowded population, transportation problems, and limited areas for PA. The fact that the elderly with higher education levels preferred to live in cities in our study may cause a decrease in the level of PA due to the increase in the level of education in our study.

In this current study, smoking habit in the rural group was 5% and in the city center group, this ratio was measured as 32.50%. It is common knowledge that the life quality of smokers is low and depressive symptoms are more widespread than non-smokers. It has also been reported that there is lower physical activity and increased alcohol consumption (24-27). Olgun et al. reported the ratio of smoking habits among older people as (54.7%) (28). In another research, Bayık et al. (29) detected a smoking ratio of (35.60%). In this current study smoking ratio of the group residing in the city center was in parallel with similar literature studies and the rural smoking ratio was lower than the ratio in cities and a significant difference exists between the two groups (p=0.002). In this current study supports the idea that physical activity is lower among smoking elderly individuals and depressive symptoms are more widespread. The lower level of PA in smokers may be associated with more common depressive feelings and smoking-related health problems in smokers.

In the studies conducted by Kulakçı et al. (30) and Polat et al. (31) in elderly individuals, the mean HPLP scores were reported as 123.74 and (127.33), respectively. In this current study mean scores of healthy lifestyle behaviors (HLBS) were identical to these researches and it was measured respectively as (133.38) and (129.45) for residents of the city and rural. Sohng et al. (32) detected that among elderly individuals, education level plays a role in HLBS scores. Owens (33) in his research also reported that among elderly people a significant relationship prevailed between education level and healthy lifestyle behaviors. In this current study, although a significant difference persisted in the education level of elderly individuals residing in rural and city centers, there was not any significant difference in HLBS scores. Kulakçı et al. (30) in a literature review and their research identified that HLBS among old people

Table 4. Relationship of healthy lifestyle behaviors with depression in two groups

	Rural (n=40) GDS	City(n=40) GDS	All participants(n=80) GDS
	r; p	r; p	r; p
HLBS-II	-0.518; 0.001	-0.343; 0.030	-0.397; 0.001

Test: Spearman's correlation test, HLBS-II: Healthy lifestyle behaviors, GDS: Geriatric Depression Scale, r: Spearman's Correlation Coefficient, p: Significance level 0.05

Table 5. Relationship of physical activity level with depression in two groups

	Rural (n=40) GDS	City(n=40) GDS	All participants (n=80) GDS
	r; p	r; p	r; p
PASE	-0.716; 0.001	-0.145; 0.372	-0.506; 0.001

Test: Spearman's correlation test, PASE: Physical Activity Scale for the Elderly, GDS: Geriatric Depression Scale, r: Spearman's Correlation Coefficient, p: Significance level 0.05

was affected by a wide range of factors such as "age, education, presence of a chronic disease, health perception, knowledge on chronic disease/diseases, believing to have sufficient information on their chronic disease/diseases, positive views for the old-age period and residential place of the elderly people". Although in our research no significant difference was detected in chronic disease and mean age of elderly individuals living in the city and rural, findings of our research support the result finding that the residential place of the elderly people plays a role in HLBS.

In later stages of life PA is an absolute must not only to achieve healthy aging and functional independence but at the same, it helps prevent chronic diseases (34). In Turkey, we consider that in general individuals residing in rural perform more PA. Nevertheless, it is reported that among elderly individuals in rural, there is comparatively less PA - particularly in leisure time activities- and this finding is associated with limited access to entertainment activities in rural, social isolation, lower education and income level, an environmental plan that restricts physical activity and climatic challenges (35, 36). On the other hand, Arnadottir et al. (37) research discovered that among geriatric individuals living in rural and city centers, mean PASE scores were respectively (103) and (111) and between both groups, there was not a significant difference and PASE score was reported to have no relationship with residential place. Similar to Arnadottir et al.'s research, mean PASE scores in the city center were similar (105.86) but for rural, this score was higher (197.06) and there was a significant difference (p=0.001). In our research, the findings indicating the effect of residential places on PA scores were in favor of rural.

The most common mental disorders among elderly individuals are old-age depression and dementia (12). As the depression level of elderly individuals falls, life quality climbs higher (38). WHO reports that the average prevalence of depression is 2-3% among elderly individuals within society and among residents of nursing homes and retirement homes the ratio is 10% (12). In a Turkey-based research, depression prevalence among 65–74 and above 75 aged people living in nursing homes and care homes were reported alternately as 68.9% and 81.8%, 31.1%, and 18.2% (39). In Mikami et al.'s (40) research among geriatric individuals living in metropolises, the mean GDS-15 score was reported as 3.5. In Wang et al.'s (41) research among elderly individuals living in rural participants were categorized into two groups and their pre-research GDS-15 mean scores were respectively reported as 2.4 and 4.9. In our research GDS-15 mean scores were computed respectively as 2.93 and 1.75 for the city center and rural. Similar to this current study in the analysis of Arnadottir et al. (37) to compare individuals living in the city and rural GDS-30 (long form) was harnessed and it was determined that among the dwellers of the city center, the mean score was 5.6 while the mean score was higher (8.1) among rural dwellers and that was a statistically significant difference. In the same vein research by Disu et al. (42) evidenced that living in rural was one of the risk factors for geriatric depression. In contrast to these findings, our research

has put forth that among elderly individuals residing in rural, depression score was significantly lower.

Adopting a healthy lifestyle leads to a decrease in depression risk (43). Research by Lyu et al. (44) manifested that among elderly individuals, a high score in two or more of the healthy living factors was interrelated with lower depression risk. Hua et al. (45) in their analysis of elderly individuals in the city detected that self-actualization, good dietary habits, and regular PA, as well as similar healthy lifestyle behaviors, were connected with fewer depression signs. In the relevant literature, we could not come across another research in which the effects of healthy lifestyle behaviors among elderly individuals residing in the city and rural on their depression levels have been examined. Similar to relevant literature, in our research, there was a strongly significant relationship between healthy lifestyle behaviors and depression among elderly individuals in the city and rural and among all participants.

Regular PA enables a fall in depression or depression symptoms (46, 13). It has been suggested that the positive effect of physical activity on depression could be related to the changes created in endorphin and monoamine levels or bound to certain physiological effects such as lowering the stress hormone, cortisol, which could lead to an improvement in the psychological state of the patients (47). In an abundance of studies where the relationship between PA and depression is explored, it has been reported that PA and depression are connected (48-50). In this current study, there was a meaningful relationship between the level of PA and the depression score of all participants, but no meaningful relationship was found in the individuals living in the city.

In this current study, revealing the PA levels and healthy lifestyle behaviors of urban and rural individuals constitutes the strength of in this current study.

There are some limitations in this study. Firstly, some factors that may affect the level of depression were not investigated further. Also the relationship between PA and healthy living behaviors was not examined with advanced statistical methods.

CONCLUSION

According to this current study, there were no differences in the healthy lifestyle behaviors of elderly individuals in urban and rural areas of Turkey. Regardless of where it began, it has been found that those who live a healthy lifestyle have a lower risk of depression.

Physical exercise is higher in elderly persons in rural Turkey than among those in urban areas. The number of physical activities in rural areas and depression scores were related in our study, and the risk of depression was minimized, and no such connection was identified in the city. We believe that the presence of various factors in the city (such as cigarettes, which had a greater rate of smoking in the urban population in this current study) may have obliterated this relation. Older persons living in the city center may be at a risk for depression due to a lack of PA.

These findings lead us to believe that the settlement should be addressed while developing a healthcare policy that safeguards the elderly. To improve PA, possibilities for older city dwellers should be expanded. In terms of depression, while the general population's PA levels may be linked to depression, other criteria may influence the PA level in the urban population. As a result, future research can use these factors to explore the association between PA and depression levels, and preventive health measures can be devised based on where people live.

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REFERENCES

1. Türkiye İstatistik Kurumu (2018). Türkiye İstatistik Kurumu Haber Bülteni, Nüfus Projeksiyonları, 2018-2080, Sayı:30567.

2. Bahar G, Bahar A, Savaş HA. Yaşlılık ve yaşlılara sunulan sosyal hizmetler. Fırat Sağlık Hizmetleri Dergisi 2009;4:86-98.
3. Arslantaş H, Ergin F. 50–65 Yaş arasındaki bireylerde yalnızlık, depresyon, sosyal destek ve etki eden faktörler. Türk Geriatri Dergisi 2011;14:135-44.
4. Samancıoglu S, Karadakovan A. Yaşlı sağlığının korunması ve geliştirilmesi. Fırat Sağlık Hizmetleri Dergisi 2010;5:126-41.
5. Seviğ Ü. Sağlıklı yaşlanma için temel sağlık alışkanlıklarının incelenmesi. Sağlıklı Yaşlanma Sempozyum Kitabı, Başbakanlık-SHÇEK Basımevi, Ankara;1992.s.149-151.
6. Aksüllü N, Doğan S. Huzurevinde ve evde yaşayan yaşlılarda algılanan sosyal destek etkenleri ile depresyon arasındaki ilişki. Anadolu Psikiyatri Dergisi 2004;5:76-84.
7. Lee TW, Ko IS, Lee KJ. Health promotion behaviors and quality of life among community-dwelling elderly in Korea: A cross-sectional survey. Int J Nurs Stud 2006;43:293-300.
8. Etnier JL, Salazar W, Landers DM, Petruzzello S J, Han M, Nowell P. The influence of physical fitness and exercise upon cognitive functioning: A meta-analysis. J Sport Exerc Psychol 1997;19:249-274.
9. Iijima K, Iimuro S, Shinozaki T, et al. Japanese Elderly Diabetes Intervention Trial Investigator Group. Lower physical activity is a strong predictor of cardiovascular events in elderly patients with type 2 diabetes mellitus beyond traditional risk factors: the Japanese Elderly Diabetes Intervention Trial. Geriatr Gerontol Int 2012;12(suppl 1):77-87.
10. Ueshima K, Ishikawa-Takata K, Yorifuji T, et al. Physical activity and mortality risk in the Japanese elderly: a cohort study. Am J Prev Med. 2010;38:410-418.
11.Bulut S. Sağlıkta sosyal bir belirleyici; fiziksel aktivite. Turk Hij Den Biyol Derg 2013;70(4):205-14.
12. World Health Organization. World report on Ageing and Health 2015. Available from: URL: http://apps.who.int/iris/bitstream/handle/10665/186463/9789240694811_eng.pdf, Date of Access: 10.10.2020.
13. American College of Sports Medicine. In: Durstine JL, Moore GE, Painter PL, Roberts SO, eds. ACSM's Exercise management for persons with chronic diseases and disabilities. 3rd ed. Illinois: Human Kinetics. 2009;pp.21-379.
14. Küçükaltan D. Tarım Turizmi ve Türkiye'de Tarım Turizmi İşletmeciliği. II. Turizm Şurası Bildirileri, 12-14 Nisan 2002, Ankara.
15. Uçar M, Çeken H, Ökten Ş. Kırsal Turizm ve Kırsal Kalkınma: Fethiye Örneği, Ankara: Detay Yayıncılık. 2010.
16. Ayvat E. Yaşlılarda fiziksel aktivite ve performansı değerlendiren ölçümlerin karşılaştırılması. Ankara: Hacettepe Üniversitesi Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi. 2011.
17. Walker SN, Sechrist KR, Pender NJ. The healthpromoting lifestyle profile: development and Psychometric characteristics. Nurs Res 1987;36 Suppl 2:76-81.
18. Bahar Z, Beşer A, Gördes N, Ersin F, Kısal A. Sağlıklı yaşam biçimi davranışları ölçeği II'nin geçerlik ve güvenirlik çalışması. Cumhuriyet Üniversitesi Hemşirelik Yüksekokulu Dergisi 2008;12:1-13.
19. Babiarczyk B, Turbiarz A Washburn RA. Body Mass Index in elderly people - do the reference ranges matter? Prog Health Sci 2012;2:58-67.
20. Washburn RA, McAuley E, Katula J, et al. The physical activity scale for the elderly (PASE): evidence for validity. J Clin Epidemiol 1999;52: 643–51.
21. Durmaz B, Soysal P, Ellidokuz H, Işık TA. Geriatrik Depresyon Skalası-15 (Kısa Form)'in Türk Yaşlı Nüfusunda Geçerlik ve Güvenirliği. North Clin Istanb 2018;5(3):216-220.
22. İstatistiklerle Türkiye 2018. Available from: URL: https://biruni.tuik.gov.tr/yayin/views/visitorPages/index.zul, Date of Access: 10.10.2020
23. Ersoy G, Akbulut Çıtak G. Farklı Sosyo Ekonomik Duzeylerde Yaşayan 65 Yaş Üstü Bireylerin Beslenme ve Fiziksel Aktivite Durumlarının Değerlendirilmesi. Beslenme ve Diyet Dergisi 2006;34(1):41-51.
24. Pizzo MR, Matsuo T, Nunes SOV. Clinical characteristics and quality of life of smokers at a referral center for smoking cessation. J Bras Pneumol 2010;36(1):67-74.
25. Dıez JM, Maestu LP, Esteban MM, et al. Relationship Between Tobacco Consumption and Health-related Quality of Life in Adults Living in a Large Metropolitan Area. Lung 2010;188:393–399.
26. Strine TW, Okoro CA, Chapman DP, Balluz LS. Health-related quality of life and health risk behaviors among smokers. Am J Prev Med 2005;28:182–187.
27. Bronnum-Hansen H, Juel K, Davidsen M, Sorensen J. Impact of selected risk factors on quality-adjusted life expectancy in Denmark. Scand J Public Health 2007;35:510–515.

28. Olgun N, Aslan FE, Yücel N, Öntürk ZK, Laçin L. Yaşlıların Sağlık Durumlarının Değerlendirilmesi. Acıbadem Üniversitesi Sağlık Bilimleri Dergisi 2013;4(2),72-78.
29. Bayık A, Özgür G, Altuğ S, et al. Huzurevinde yaşayan yaşlıların fiziksel sağlık sorunları ve hastalıklarına yönelik ilaç kullanma davranışları. Turkish Jornal of Geriatrics 2002;5(2),68-74.
30. Kulakçı H, Kuzlu Ayyıldız T, Emiroğlu ON, Köroğlu E. Huzurevinde Yaşayan Yaşlıların Öz Yeterlilik Algılarının ve Sağlıklı Yaşam Biçimi Davranışlarının Değerlendirilmesi. DEUHYO ED 2012;5(2),53-64
31. Polat Ü, Bayrak Kahraman B. Yaşlı Bireylerin Sağlıklı Yaşam Biçimi Davranışları ve Algılanan Sosyal Destek Arasındaki İlişki. Firat Tip Derg/Fırat Med J 2013;18(4):213-218.
32. Sohng KY, Sohng S, Yeom HA. Healthpromoting behaviors of elderly Korean immigrants in the United States. Public Health Nursing 2002;19 (4),294- 300.
33. Owens L. The relationship of health locus of control, self-efficacy, health literacy, and health promoting behaviors in older adults. The Degree of Doctor of Philosophy, University of Memphis: United States. 2006.
34. Ethisan P, Somrongthong R, Ahmed J, Kumar R, Chapan RS. Factors Related to Physical Activity Among the Elderly Population in Rural Thailand. J Prim Care Community Health 2017;8(2):71-76.
35. Higgs G. Investigating trends in rural health outcomes: aresearch agenda. Geoforum 1999;30:203–21.
36. Pullen C, Walker SN, Fiandt K. Determinants of healthpromoting lifestyle behaviors in rural older women. Fam Community Health 2001;24:49–72.
37. Arnadottir SA, Gunnarsdottir ED, Lundin-Olsson L. Are rural older Icelanders less physically active than those living in urban areas? A population-based study. Scand J Public Health 2009;37(4):409-17.
38. İnel Manav A, Bozdoğan Yeşilot S, Pınar Yeşil Demirci P, Öztunç G. Huzurevinde yaşayan yaşlıların bilişsel işlev düzeyi, depresyon ve yaşam kalitelerinin değerlendirilmesi. Psikiyatri Hemşireliği Dergisi - Journal of Psychiatric Nursing. 2018;9(3):153-160.
39. Demir G, Ünsal A, Gürol Arslan G, Çoban A. Study of prevalence of depressıon among elders living at nursing home and house. Gumushane University Journal of Health Sciences 2013;2(1):1-12.
40. Mikami Y, Watanabe Y, Motokawa K, et al. Association between decrease in frequency of going out and oral function in older adults living in major urban areas. Geriatr Gerontol Int 2019;19(8):792-797.
41. Wang J, Chen CY, Lai LJ, Chen ML, Chen MY. The effectiveness of a community-based health promotion program for rural elders: a quasi-experimental design. Appl Nurs Res 2014; 27(3):181-5.
42. Disu TR, Anne NJ, Griffiths MD, Mamun MA. Risk factors of geriatric depression among elderly Bangladeshi people: A pilot interview study. Asian J Psychiatr 2019;44:163-169.
43. Ruiz-Estigarribia L, Martínez-González MÁ, Díaz-Gutiérrez J, Sánchez-Villegas A, Lahortiga-Ramos F, Bes-Rastrollo M. Lifestyles and the risk of depression in the "Seguimiento Universidad de Navarra" cohort. Eur Psychiatry 2019;61:33-40.
44. Lyu J, Lee SH, Kim HY. Associations between healthy lifestyles and health outcomes among older Koreans. Geriatr Gerontol Int 2016;16(6):663-9.
45. Hua Y, Wang B, Wallen GR, Shao P, Ni C, Hua Q. Health-promoting lifestyles and depression in urban elderly Chinese. PLoS One 2015;10(3):e0117998.
46. Ströhle A. Physical activity, exercise, depressionand anxiety disorders. J Neural Transm. 2009;116(6):777-784.
47. Duclos M, Gouarne C, Bonnemaison D. Acute and chronic effects of exercise on tissue sensitivity to glucocorticoids. J Appl Physiol 2003;94:869–875.
48. Dankel SJ, Loenneke JP, Loprinzi PD. Mild depressive symptoms among Americans in relation to physical activity, current overweight/obesity, and self-reported history of overweight/obesity. International journal of behavioral medicine 2016;23(5):553-560.
49. Mammen, G, Faulkner G. Physical activity and the prevention of depression: a systematic review of prospective studies. American Journal of Preventive Medicine 2013;45(5):649-657.
50. Lök N, Bademli K. Yetişkin bireylerde fiziksel aktivite ve depresyon arasındaki ilişkinin belirlenmesi. Mustafa Kemal Üniversitesi Sosyal Bilimler Enstitüsü Dergisi 2017;14(40):101-110.