ORIGINAL ARTICLE

SOCIAL EXCLUSION AND MEDICATION ADHERENCE IN THE OLDEST OLD: A CROSS-SECTIONAL STUDY

Turkish Journal of Geriatrics
2025; 28(3):391–402

DOI: 10.29400/tjgeri.2025.455

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Received : Jul 08, 2025
Accepted: Aug 16, 2025

Cite this article as:
Baş KY, Pekgör S, Kızılarslanoğlu MC. Social Exclusion and Medication Adherence in the Oldest Old: A Cross-Sectional Study. Turkish Journal of Geriatrics 2025; 28(3):391–402. doi:10.29400/tjgeri.2025.455

Abstract

Introduction: This study examined the correlation between social exclusion and medication adherence in older adults, identifying key factors influencing these concepts.

Materials and Method: The study was conducted between June 01, 2024, and October 31, 2024, involving face-to-face interviews with 214 individuals aged 80 years and older who volunteered for the survey at Konya City Hospital, "Sağlıklı YAŞAM" (Healthy Aging Center), and geriatrics outpatient clinics. Alongside evaluating sociodemographic characteristics, the Social Exclusion Scale for the Elderly and Modified Morisky Medication Adherence Scale were utilized. Statistical analyses were conducted using the Statistical Package for the Social Sciences program.

Results: The median age of the participants was 84 (80-98) years, with 62.6% being female. Among all participants, 36% (n=77) exhibited low medication adherence knowledge, while 55.1% (n=118) showed low medication adherence motivation. A moderate negative correlation was observed between the Social Exclusion Scale and Modified Morisky Medication Adherence Scale scores ($r=-0.318$; $p<0.001$). In multiple linear regression models, the total Social Exclusion Scale score was independently associated with the presence of friends, education level, physical dependency status, and total Modified Morisky Medication Adherence Scalescore (all $p<0.05$). The total Modified Morisky Medication Adherence Scale score was independently associated with crutches, lung disease, medication administration method, and total Social Exclusion Scale score in the regression models (all $p<0.05$).

Conclusion: This study showed that, as social exclusion increases, medication adherence decreases in older individuals, and an individual's sociodemographic characteristics may influence both social exclusion and medication adherence.

Keywords: Social Isolation; Medication Adherence; Aged.

INTRODUCTION

Aging is a multifaceted stage involving biological, psychological, and social changes experienced in the later years of an individual's life(1). Society's demographic shift towards an aging population has heightened the prevalence of social and health-related challenges among olderindividuals (2). Notably, social exclusion and consequent issues with medication adherence hold substantial importance.

Social exclusion refers to individuals' disconnection from social interactions and societal connections. Conversely, medication adherence pertains to how well an individual adheres to a treatment regimen prescribed by a physician(3,4). Among older individuals, social exclusion may heighten the risk of mental health issues and chronic diseases, while non-adherence to medication regimens can worsen the burden of illness(5,6).

In modern society, social disengagement among older individuals is associated with diverse social, economic, and cultural factors(3). This trend adversely impacts the physical and mental well-being of older adults, resulting in a decrease in their overall quality of life. The interplay between social exclusion and health significantly shapes attitudes toward treatment and compliance with prescribed therapies(7).

This study investigated the correlation between social exclusion and medication adherence in elderly individuals, identifying the primary factors that influence these phenomena.

MATERIALS AND METHOD

Ethical approval for the study was obtained from the Hamidiye Scientific Research Ethics Committee of the University of Health Sciences on March 29, 2024, during meeting no. 2024/4, with decision no. 4/11 and registration no. 24/232. The Education Planning Committee of Konya City Hospital granted permission for the research on February 1, 2024, with decision No. 03-28.

This study utilized a descriptive cross-sectional design. Data were gathered through interviews with individuals aged over 80 years who were admitted to Konya City Hospital's Healthy Aging Center (HAC) and geriatric outpatient clinics (GOC).

HAC outpatient clinics in Türkiye offer scheduled healthcare serviceswhere elderly individuals receive home visits from a physician and gerontologist without prior requests. During these visits, necessary physical examinations, health screenings, and assessments for geriatric syndromes were conducted, and if needed, patients were referred to relevant specialties. The HAC outpatient clinic at Konya City Hospital caters to individuals aged 80 and older in the Karatay district of Konya. The study included individuals aged 80 and above from both the geriatric and HAC outpatient clinics.

The inclusion criteria for the study are as follows:

1.Having presented to the geriatric outpatient clinic for a medical condition.

2. Providing consent to participate in the study.

3. Being 80 years of age or older.

4. An elderly individual who was either visited at home or invited to an outpatient clinic as part of the HAC project.

The exclusion criteria for the study are as follows:

1. Lack of proficiency in Turkish and inability to communicate.

2. Insufficient cognitive capacity to answer the questions.

3. Presence of any physical, neurological, or psychiatric disorder that could impede the completion of the forms.

4. The patient had previously visited the geriatric outpatient clinic as a HAC outpatient or had been

evaluated at the HAC outpatient clinic as a geriatric outpatient.

The sociodemographic and medical characteristics of the participants were assessed. When evaluating the physical dependency status of individuals, the Unk "Katz Activities of Daily Living Scale for the Elderly" was used (8). The Social Exclusion Scale for the Elderly (SESE) assesses the sub-dimensions of material deprivation, informal social support, transportation and financial services, and environmental exclusion (9). The Modified Morisky Medication Adherence Scale (MMAS) measures the patients' motivation and knowledge levels (10).

The SESE

The questionnaire comprised 22 questions. Nine questions (1, 4, 5, 7, 9, 11, 12, 14, and 16) focused on material deprivation, five questions (2, 8, 15, 17, and 19) on informal social support, four questions (6, 13, 20, and 21) on transportation and financial services, and four questions (3, 10, 18, and 22) on environmental exclusion.

The MMAS

It comprises six questions: The questions were answered as Yes/No. "Yes" in questions 2 and 5 is 1 point; "No" is 0 points. For the other questions, "Yes" is 0 points; "No" is 1 point. The patient's motivation was assessed through questions 1, 2, and 6, while questions 3, 4, and 5 aimed to evaluatethe patient's knowledge. A total score of 0 or 1 for questions 1, 2, and 6 indicated low motivation, whereas a score>1 indicated high motivation. Similarly, a total score of 0 or 1 for questions 3, 4, and 5 indicated low knowledge, while a score>1 indicated high knowledge.

Statistical Analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 26.0 (IBM, Armonk, NY, USA). Descriptive statistical methods included frequency (n), percentage (%), mean ± standard error, and min (minimum) – max (maximum) values. Thedistribution of numerical data was investigated using the Kolmogorov–Smirnov normality test, histogram, and skewness kurtosis tests. To compare variables between groups, Chi-square (X2), Mann–Whitney U, independent sample t, and Kruskal–Wallis tests were employed. Correlation analyses utilized Spearman's test, while linear regression analysis models estimated the independent influencing factors for the SESE and MMAS scores. All analyses were conducted with 95% confidence intervals,and statistical significance was defined as $P < 0.05$.

RESULTS

The median age of the participants was 84 years, with 62.6% being female. Among the participants, 56.1% were single. In terms of education, 39.3% were illiterate, while 54.7% had completed primary school. Furthermore, 43.0% of participants resided with their spouses. The majority of individuals had a steady income, and 90.2% used central heating in their homes (Table 1). Of the participants, 47.7% (n=102) were entirely independent, and 59.3% (n=127) utilized a cane as an assistive device. The median number of medications regularly used by the study population was 5, ranging from 0 to 13, with hypertension being the most prevalent chronic condition (75.7%). Our analysis revealed that 65.9% (n=141) of the participants managed their medications independently, while 24.8% (n=53) had their medications administered by family members (Table 1).

When comparing the clinical conditions of participants from outpatient clinics, the SESE's subdimension "Environmental Exclusion" was notably higher in patients who participated in the GOC than in the HAC. Additionally, the subdimension "Medication Adherence Knowledge Level" and the total MMAS score were significantly

Table 1. Distribution of Participants' Sociodemographic Data

Parameters (n=214)		% (n)
Age, years, median (min-max)	84 (80-98)	
Sex	Female	62.6 (134)
Marital status	Married	43.9 (94)
Education status	Not literate	39.3 (84)
	Primary school	54.7 (117)
	Middle school	2.8 (6)
	High school	0.9 (2)
	University	2.3 (5)
Co-habitant	Alone	20.6 (44)
	Spouse	43.0 (92)
	Children	35.0 (75)
	Relative	1.4 (3)
	Nursing Home	0.0 (0)
Having a regular family income	Yes	98.1 (210)
The regular income of the individual	Yes	78.5 (168)
Person using the income (n=168)	Himself	50.6 (85)
	Spouse	4.8 (8)
	Children	44.0 (74)
	Relative	0.0 (0)
	Nursing Home	0.0 (0)
	Carer	0.6 (1)
The heating type of the house you live in	Stove	9.8 (21)
	Central heating	90.2 (193)
Availability of a means of transportation	Yes	10.3 (22)
Debt situation	No	100.0 (214)
Presence of friends	Yes	47.2 (101)
Someone who helps with needs	Neighbor	1.9 (4)
	Children	94.4 (202)
	Relative	3.3 (7)
	Friend	0.5 (1)
	None	0.0 (0)
The presence of someone with whom one can share troubles and sorrows	Yes	97.7 (209)
Level of physical dependence	Dependent	6.1 (13)
	Partially Dependent	46.3 (99)
	Completely Independent	47.7 (102)

Table 1. Continued...

Use of assistive devices	Cane	59.3 (127)
	Crutch	1.4 (3)
	Walker	14.5 (31)
	Hearing aid	22.0 (47)
Number of medications used regularly, median (min-max)	5 (0-13)	
History of chronic disease	Hypertension	75.7 (162)
	Diabetes mellitus	29.0 (62)
	Coronary artery disease	36.0 (77)
	Malignancy	7.5 (16)
	Lung disease	18.2 (39)
	Thyroid disease	10.7 (23)
	Kidney disease	4.7 (10)
	Neurological disease	27.6 (59)
	Prostate disease	38.8 (31)
	Hyperlipidemia	11.7 (25)
	Other chronic diseases	28.5 (61)
How to take your medications	Myself	65.9 (141)
	My spouse	7.9 (17)
	My family	24.8 (53)
	Carer	0.9 (2)
	Nursing home staff	0.0 (0)
	Relative	0.5 (1)
Frequency of application to health institutions	Several times a week	0.5 (1)
	Several times a month	25.2 (54)
	Several times a year	74.3 (159)
The most frequently applied institution type	Emergency room	8.9 (19)
	Family health center	68.7 (147)
	Hospital polyclinics	22. 4 (48)

%: Frequency, Min: minimum, Max: maximum

greater in GOC patients compared to HAC patients. In terms of gender comparison, women exhibited significantly higher scores in the total SESE score and its subdimensions "Material Deprivation" and "Transportation-Financial" compared to men ($p<0.001$, $p=0.009$, and $p<0.001$, respectively) (Table 2).

The total scores achieved by participants on the "Material Deprivation" and "Transportation-Financial" subdimensions of the SESE, as well as the overall SESE score, were significantly lower among illiterate individuals ($p = 0.006$, $p = 0.001$, and $p<0.001$, respectively). When comparing the total and subdimensional scores of the MMAS between

Table 2. Comparison of the Scores on Scales and Subdimensions Based on Gender of Participants

Parameters (n=214)		Male	Female	p*
		Median (min-max)		
SESE Subdimensions	Material Deprivation	16 (9-32)	18 (9-34)	**0.009**
	Transportation-Financial	16 (4-20)	18 (5-20)	**<0.001**
	Environmental Exclusion	4 (4-14)	4 (4-16)	0.919
	Informal SocialSupport	10 (5-21)	11 (5-23)	0.581
Total SESE score		47 (29-84)	51 (24-88)	**<0.001**
MMAS Subdimensions	Medication Adherence Motivation	1 (0-3)	1 (0-3)	0.304
	Medication Adherence Knowledge Level	2 (0-3)	2 (0-3)	0.719
Total MMAS score		3 (0-6)	3 (0-6)	0.426

p*:Mann-Whitney U test, SESE: Social Exclusion Scale for the Elderly, MMAS: Morisky Medication Adherence Scale , Min: minimum, Max: maximum

literate and illiterate participants, literate individuals scored significantly higher (Table 3). It was noted that the "Material Deprivation," "Transportation-Financial," and total SESE scores were lower among those living alone or with a spouse than among those living with others ($p<0.001$ for all measurements). Additionally, the "Medication Adherence Motivation" score was significantly higher in individuals living alone or with a spouse ($p = 0.005$) (Table 3). In individuals without friends, the "Material Deprivation," "Transportation-Financial," and total SESE scores were significantly higher ($p = 0.005$, $p = 0.001$, $p<0.001$, and $p<0.001$). Likewise, when comparing the "Medication Adherence Motivation" subdimension and total MMAS scores based on the presence of friends, those with friends had significantly higher scores ($p = 0.003$ and $p = 0.022$) (Table 3).

The scores for the "Material Deprivation," "Transportation-Financial," and "Informal SocialSupport" subdimensions were significantly higher in individuals who were fully or partially dependent compared to others (all had p-value <0.05). Additionally, fully independent individuals exhibited significantly higher scores in both the "Medication Adherence Motivation" subdimension and the total MMAS scores based on physical dependency status compared to their counterparts ($p<0.001$ and $p = 0.002$) (Table 3). The scores for the "Material Deprivation" and "Transportation-Financial" subdimensions, along with the total SESE scores, were also higher among individuals who received assistance with their medication than among those who did not (all had p-value <0.05). Furthermore, individuals who took their medication independently had higher scores in both the "Medication Adherence Motivation" subdimension and total MMAS scores compared to others ($p<0.001$ and $p<0.001$) (Table 3).

The total SESE score was higher in individuals who were older, female, illiterate, fully or partially dependent, living with children or relatives, taking medication with assistance, and lacking friends compared to others (all $p <0.001$). The total MMAS score was higher in individuals with no friends, fullsemi-addicts, and illiterates compared to others (all $p <0.05$).

A correlation analysis was performed to investigate the association between specific sociodemographic traits of participants and their scale scores. The findings are summarized in Table 4. Theanalysis indicated a significant positive correlation between the overall SESE score and

Table 3. Analysis of Participants' Scale Scores Based on Selected Sociodemographic and Medical Characteristics

Parameter (n=214)						SESE Total	MMAS Subdimensions		MMAS Total
		Material Deprivation	Transportation-Financial	Environmental Exclusion	Informal Social Support		Medication Adherence Motivation	Medication Adherence Knowledge Level	
		Median (min-max)							
Education status	Not literate	18 (10-34)	18 (12-20)	4 (4-16)	11 (5-23)	52 (38-88)	1 (0-3)	2 (0-3) 1.39± 0.110	3 (0-6) 2.52±0.189
	Literate	17 (9-29)	18 (4-20)	4 (4-14)	10 (5-21)	49 (24-74)	2 (0-3)	2 (0-3) 1.79± 0.086	3 (0-6) 3.32±0.153
p*		**0.006**	**0.001**	0.269	0.294	**<0.001**	**0.011**	**0.004**	**0.003**
Co-habitant	Alone or with a spouse	16 (9-34)	17 (4-20)	4 (4-14)	10 (5-23)	48 (24-88)	2 (0-3)	2 (0-3)	3 (0-6)
	Others	19 (11-29)	20 (12-20)	4 (4-16)	11 (5-16)	53 (39-72)	1 (0-3)	2 (0-3)	3 (0-6)
p*		**<0.001**	**<0.001**	0.944	0.196	**<0.001**	**0.005**	0.424	0.187
Presence of friends	Yes	17 (9-26)	18 (5-20)	4 (4-16)	8 (5-13)	46 (24-72)	2 (0-3)	2 (0-3)	3 (0-6) 3.30±0.178
	No	18 (9-34)	19 (4-20)	4 (4-16)	13 (8-23)	54 (30-88)	1 (0-3)	2 (0-3)	3 (0-6) 2.74 ±1.63
p*		**0.005**	**0.001**	0.238	**<0.001**	**<0.001**	**0.003**	0.499	**0.022**
Level of physical dependence	Totally-partially dependent	18 (10-32)	20 (5-20)	4 (4-16)	12 (5-22)	53 32-84)	1 (0-3)	2 (0-3)	3 (0-6) 2.65±0.160
	Independent	16 (9-34)	16 (4-20)	4 (4-14)	10 (5-23	46 (24-88)	2 (0-3)	2 (0-3)	3 (0-6) 3.39±0.177
p*		**0.001**	**<0.001**	0.842	**0.006**	**<0.001**	**<0.001**	0.399	**0.002**
Medication administration method	Yourself	16 (9-34)	17 (4-20)	4 (4-16)	10 (5-23)	48 (24-88)	2 (0-3)	2 (0-3)	3 (0-6)
	Assisted	19 (10-32)	20 (8-20)	4 (4-16)	12 (5-21)	54 (29-84)	0 (0-3)	2 (0-3)	2 (0-6)
p*		**0.001**	**<0.001**	0.691	0.087	**<0.001**	**<0.001**	0.162	**<0.001**

p*: Mann-Whıtney U test, SESE: Social Exclusion Scale for the Elderly, MMAS: Morisky Medication Adherence Scale , Min: minimum, Max: maximum

age, as well as a negative correlation with the total MMAS score.

The model derived from the regression analysis of the total SESE scores is shown in Table 5). The analysis indicates that the SESE score is independently associated with the presence of friends, educational level, physical dependency status, and total MMAS score in the multiple linear regression models (all p <0.05). Conversely, the total MMAS score is independently associated with the use of crutches, lung disease, medication

Table 4. Correlation Analysis of Selected Sociodemographic Characteristics and Scale Scores

n=214			Age	Number of drugs	SESE Subdimensions				SESE Total	MMAS Subdimensions		MMAS Total
					Material Deprivation	Transportation-Financial	Environmental Exclusion	Informal Social Support		Medication Adherence Motivation	Medication Adherence Knowledge Level	
Age		r	1									
		p	.									
Number of drugs		r	-0.081	1								
		p	0.239	.								
SESE Subdimensions	Material Deprivation	r	0.182	-0.011	1							
		p	**0.008**	0.875	.							
	Transportation-Financial	r	0.210	0.091	0.251	1						
		p	**0.002**	0.187	**<0.001**	.						
	Environmental Exclusion	r	0.110	-0.203	0.119	-0.088	1					
		p	0.108	**0.003**	0.083	0.201	.					
	Informal SocialSupport	r	0.024	0.049	0.337	0.221	0.164	1				
		p	0.732	0.472	**<0.001**	**0.001**	**0.016**	.				
SESE Total		r	0.242	0.032	0.775	0.586	0.246	0.669	1			
		p	**<0.001**	0.645	**<0.001**	**<0.001**	**<0.001**	**<0.001**	.			
MMAS Subdimensions	Medication Adherence Motivation	r	-0.098	-0.026	-0.277	-0.355	0.021	-0.290	-0.396	1		
		p	0.152	0.701	**<0.001**	**<0.001**	0.765	**<0.001**	**<0.001**	.		
	Medication Adherence Knowledge Level	r	-0.007	-0.114	-0.155	-0.193	0.069	-0.110	-0.142	0.430	1	
		p	0.915	0.097	**0.023**	**0.005**	0.313	0.109	**0.038**	**<0.001**	.	
MMAS Total		r	-0.060	-0.073	-0.243	-0.317	0.045	-0.245	-0.318	0.866	0.815	1
		p	0.382	0.287	**<0.001**	**<0.001**	0.514	**<0.001**	**<0.001**	**<0.001**	**<0.001**	.

p*:Spearman Correlation Test, r:Spearman Correlation rate

Table 5. Linear Regression Analysis of the Total Scores of the SESE and MMAS with Sociodemographic and Other Factors

Parameter	β	(%95 CI)		t	p
		Lower Bound	Upper Bound		
SESE Total Score					
Age	0.230	-0.028	0.488	1.763	0.080
Sex	2.051	-0.179	4.281	1.816	0.071
Presence of friends	7.689	5.606	9.772	7.289	**<0.001**
Education status	-3.301	-4.730	-1.872	-4.561	**<0.001**
Level of physical dependence	-3.364	-5.151	-1.577	-3.717	**<0.001**
MMAS Total Score	-0.744	-1.318	-0.170	-2.560	**0.011**
MMAS Total Score					
Use of crutches	2.426	0.600	4.252	2.619	**0.009**
History of lung disease	0.574	0.017	1.132	2.030	**0.044**
Medication administration method	-0.474	-0.713	-0.234	-3.901	**<0.001**
SESE Total Score	-0.049	-0.074	-0.024	-3.886	**<0.001**

p:Linear regression analysis, β:Regression coefficient, CI: Confidence interval, t: Significance of regression coefficients,SESE: Social Exclusion Scale for the Elderly, MMAS: Morisky Medication Adherence Scale

administration method, and the total SESE score in multiple linear regression models (Table 5).

DISCUSSION

Considering the outpatient clinic attended by individuals in the study, the scores from the SESE and MMAS scales were compared across sociodemographic characteristics.These included gender, education level, social relationships, medication assistance, physical dependency, and living arrangements. A literature review indicates limited research in our country on medication adherence and social exclusion in individuals aged 80 and older.

Our research revealed that increased social exclusion among older adults is associated with a decline in medication adherence. A 2024 study conducted in China showed that a lack of social support and feelings of loneliness negatively impacted medication adherence (11). Likewise, another study on older individuals with chronic diseases found that social exclusion reduced medication adherence (7). A Turkish study also observed that higher social support levels were linked to decreased feelings of loneliness and improved medication adherence (12).

The study revealed that as individuals aged, their level of social exclusion increased. Similar results have been reported in prior studies. A 2024 study conducted in Kazakhstan in 2024 demonstrated that the incidence of social exclusion among older adults has increased(13,14). This phenomenon can be attributed to factors like retirement, reduced economic resources, children attaining independence, physical constraints, chronic illnesses, and spousal loss.

Our study revealed that women were more prone to social exclusion compared to men. Similarly, studies conducted in Turkey and India also indicated a higher susceptibility of women to social exclusion (12,13,15). Conversely, Feng et al. found no significant differences between sexes in their study,which could be attributed to variations in age distribution among the studies (16).

The study was conducted on older individuals who reached the HAC and GOC. While the levels of social exclusion were comparable, patients from the GOC group exhibited greater medication adherence, possibly attributed to their enhanced health literacy and treatment awareness. To our knowledge, no similar study has been conducted focusing on this aspect.

By contrast, individuals lacking literacy skills experienced higher levels of social exclusion. Prior studies have also suggested that social exclusiondecreases with higher levels ofeducation (9, 11,12). This trend may be attributed to the increased social engagement of educated individuals compared to their less educated counterparts. Moreover, individuals who were fully or partially dependent exhibited greater social exclusion compared to fully independent individuals. Previous research has also shown that social exclusion increases as health deteriorates and physical mobility decreases (11, 13). This can be explained by dependent individuals' transportation and social participation challenges. In addition, individuals living alone or with a spouse had lower levels of social exclusion than those living with their children or relatives. However, previous research has indicated that social exclusion and depression are more prevalent among individuals living alone (11, 12). This difference can be explained by the individuals' need for social and economic support.

Our study revealed that individuals with friends experienced reduced levels of social exclusion. Other studies indicate that individuals with social communication skills have fewer depressive symptoms and experience less social isolation (17,18). This could be due to the social support and interaction offered by friendships.

Another crucial finding from our study is that individuals who took their medication independently

experienced lower levels of social exclusion than those who took their medication with assistance. To the best of our knowledge, this phenomenon may be attributed to physical dependency, as no comparable studies have been conducted.

There was no significant difference in medication adherence between women and men, as indicated by several studies (19,20,21). However, educational status plays a crucial role in medication adherence assessment. We demonstrated that medication adherence was lower among illiterates than among non-literates. Nonetheless, in 2024, Albadrani et al., in their study involving 421 patients, found no relationship between educational level and medication adherence (20). This discrepancy may be attributed to the fact that most participants in Albadrani's study were university graduates. It is expected that as education levels increase, health literacy also improves, leading individuals to pay more attention to their health.

One crucial discovery from our research was that medication adherence was greater among fully independent individuals compared to those who were entirely or partially dependent. Albadrani et al. in Saudi Arabia also observed a similar trend, suggesting that mobility issues could result in decreased medication adherence (20). However, other medical studies have shown no association with the previously mentioned parameters. Thesedifferencescould be attributed to the diverse degrees of dependence among the study participants. The decrease in medication adherence as physical dependence rises may be due to difficulties in obtaining medication and inconsistencies in caregiver assistance.

Additionally, we observed no differences in medication adherence based on cohabitation status. However, a 2024 study found that individuals living alone had lower medication adherence than those residing in nursing homes or under the supervision of others (20). Another study conducted in a hospital in Central Anatolia found that individuals living with their spouses and children exhibited higher medication adherence than those living alone (22). The discrepancy between our study and others may be attributed to the higher average age of the participants in our study.

Our study found that individuals with friends showed better medication adherence compared to those without friends. A 2012 study suggested that individuals with friends and social support networks have higher medication adherence (23). Medication adherence is closely associated with a support network that includes close friends providing emotional and practical assistance.

This study discovered no association between the number of medications utilized by individuals and their adherence levels. A similar outcomewas observed in a study conducted among individuals aged 65 years and older in Spain (24). Conversely, a study in Korea revealed that medication adherence declined with an increasing number of medications (25). While our data showed no correlation between the number of medications and medication adherence, it is expected that with regular use of more medications, adherence may decrease due to factors like medication fatigue and confusion among the medicines.

Our study had several limitations. First, it had a single-center design and was dependent on patient-reported data. Second, the causality between the study parameters could not be assessed because this was not a prospective design. Prospective cohort or interventional studies are needed to determine the direction of causality. Although the validity and reliability studies of the scales we used have been conducted, it should not be forgotten that self-report-based measurements may have recall bias and social desirability effects. In our study, participants' cognitive functions were not objectively and detailed evaluated. However, as stated in the "Materials and Methods" section, individuals with advanced cognitive impairment were not included in the study.Future studies

may yield more comprehensive results by using cognitive tests that also assess cognitive function.In addition to these noted limitations, focusing on an underrepresented population in geriatric research (aged 80 and over) can be viewed as a strength of our work. Another advantage of our study was that the researcher read and explained the survey questions aloud to avoid inaccurate and incomplete responses from older individuals. Furthermore, this study included geriatric clinic patients and older individuals who visited the hospital at home, allowing for a comparison of study parameters.

CONCLUSION

This study showed that medication adherence may decrease and physical dependence may increase as social exclusion levels rise in older individuals. Social exclusion may be more pronounced among women; however, medication adherence is similar between the sexes. Individuals with friends are more likely to experience less social exclusion and demonstrate better medication adherence. Literate individuals may experience reduced social exclusion and exhibit strong medication adherence. No correlations were found between the number of medications administered and medication adherence. Individuals who lived alone or with a spouse experienced lower levels of social exclusion, with their medication adherence remainingunchanged. The level of social exclusion was consistent among patients who visited both the HAC and GOC; however, those visiting the GOC showed higher medication adherence.

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