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The effects of sports and physical activity on quality of life in elderly individuals taking regular medication

Los efectos del deporte y la actividad física en la calidad de vida de los ancianos que toman medicación con regularidad

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Abstract
In this applied study, the effects of medication use and regular sports and physical activity on quality of life in elderly individuals who regularly use medication were examined. In this study, 4972 people with different demographic characteristics participated in this research and data were collected with a questionnaire method consisting of a 5-point Likert scale. The data obtained were in order to understand the effects of demographic variables on medication use and quality of life. Within the framework of the study, the relationship between demographic factors such as age, gender, educational status, marital status and medication use, medication recommendation and the number of medications used analysed in detail. After statistical analyses using ANOVA and Chi-square analyses, it found that medication use differed especially according to age and marital status, while medication recommendation was significantly related to gender, educational status and marital status. In terms of other findings, in addition to demographic factors, regular physical activity and sports positive effects on medication use. It was also determined that the number of medication used was significantly related to loneliness and feeling of helplessness. It also found that the feeling of loneliness and medication use pattern were in a significant relationship in individuals engaged in sports and physical activity. In addition, it was found that there was a significant relationship between medication intake and quality of life in individuals engaged in sports and physical activity. After this study, it has been revealed that it is a very important source to understand the relationship between medication use and quality of life in elderly individuals who do sports and physical activity and the importance of encouraging elderly individuals to do more physical activity.
Keywords: elderly individuals; medication usage; sport and physical activity; quality of life; demographic variables

Resumen
En este estudio aplicado, se examinaron los efectos del uso de medicación y de la práctica regular de deporte y actividad física sobre la calidad de vida en personas mayores que toman medicación regularmente. En este estudio participaron 4972 personas con diferentes características demográficas y los datos se recogieron con un método de cuestionario consistente en una escala Likert de 5 puntos. Los datos obtenidos tenían por objeto conocer los efectos de las variables demográficas sobre el consumo de medicamentos y la calidad de vida. En el marco del estudio, se analizó detalladamente la relación entre factores demográficos como la edad, el sexo, el nivel educativo, el estado civil y el consumo de drogas, la recomendación de drogas y el número de drogas consumidas. Tras los análisis estadísticos realizados mediante ANOVA y análisis Chi-cuadrado, se constató que el consumo de drogas difería especialmente en función de la edad y el estado civil, mientras que la recomendación de drogas estaba significativamente relacionada con el sexo, el nivel educativo y el estado civil. En cuanto a otros resultados, además de los factores demográficos, la actividad física regular y el deporte tuvieron efectos positivos sobre el consumo de drogas. También se determinó que el número de medicamentos utilizados estaba significativamente relacionado con la soledad y el sentimiento de impotencia. También se comprobó que el sentimiento de soledad y el patrón de uso de medicación tenían una relación significativa en los individuos que practicaban deporte y actividad física. Además, se descubrió que existía una relación

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significativa entre el consumo de medicación y la calidad de vida en individuos que practicaban deporte y actividad física. Después de este estudio, se ha revelado que es una fuente muy importante para comprender la relación entre el uso de medicamentos y la calidad de vida en los individuos de edad avanzada que hacen deporte y actividad física y la importancia de animar a los individuos de edad avanzada a hacer más actividad física.
Palabras clave: individuos mayores; uso de medicamentos; deporte y actividad física; calidad de vida; variables demográficas

Introduction

Today, the elderly population and life expectancy are increasing rapidly. While the number of people aged 65 and over was 727 million in 2020, this number is expected to increase to 1.5 billion by 2050 (Navaneetham & Arunachalam, 2023). Especially in elderly individuals, there is a decline in physical and mental functions (Gray et al., 2021). This process brings about biopsychosocial changes that affect the quality of life of the elderly (Shang et al., 2022).

In Turkey, according to the TurkStat report, the population aged 65 and over increased by 22.5% from 6.5 million in 2015 to 7.95 million in 2020. Its proportion in the total population increased from 8.2% in 2015 to 9.5% in 2020 (TurkStat, 2020). With ageing, functional losses occur in skeletal-muscular and cardiovascular systems (Gustafsson & Ulfhake, 2024). These changes can reduce the quality of life of individuals by affecting their physical activity levels (Erdem et al., 2021).

Physical activity plays a critical role for older individuals to lead a healthy life (Szychowska & Drygas, 2022). According to the World Health Organisation (WHO, 2021), physical activity includes all movements performed within the scope of daily movements, walking for transport or work (Prince et al., 2022). Physical activity can also improve quality of life by interacting with other lifestyle components (Liu et al., 2024). Studies in the literature show that physical activity improves cardiovascular function and reduces the effects of chronic diseases in older adults (El Assar et al., 2022).

However, despite strong scientific evidence, only 26% of older adults are reported to perform physical activity at the recommended level (Meredith et al., 2023). Inadequate physical activity negatively affects the ability of older adults to fulfil activities of daily living and their overall quality of life (Izquierdo et al., 2021). Physical activity improves

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physical function, mobility and psychological health in older adults with multimorbidity (Bricca et al., 2020).

Medication use is also a critical issue for the elderly population. Medication use increases due to diseases that occur with the aging process, and this sometimes leads to polypharmacy (use of more than one drug) (Mert, 2024). Yetişgin and Satış (2019) stated that individuals who do regular sports or walking consume less antibiotics and other drugs. However, physical activity is known to reduce polypharmacy and provide a better quality of life in older individuals (de Souza et al., 2023).

Physical activity improves the mental health of older individuals, supports social participation and increases overall well-being (Liu et al., 2022). It is stated that regular physical activity is important for the protection of mental health, cognitive function and psychosocial well-being (Kwok et al., 2021). Studies show that regular physical activity improves the quality of life by increasing the health status and functionality of older adults (Tsekoura, 2021).

In general, physical activity is the cornerstone of a healthy lifestyle in older adults and plays a critical role in preventing chronic diseases and improving quality of life (Chodzko-Zajko et al., 2009). Promoting regular physical activity is very important for improving the quality of life of elderly individuals (Baldelli et al., 2021). Properly planned exercise programmes can support the healthy aging process of older individuals and reduce the need for medication (Herbert, 2022). One of the most important health strategies for the elderly is to make physical activity a lifestyle with an appropriate exercise plan (Benlidayı, 2022).

Materials and methods

This study was designed as a cross-sectional study examining the effects of regular medication use, sports and physical activity on quality of life in elderly individuals. This study was conducted on individuals living in 9 cities (Ankara, İstanbul, Elazığ, Antalya, İzmir, Bursa, Van, Trabzon and Samsun) selected from different geographical regions of Turkey. These cities were preferred for sampling because they are the regions where elderly care homes and university hospitals are concentrated.

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A total of 4,972 individuals aged 65 years and over participated in the study. The following criteria were taken into consideration in the selection of the participants. These criteria are;

- **Inclusion criteria**
  - ✓ Being 65 years of age or older
  - ✓ To have used at least one prescription drug in the last year,
  - ✓ Body mass index (BMI) between 18.5-30 (extremely thin and obese individuals are excluded)
  - ✓ Regular physical activity for at least 6 months (for example, 30 minutes of walking, swimming or light exercise at least 3 days a week)
- **Exclusion criteria**
  - ✓ Severe cognitive impairment or dementia (Mini Mental Test result ≤ 23)
  - ✓ Severe cardiovascular, neurological or psychiatric illness
  - ✓ Having an orthopaedic disability that prevents physical activity

Informed consent was obtained from all participants. The research was carried out with the approval of the board of directors of the relevant Fırat University, Faculty of Sports Sciences, numbered E2015899992-100-442997 and dated 14.02.2024.

Data collection method

Within the scope of the research, data were collected by face-to-face questionnaire method. The questionnaires applied on the participants were administered by health professionals and trained researchers. The research was carried out under the control of physicians specialised in public health. This study lasted a total of 9 months. The stages of data collection were as follows.

1. **Pretest:** In order to evaluate the reliability of the measurement tool, a pretest was conducted with 129 people from different demographic groups and the Cronbach's Alpha reliability coefficient of the questionnaire was calculated as 0.892.
2. **Main data collection:** After the pre-test, the questionnaire was administered to 4,972 participants and the final reliability coefficient was 0.975.
3. **Data coding and analysis:** The survey data were analysed using SPSS 22.0 software.

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Measurement tools

The data collection tool used in the study consists of three main sections:

1. **Demographic information:** Information such as age, gender, education level, marital status and income status of the participants were collected.
2. **Drug use habits:** The frequency of prescription drug use, how they obtained the drugs and the symptoms they felt about drug use were questioned.

Quality of life and physical activity level

- ✓ **Quality of life:** WHOQOL-BREF quality of life scale developed by the World Health Organisation (WHO) was used.
- ✓ **Physical activity:** The physical activity levels of the participants were evaluated using the International Physical Activity Questionnaire (IPAQ).

Statistical analysis

The following statistical methods were used to analyse the data. These methods are;

- **Descriptive statistics:** Mean, standard deviation, frequency and percentage distributions were calculated.
- **Independent variable tests:** Chi-Square test, ANOVA and Kruskal-Wallis test were applied to determine the effects of demographic variables on drug use and quality of life.
- **Pairwise comparisons:** Mann-Whitney U test was used to examine the differences between variables such as marital status and gender.
- **Multivariate analysis:** Multiple regression analyses were performed to detail the relationships between demographic variables and quality of life.

The significance level was accepted as $p<0.05$ in all statistical tests.

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Table 1. Characteristics of groups

		N
1. Your Age	65-69	2001
	70-74	2114
	75+	857
2. Your Gender	Woman	3274
	Male	1698
3. Your Education Status	Illiterate	1074
	Reader Author	1207
	Secondary Education	930
	High School	617
	College/University	1144
4. Your Marital Status	Married	1453
	Single	895
	Divorced	1087
	Widow	1188
	Living separately	349
5. Who do you live with now	Alone	1809
	With my wife	1136
	With my children	1457
	Care home	130
	Other	440
6. Do you have a regular monthly income?	Yes there is	3870
	No there is not	1102

When the relationship between demographic variables and quality of life variable is analysed, it is seen that quality of life scale differs according to some variables. These variables were determined to be age, gender, educational status and marital status, respectively.

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Table 2. Demographic variables according to the number of medications used

Variables		Number of Medications Used				Anova	
		1	2	3	4+	F	Sig
Age	65-69	762	642	300	297	9,28	0,000
	70-74	387	622	601	504		
	75+	328	83	245	201		
Gender	Woman	1013	642	978	641	6,57	0,000
	Male	287	275	527	609		
Education	Illiterate	256	114	302	402	7,48	0,000
	Reader Author	184	234	293	496		
	Secondary Education	183	240	130	377		
	High School	228	121	146	122		
	College/University	397	244	265	238		
Marital Status	Married	295	369	238	551	12,83	0,000
	Single	301	214	313	67		
	Divorced	265	267	214	341		
	Widow	263	340	270	315		
	Living separately	92	28	117	112		

Results are based on two-sided tests assuming equal variances with significance level 0.05. For each significant pair, the key of the smaller category appears under the category with larger mean.

Age groups

- **Age groups** are divided as 65-69, 70-74 and 75+. As a result of ANOVA $F=9.28$ $p=0.000$. This that there is a significant relationship between age groups and number of medications.
- While those in the **65-69 age** group mostly use 1 or 2 medications, we observe that the use of 2 medications increased in the **70-74 age** group. In the **75+ age** group, the use of 1 medication decreased, while use of 3 and 4+ medications increased. We observe that the number of medications used increases with increasing age

Gender

- A significant difference was found between **men** and women in terms of the number of medications used ($F=6.57$ and p=0.000).
- The rates of use of 1 and 3 medications are higher among women than men. Similarly, the use of 4+ medication is higher among men than women. This situation that men tend to use more number of medications.

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Education status

- There is also a significant relationship between educational status and the number of medications used (*F=7*.48 and p=0.000p= 0.000).
- The use of 4+ medications is quite remarkable among **illiterate** and **literate people**. People with higher education use fewer medications. Especially college and university graduates generally use fewer medications. This shows that the level of education increases health awareness. In some physical and chronic diseases, it is shown that physical activity and sports provide improvement especially in rheumatic diseases

Marital status

- Marital status also has a significant effect on medication use (*F=12*.83 and p=0.000).
- While **married individuals** tend to use 4+ medication, the use of medication decreases to 3 in **single** individuals. Widowed and divorced individuals use more medication. The use of 4+ medication is at the lowest level in separated individuals. It is shown that marital status may affect the amount of medication use with its effect on social support and lifestyle. In addition, it also found that the number of medication use decreased in single and single individuals who engaged in physical and sportive activities

When the Anova results of Table 2 are analysed, it is seen that there is a significant relationship between demographic variables (age, gender, educational status, marital status) and the number of medications used. The rate of medication utilisation increases with increasing age and decreasing education level. Marital status also changes in the amount of medication use

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Table 3. Findings according to life quality

		Quality of Life				Chi Square	
		VERY BAD	BAD	GOOD	VERY GOOD		
		Count	Count	Count	Count	p	Value
1. Your Age	65-69	374	249	498	125	0,000	40,739
	70-74	437	291	582	146		
	75+	681	454	908	227		
2. Your Gender	Woman	705	470	940	235	0,016	10,318
	Male	787	524	1049	262		
3. Your Education Status	Illiterate	137	91	182	46	0,000	88,479
	Reader Author	330	220	440	110		
	Secondary Education	537	358	716	179		
	High School	452	301	603	151		
	College/University	36	24	48	12		
4. Your Marital Status	Married	884	589	1178	295	0,000	91,014
	Single	377	251	502	126		
	Divorced	105	70	140	35		
	Widow	120	80	160	40		
	Living separately	6	4	8	2		
6. Do you have a regular monthly income?	Yes there is	1161	774	1548	387	0,856	,773
	No there is not	331	220	441	110		

1. **Age**: There is a significant relationship between age groups and quality of life (p= 0.000). It shows that while people in the 65-69 age group mostly evaluate the quality of life as "good", "bad" and "very bad" evaluations are more common in the 75+ age group. Therefore, quality of life tends to decrease with increasing age.

2. **Gender**: Gender has a significant effect on quality of life (p=0.016). While "very good" and good" ratings were higher among women, poor" or very poor" ratings of quality of life were higher among men.

3. **Education status**: A strong correlation was found between educational status and quality of life (p=0.000). The higher the level of education the better the quality of life assessment. While "very good" and "good" evaluations are high among college/university graduates, illiterate people mostly see the quality of life as "bad" or very bad".

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4. **Marital status**: Marital status has a significant effect on quality of life (p=0.000). While married individuals evaluate their quality of life more positively, it shows that low quality of life evaluations are common in widowed or divorced individuals.

5. **Monthly regular income**: Regular monthly income had no significant effect on quality of life assessment (p=0.856). This that having a regular income does not significantly affect the perception of quality of life.

According to Table 3, factors such as age, gender, educational status and marital status have a significant effect on quality of life assessment, while the presence of regular income does not have a significant effect on quality of life. These findings important information on how demographic characteristics may affect the perception of quality of life.

Table 4. Relationship between demographical values and medication usage

		Sum of Squares	df	Mean Square	F	Sig.
1. Your Age	Between Groups	12,805	1	12,805	29,528	,000
	Within Groups	734,165	1693	,434		
	Total	746,970	1694			
2. Your Gender	Between Groups	,021	1	,021	,091	,763
	Within Groups	384,306	1693	,227		
	Total	384,327	1694			
3. Your Education Status	Between Groups	,027	1	,027	,023	,880
	Within Groups	2006,607	1693	1,185		
	Total	2006,634	1694			
4. Your Marital Status	Between Groups	12,102	1	12,102	6,275	,012
	Within Groups	3264,827	1693	1,928		
	Total	3276,929	1694			
6. Do you have a regular monthly income?	Between Groups	,090	1	,090	,809	,368
	Within Groups	189,128	1693	,112		
	Total	189,219	1694			

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1. **Age**: Age variable has a significant effect on medication use (*F=29*,528, p=0,000). A significant difference was found between age groups in terms of medication use. This that age has an effect on the frequency of medication use.
2. **Gender**: Gender has no significant effect on medication use (*F=0*.091, p=0.763). This result that gender does not significantly affect the rates of medication use.
3. **Education status**: There is no significant relationship between educational status and medication use (*F=0*.023, p=0.880). Education level does not have a significant effect on the frequency of medication use.
4. **Marital status**: Marital status has a significant effect on medication use (*F=* 6,275, p=0,012). This that marital status such as being married, single, divorced or widowed may affect the frequency of medication use.
5. **Monthly regular income**: There is no significant relationship between having a regular monthly income and medication use (*F=0*.809, p=0.368). Having a regular income does not significantly affect the rates of medication use.

According to Table 4, age and marital status have a significant effect on medication use, while gender, educational status and regular income have no significant relationship with medication use. This important information on how certain demographic factors may affect medication use habits.

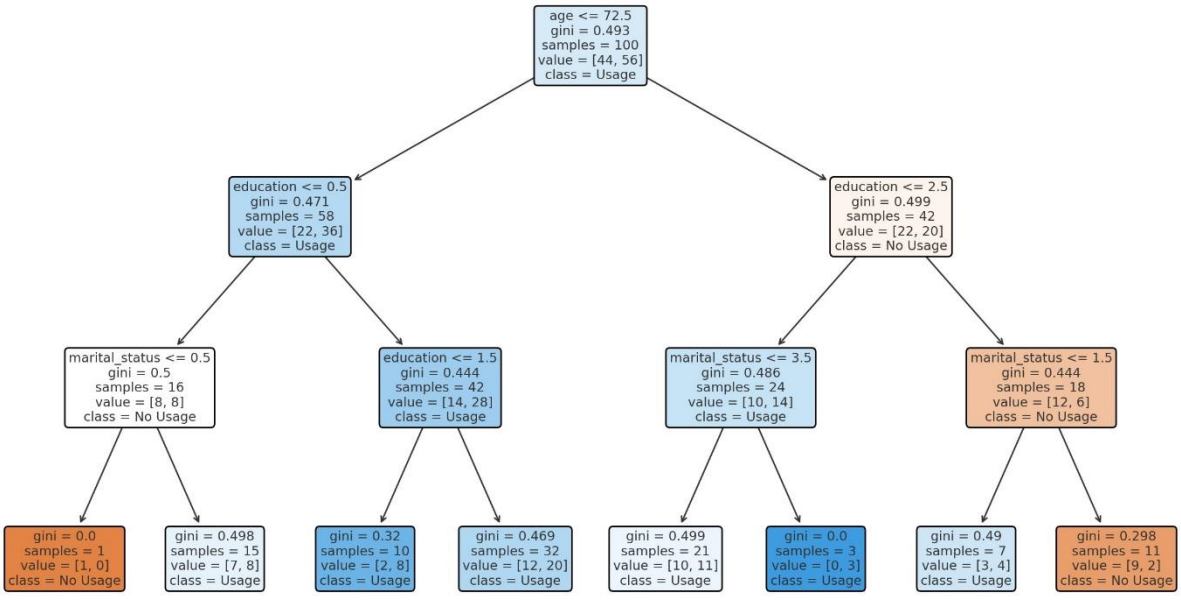

Figure 1. Factor tree

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Table 5. Comparison of means - Independent samples t-test

		Number of medications used (average)			
		1	2	3	4+
		(A)	(B)	(C)	(D)
1. Your Age	65-69	C D			
	70-74			A B	A B
	75+		A C		A
2. Your Gender	Woman		A	A	A
	Male	B C D			
3. Your Education Status	Illiterate			B	B
	Reader Author	D			
	Secondary Education				
	High School				
	College/University		A C D		
4. Your Marital Status	Married	B D		B D	
	Single	.a	C D	D	
	Divorced	.a	.a		
	Widow		C		A C
	Living separately	.a	.a		

1. **Age**:
   - Higher levels of medication use (C and D) are generally observed in the **65-69 age** group.
   - Lower levels (A and B) predominate in the **70-74 age** group.
   - In the **75+ age** group, moderate (A and C) medication use is common.
2. **Gender**:
   - **Women** were generally associated with lower levels of medication use (category A).
   - Among **men**, high rates of medication use (B, C, D) are more common.
3. **Education status**:
   - Individuals **who are illiterate** and have a low level of education tend to use a higher number of medications (category B).
   - **College/university graduates** were generally associated with lower medication use (A, C, D).

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4. **Marital status**:
   - **Married individuals** generally in the intermediate medication use levels (B and D),
   - **Single and widowed individuals** had higher levels of medication use (C and D).
   - Levels of medication use among **those living separately** were not reported (marked with ".a").

Table 5 that demographic variables may affect the number of medication use and that age, gender, educational status and marital status show a significant distribution on the amount of medication used.

Table 6. Relationship between medication usage, recommendation and number values and feeling alone and desperate

		Mean Rank	Chi-square	Asymp. Sig.
1. Medication use	Yes	849,73	,261	,609
	No.	846,52		
	Total			
2. Medication recommendation	Yes	851,44	,628	,428
	No.	845,07		
	Total			
3. Number of Medication	Yes	857,26	4,076	,009
	No.	840,11		
	Total			

1. **Medication use:** There was no relationship between and feelings of loneliness and hopelessness (p=0.609). No significant difference was observed between users and non-users in terms of feelings of loneliness and hopelessness.
2. **Medication recommendation:** Significant relationship between giving medication advice and feeling of loneliness and hopelessness (p=0,428). There is no significant difference between individuals who recommend and those who do not recommend in terms of feeling of loneliness.
3. **Number of medication:** There is a significant relationship between the number of medication used and feelings of loneliness and hopelessness (p=0.009). Individuals who use more medication seem to be more likely to experience loneliness and hopelessness.

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Table 6 shows only the number of medication has a significant effect on loneliness and feeling of hopelessness. The behaviour of or giving advice does not show a relationship with loneliness and feeling of hopelessness.

Table 7. Relationship between medication usage, recommendation and life quality

		Sum of Squares	Mean Square	F	Sig.
1. Medication use	Between Groups	,807	,090	3,949	,000
	Within Groups	38,249	,023		
	Total	39,056			
2. Medication recommendation	Between Groups	4,211	,468	13,110	,000
	Within Groups	60,141	,036		
	Total	64,352			
3. Number of Medication	Between Groups	1,884	,209	3,789	,000
	Within Groups	93,097	,055		
	Total	94,982			

1. **Medication use:** There is a relationship between and quality of life *(F=3*,949p=0,000). Medication significantly affects the quality of life assessment of individuals.
2. **Medication recommendation:** A strong relationship between giving medication advice and quality of life (F=13,110, p=0,000). The quality of life assessment individuals who give advice shows a difference compared to those who do not give medication advice.
3. **Number of medication:** There is a significant relationship between the number of medication used and quality of life (*F=3*,789, p=0,000). The number of stands out as an effective factor on the quality of life of individuals.

Table 7 that medication use, giving medication advice and number of medications have a significant effect on quality of life. These findings that medication use and giving advice behaviour may significantly affect individuals' perception of quality of life.

Discussion

In the 1970s, the elderly population accounted for about 4 per cent of Turkey's population, and by 2023 this proportion has increased to 10 per cent. Coping methods for the factors accompanying ageing have become increasingly important (Kerry, 2015). Therefore, exercise is needed to stay healthy and improve quality of life in old age

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because exercise protects the elderly from diseases and improves quality of life (Soyuer & Soyuer, 2008).

With ageing, health problems increase and medication use becomes widespread. Regular physical exercise can improve the quality of life in elderly individuals, reduce dependence on medication and can be considered as a "medication prescription". In the literature, studies showing that physical activity improves organic functions, slows down physical degeneration and supports the independence of the elderly are frequently encountered. These studies emphasise the critical role of physical activity in improving health quality in old age (de Siqueira Rodrigues et al., 2010). Wei et al. (2022) reported that physical exercise has positive effects on quality of life in older adults to varying degrees. Khalid et al. (2020) found that older adults who participated in 15-25 minutes of daily physical activity had a better quality of life compared to those who did not exercise.

Duran et al. (2022) showed that the lowest physical activity and low quality of life levels of the elderly age group were associated with the highest level of fatigue. They emphasised that exercise is the most important and effective way to prevent the decrease in physical activity and quality of life and to reduce the feeling of fatigue.

Ahmad et al. (2023) showed that various exercises, including water sports, aerobics, yoga and muscle strengthening exercises, improve the physical and mental health of the elderly

De Oliveira et al. (2019) stated that physical activity is a protective factor against anxiety and depression in the elderly. In the study conducted by Lai et al. (2005) on the effect of physical exercise on quality of life, it was stated that physical activity has a strong effect on the physical health domain and thus on quality of life levels.

The growing interest in the relationship between exercise and health quality of life scale (HRQOL) in older adults over the last decade is reflected in a study showing that a moderate level of PA combining multitasking exercise components has a positive effect on activities of daily living (Roberts et al., 2017). Physical activity (PA) improves the quality of life of older adults by improving their health in physical, mental and social domains and promotes healthy ageing (Islas-Cruz, 2021).

In a study by Guallar-Castillón et al. (2004) examining the effect of physical activity (PA) on the quality of life of the elderly, it was concluded that the higher the

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physical activity performed in leisure time, the higher the Health Related Quality of Life (HRQL reported by the elderly (Guallar-Castillón et al., 2004).

As the proportion of older adults making up the world's population increases rapidly, so does the patient's medical complexity and the number of medications prescribed to treat disease states and/or symptoms (Barnett et al., 2012). Many people benefit from medications through improved quality of life and/or increased longevity (Thompson & McDonald, 2024).

Çankaya et al. (2019) stated that drug use in the elderly did not cause a significant change in physical fitness, balance, quality of life and flexibility. The study showed that elderly people who use medication with appropriate prescription may be at a similar level to those who do not use medication in terms of physical fitness and quality of life. In multiple medication use, it was emphasised that the selection of type and dose by specialist physicians preserved this balance. Mhatre and Sansgiry (2016) reported that the use of over-the-counter medications may lead to a significant decrease in quality of life. Olsson et al. (2011), study with 140 individuals in Sweden, stated that quality of life increased with appropriate prescribing quality of life decreased as the quality of decreased, in other words, quality was related to the quality of life of patients.

Cleary and Howell (2007) showed that medication use had no effect on perceived health-related quality of life (HRQoL), although participants reported taking fewer prescription medications than the national average for older adults. Matthews et al. (2014) reported that older people in higher socioeconomic status were more likely to maintain physical activity levels, while those in lower socioeconomic status had an increased risk of becoming sedentary or experiencing a decline in physical activity levels. Pavlova et al. (2014) emphasised that exercise in elderly individuals should be determined according to biological age, health status and lifestyle and that exercise monitoring can be performed according to heart rate or power zones.

Denche-Zamorano et al. (2022) reported that women in Spain used 9.6% more than men and that there was a dependence relationship between physical activity and consumption. They emphasised that increasing the level of physical activity can reduce medication use and health expenditures. Similarly, Silva et al. (2012) showed that high physical activity reduced medication use in elderly women. Bertoldi et al. (2006) reported

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that physical activity positively affects medication use behaviour. Ceylan and Çatalbaş (2018) found that lack of exercise, poor nutrition and irregular medication use negatively affect the quality of life in elderly individuals in Turkey. Vina et al. (2012) emphasised that exercise should be considered as a medication due to its role in preventing many diseases, but emphasised the importance of the correct dose. Teraž et al. (2022) stated that physical activity is a determinant of quality of life in the elderly and regular participation provides better health-related quality of life. Li and Li (2022) conducted a longitudinal study that identified physical activity as a protective factor for quality of life in older Chinese adults. The study revealed that participants who maintained an active lifestyle reported higher quality of life scores compared to their sedentary counterparts (Li & Li, 2022). A systematic review by Westman et al. (2019) showed that regular PA was associated with reduced cognitive decline and improved physical performance in older adults. Similarly, a meta-analysis by Thummasorn et al. (2022) found that resistance training significantly improved cognitive functions and muscle strength and contributed to better quality of life.

Medication use increases with age (Özer & Özdemir, 2009). In a study conducted with elderly individuals staying in nursing homes, it was found that the rate of medication use was 94% (Akıcı et al., 2001). In a study conducted to determine the rate of medication use by age group in the USA, it was determined that the elderly group, which constituted 12% of the general population, used 1/4 of the medications in the country (an average of 4-5 medications per day) (Rathore et al., 1998). Chronic diseases increasing with ageing lead to multiple medication use (Yayın & Yayın, 2023). Solmaz and Akın (2009) reported that 46.5% of the elderly used three or more medications in their study. Tokem and Karadakovan (2004) found that 99.7% of the elderly used 2 or more medications. In a study conducted by Taşkın Şayir et al. (2014) on people aged 65 years and over, 69% of the elderly used four or more medications. The incidence of polypharmacy increases with advanced age and varies between countries and is approximately 35-40% in the elderly over the age of 75. In the USA, it has been reported that approximately 40% of elderly people in nursing homes use ≥9 medications at the same time (İncealtın, n.d.).

In our study, there a significant relationship between demographic variables (age, gender, educational status, marital status) and the number of medications used. The rate

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of medication use increases with increasing age and decreasing education level. Marital status also changes in the amount of medication use. In the study of Şahin et al. (2018), a significant difference was found between the medication use behaviours of the participants according to their educational level. It was determined that the medication use behaviours of the participants with associate's / bachelor's degree education level were higher (Şahin et al., 2018). In Zincir et al.'s (2008) study, men had mean quality of life scores than women.

In our study, age, gender, education and marital status were found to significantly affect quality of life, while regular income was not found to be effective. It was determined that the use of was only related to chronic disease the recommendation of and the number of did not affect this situation. The increase in chronic diseases with increasing age leads to problems such as physical inadequacy, cognitive impairment and social isolation (Boris et al., 2024). Baş (2019) found that the quality of life of men was higher than that of women, and the quality of life of the 65-69 age group and university graduates was better. Şen Gündoğan and Eser (2022) stated that the quality of life decreases with increasing age and the difference is especially evident between 65-69 and over 75 years of age. In addition, it has been confirmed by many studies that the increase in income increases the quality of life (Özerdoğan et al., 2018; López-Ortega & Konigsberg, 2020).

In our study, age and marital status had a significant effect on medication use, whereas no relationship was found with gender, educational status and regular income. While gender, education, marital status and regular income affected the number of medications used, age had no effect on this issue. Demographic variables were found to affect the amount and habits of medication use. In addition, in a study conducted in the USA, demographic factors such as income and unemployment were reported to affect quality of life (Tanrıverdi, 2024).

It is thought that the level of education plays a role in negatively affecting the level of knowledge of the society about regular medication use (Bozdemir & Filiz, 2021). Sayın Kasar et al. (2020) reported that 81.5% of older adults used medication continuously in their study. Kızmaz et al. (2020) determined that the prevalence of polypharmacy in older adults was 38.7% in their study. İlhanlı Yaramış and Ulupınar (2021) in their study that

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especially individuals with low education level need more education about RDU. In the study conducted by Arslan et al. (2020), it was determined that the average number of daily medications used in individuals aged 65 years and over was 4.61. Tanrıöver (2017) that the average number of medications used by elderly individuals was 4.5. Beşikçi (2023) found that the level of education had a positive effect on the quality of life in the elderly. Similarly, Tavşanlı Güngör et al. (2013) and Zincir et al. (2008) reported that the total quality of life scores of the elderly with higher education level were higher (30,32). In their study, Tavşanlı Güngör et al. (2013) found that sociodemographic characteristics such as age, gender, social security and education had an effect on quality of life in elderly individuals. Studies have reported that one of the most important problems affecting medication use in the elderly is the low level of education (Christopher et al., 2022).

Our study shows that medication use and number of medications have a significant effect on quality of life. These findings that medication use and advice-giving behaviour may significantly affect individuals' perception of quality of life. Age, gender, educational status, marital status, marital status, social security and economic status were found to be related to quality of life in individuals aged 65 years and overstaying in nursing homes (Stewart et al., 2023). In the study of Sönmez et al. (2007) no significant difference was found between educational status, monthly income, marital status and health insurance and QoL subcomponents (Herd et al., 2007).

In our study, no statistically significant relationship was found in any of the factors evaluating health. This that certain health habits of individuals do not significantly affect their perception of health. It has been found that there are not great differences in the ways of understanding and evaluating health of elderly people born in different geographical regions in Turkey, and that the dimensions of health are handled in a broader or narrower framework within the framework of social characteristics (Fernqvist et al., 2024).

It can be said that this study will be important in terms of increasing knowledge and awareness about the use of medication, regular physical exercise and its effects on quality of life in elderly individuals and providing guidance

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Conclusion

In the study conducted to understand the effects of demographic variables on medication use, regular exercise and quality of life, the relationship between demographic factors such as age, gender, educational status and marital status with medication use, medication recommendation and number of medications used analysed in detail. It was found that the use of differed especially according to and marital status the recommendation of had relationships with gender educational status and marital status. In terms of other findings, in addition to demographic factors, regular physical activity and sports positive effects on medication use. It was also determined that the number of medication used was significantly correlated with the feeling of loneliness and helplessness. It also found that the feeling of loneliness and medication use pattern were significantly correlated with the feeling of loneliness in individuals engaged in sports and physical activity. In addition, it was found that there was a significant relationship between medication intake and quality of life in individuals engaged in sports and physical activity. After this study, it has been revealed that it is a very important source to understand the relationship between medication use and quality of life in elderly individuals who do sports and physical activity and the importance of encouraging elderly individuals to do more physical activity. The results targeted after this study are explained in detail below. These are;

- Drug use increases with increasing age. Polypharmacy is quite common in the 75+ age group.
- Men use more medication than women.
- Drug use decreases as the level of education increases.
- While married individuals use medication more regularly, the rate of polypharmacy is high in widowed and divorced individuals.
- Regular physical activity decreases drug use.
- Polypharmacy rate is lower in individuals who do sports.
- Those who exercise have fewer chronic diseases.
- Quality of life decreases with advancing age.
- Women have a higher quality of life than men.
- As the level of education increases, quality of life increases.
- Married individuals have a higher quality of life than widowed and divorced individuals.

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- Those who do physical activity have a higher quality of life.
- Exercise reduces the feeling of loneliness and helplessness.
- Active individuals feel themselves healthier.
- Overuse of medication decreases quality of life.
- Polypharmacy increases the feeling of loneliness and helplessness.
- Physical activity improves quality of life by reducing the need for medication.
- Regular physical activity reduces the use of medication and improves quality of life.
- Elderly individuals should be encouraged to do sports.

This study analysed in detail the relationship between regular medication use, physical activity and quality of life in elderly individuals. The most important result obtained from the study is that regular physical activity increases the quality of life by reducing the use of medication. For this reason, elderly individuals should be encouraged to engage in physical activity to improve their quality of life. These findings provide important data in terms of developing health policies and encouraging physical activity in elderly individuals.

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