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Functional Independence in Community-Dwelling Older Adults: Associations with Nutritional Status, Depressive Symptoms, and Fall Risk

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Research Article

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Abstract

Background

Functional independence is essential for healthy ageing and quality of life among older adults. Nutritional status, depressive symptoms, and fall risk may be associated with the ability to perform daily activities independently. This study aimed to examine the relationships between functional independence, nutritional status, depressive symptoms, and fall risk and to identify factors associated with functional independence among community-dwelling older adults.

Methods

This cross-sectional study included 245 community-dwelling older adults registered at a Family Health Center in Türkiye. Data were collected using a Sociodemographic and Clinical Information Form, the Barthel Activities of Daily Living Index, the Lawton and Brody Instrumental Activities of Daily Living Scale, the Mini Nutritional Assessment-Short Form, the Geriatric Depression Scale-30, and the Fall Risk Assessment Scale. Descriptive statistics, Pearson correlation analysis, and multiple linear regression analyses were performed.

Results

Nutritional status emerged as the strongest predictor of both activities of daily living (ADL) and instrumental activities of daily living (IADL). Better nutritional status was associated with greater functional independence, whereas depressive symptoms, fall risk, and older age were negatively associated with ADL and IADL. Sex was significantly associated with IADL but not ADL. The regression models explained 38.6% and 50.6% of the variance in ADL and IADL, respectively (both $p < 0.001$).

Conclusions

Nutritional status, depressive symptoms, fall risk, and age were independently associated with functional independence among community-dwelling older adults. These findings highlight the importance of comprehensive geriatric nursing assessments that integrate nutritional, psychological, and functional evaluations to support the maintenance of independence in later life.

Background

Due to increased life expectancy and declining fertility rates, the proportion of the elderly population is rapidly increasing worldwide. This demographic shift necessitates a reassessment of the health needs of older individuals and the development of care approaches that support healthy aging [1] Similarly, the proportion of adults aged 65 years and older has increased markedly in recent years in Türkiye, further

highlighting the importance of geriatric care services [2]. Preserving functional independence in older adults has therefore become a major public health priority, not only for maintaining individual quality of life but also for reducing the burden of care on healthcare systems [1, 3].

Functional independence refers to an individual's ability to perform activities of daily living without assistance and is considered one of the key indicators of successful ageing [3]. However, maintaining functional independence in older adults cannot be explained solely by the biological ageing process. Instead, it is influenced by multiple interacting factors, including physical health, psychological well-being, nutritional status, and safety-related risks [4]. Therefore, a holistic and multidimensional approach is essential when assessing functional independence in older adults.

Maintaining functional independence in older adults depends not only on individual health characteristics but also on the interaction of biological, psychological, and environmental factors [4]. Therefore, evaluating the health of older adults requires holistic theoretical frameworks that consider the multiple contexts and interactions influencing health, rather than relying on a single-dimensional approach. In this respect, the Ecological Systems Perspective provides a useful framework for understanding older adults' health by considering the interactions among individual characteristics, social relationships, care processes, and environmental conditions [1, 5].

According to the Ecological Systems Perspective, functional independence is shaped by the dynamic interactions between individual characteristics and the surrounding social and environmental systems [1, 5]. In later life, individual-level factors such as nutritional status, depressive symptoms, and fall risk play an important role in maintaining functional independence [6]. Therefore, considering these factors together may contribute to a more comprehensive assessment of functional independence and support holistic geriatric nursing care.

Nutritional status is one of the key factors in maintaining functional independence in later life. Malnutrition and the risk of malnutrition are recognized as major geriatric syndromes associated with increased morbidity, mortality, and functional decline among older adults [7]. Malnutrition contributes to the loss of muscle mass and strength, impaired physical performance, and frailty, all of which can reduce the ability to perform activities of daily living independently [8]. In addition, growing evidence suggests that nutritional status is closely linked not only to physical health but also to mental health and overall functioning [9]. Therefore, nutritional assessment is an essential component of comprehensive geriatric care aimed at preserving functional independence.

Depressive symptoms are another important factor associated with functional independence in older adults. Depression in later life is not only a mental health condition affecting mood but also a major geriatric problem that influences self-care, activities of daily living, and social participation [10]. Previous studies have shown that depressive symptoms are closely associated with reduced physical functioning, functional limitations, and greater dependency among older adults [4, 10, 11]. In addition, depressive symptoms may adversely affect overall health through reduced appetite, lower levels of physical activity,

and social isolation [9]. Therefore, early identification of depressive symptoms and timely interventions are essential components of comprehensive geriatric care aimed at preserving functional independence.

Fall risk is another major factor associated with functional independence in older adults. Falls are linked to physical injury, reduced mobility, hospitalization, and an increased need for long-term care, all of which can adversely affect quality of life [12]. Evidence suggests that fall risk is influenced by multiple physical, psychological, and functional factors [12, 13]. In particular, fear of falling may lead to mobility limitation, reduced physical activity, and social isolation, ultimately contributing to functional decline over time. [12]. Therefore, early assessment of fall risk and the implementation of preventive interventions are essential components of comprehensive geriatric care aimed at maintaining functional independence.

Although previous studies have examined the relationships between nutritional status, depressive symptoms, fall risk, and functional independence in older adults, these factors have often been investigated separately [9, 10, 12]. As a result, the multidimensional nature of functional independence has not always been considered within a comprehensive framework [4, 5]. A better understanding of the combined roles of biological, psychological, and functional factors may help guide comprehensive geriatric assessment and the development of person-centered nursing care. Therefore, this study aimed to examine the relationships between functional independence, nutritional status, depressive symptoms, and fall risk among community-dwelling older adults.

This study aimed to examine the relationships between functional independence, nutritional status, depressive symptoms, and fall risk and to identify the predictors of functional independence among community-dwelling older adults within the Ecological Systems Perspective. The study addressed the following research questions:

1. What are the levels of functional independence, nutritional status, depressive symptoms, and fall risk among community-dwelling older adults?
2. Are nutritional status, depressive symptoms, and fall risk significantly associated with functional independence in community-dwelling older adults?
3. Are nutritional status, depressive symptoms, fall risk, age, and sex significant predictors of functional independence among community-dwelling older adults?
4. To what extent do these variables explain the variance in activities of daily living (ADL) and instrumental activities of daily living (IADL)?

Methods

Study design

This study used an analytical cross-sectional design to examine the relationships between functional independence, nutritional status, depressive symptoms, and fall risk in older adults. The study was guided by the Ecological Systems Perspective, which considers functional independence as the result of interactions among multiple factors affecting the individual. In line with this perspective, the study

focused on individual-level (microsystem) factors associated with functional independence. Data were collected between February and May 2026 at a Family Health Center in Aksaray, Türkiye.

Participants

The study population consisted of adults aged 65 years and older who were registered at the Family Health Center during the study period. The sample included 245 older adults who met the eligibility criteria and agreed to participate.

Individuals were eligible if they were 65 years of age or older, able to communicate in Turkish, had sufficient cognitive capacity to understand the study, and provided written informed consent. Individuals with advanced cognitive impairment or dementia, severe hearing or speech problems that could interfere with communication, or those who declined to participate were excluded from the study.

Data collection

Data were collected between February and May 2026 through face-to-face interviews conducted by the researchers. Before data collection, participants were informed about the purpose of the study and written informed consent was obtained. Each interview lasted approximately 20–25 minutes.

The data collection instruments included a Sociodemographic and Clinical Information Form, the Barthel Activities of Daily Living Index (ADL), the Lawton and Brody Instrumental Activities of Daily Living Scale (IADL), the Mini Nutritional Assessment–Short Form (MNA-SF), the 30-item Geriatric Depression Scale (GDS-30), and the Fall Risk Assessment Scale.

Measures

Sociodemographic and Clinical Information Form

The Sociodemographic and Clinical Information Form was developed by the researchers based on the literature. It included questions on age, sex, educational level, marital status, living arrangement, presence of chronic disease, regular medication use, use of assistive devices, and general health status [1, 3, 5, 7, 12].

Barthel Activities of Daily Living Index (ADL)

Functional independence in basic activities of daily living was assessed using the Barthel Activities of Daily Living Index. The scale consists of 10 items, with total scores ranging from 0 to 100. Higher scores indicate greater functional independence. The Turkish validity and reliability study was conducted by Küçükdeveci et al. (2000) [14]. In the present study, the Cronbach's alpha coefficient was 0.826.

Lawton and Brody Instrumental Activities of Daily Living Scale (IADL)

Instrumental activities of daily living were assessed using the Lawton and Brody Instrumental Activities of Daily Living Scale [15]. The scale consists of nine items, and higher scores indicate greater functional independence. In this study, the Cronbach's alpha coefficient was 0.926.

Mini Nutritional Assessment–Short Form (MNA-SF)

Nutritional status was evaluated using the Mini Nutritional Assessment–Short Form. The scale consists of six items with total scores ranging from 0 to 14. Higher scores indicate better nutritional status. The Turkish validity and reliability study was performed by Sarıkaya et al. (2015) [16]. The Cronbach's alpha coefficient was 0.630 in the present study.

30-item Geriatric Depression Scale (GDS-30)

Depressive symptoms were assessed using the 30-item Geriatric Depression Scale. The questionnaire consists of 30 yes/no items, with higher scores indicating more severe depressive symptoms. The Turkish validity and reliability study was conducted by Ertan et al. (1997) [17]. The Cronbach's alpha coefficient was 0.846 in this study.

Fall Risk Assessment Form

Fall risk was assessed using a 20-item Fall Risk Assessment Form developed for practical clinical use based on commonly used fall risk assessment approaches in Türkiye. The form includes fall-related risk factors such as previous falls, cardiovascular and neurological conditions, depression, musculoskeletal disorders, walking and balance problems, previous fracture, orthostatic hypotension, incontinence, sensory impairments, dizziness, dehydration, acute illness, restraint use, diabetes-related hypoglycemia risk, and polypharmacy. Each item was scored as yes/no, and higher total scores indicated greater fall risk. A total score of 5 or above indicated high fall risk [18].

İstatistiksel analiz

Statistical analyses were performed using IBM SPSS Statistics version 26.0. Continuous variables were summarized as mean, standard deviation, minimum, and maximum values, whereas categorical variables were presented as frequencies and percentages. The normality of continuous variables was assessed using skewness and kurtosis values. Since all values were within ± 1.5, the data were considered to be approximately normally distributed and parametric analyses were performed. Relationships among continuous variables were examined using Pearson's correlation analysis. Multiple linear regression analyses were performed to identify the predictors of functional independence. ADL and IADL scores were entered as dependent variables, whereas nutritional status, depressive symptoms, fall risk, age group, and sex were included as independent variables. Statistical significance was set at $p < 0.05$ for all analyses.

Ethical considerations

Ethical approval

was obtained from the Aksaray University Health Sciences Scientific Research Ethics Committee on February 5, 2026 (Decision No: 2026/39). The study was conducted in accordance with the principles of the Declaration of Helsinki. All participants were informed about the purpose of the study, and written informed consent was obtained before data collection. Participants' privacy and confidentiality were protected throughout the study.

Results

Table 1
Sociodemographic and clinical characteristics of the participants (n = 245)

Variable	Category	n	%	Variable	Category	n	%
Age (years)	65–74	140	57.1	**Living arrangement**	Living alone	30	12.2
	75–84	80	32.7		Living with spouse	141	57.6
	≥ 85	25	10.2		Living with children	68	27.8
Sex	Female	142	58.0		Living with relatives	6	2.4
	Male	103	42.0	**Chronic disease**	Yes	230	93.9
Education level	Illiterate	83	33.9		No	15	6.1
	Literate	36	14.7	**Visual impairment**	Yes	118	48.2
	Primary school	113	46.1		No	127	51.8
	High school	8	3.3	**Hearing impairment**	Yes	91	37.1
	College/University	5	2.0		No	154	62.9
Marital status	Spouse alive	145	59.2	**Use of assistive devices**	Yes	60	24.5
	Spouse deceased	90	36.7		No	185	75.5
	Other	10	4.1	**Taste alteration**	Yes	55	22.4
					No	190	77.6
Smell alteration	Yes	37	15.1	**Tactile sensory alteration**	Yes	21	8.6
	No	208	84.9		No	224	91.4

The sociodemographic and clinical characteristics of the participants are presented in Table 1. Of the participants, 57.1% were aged 65–74 years, 32.7% were aged 75–84 years, and 10.2% were aged 85 years or older. Overall, 58.0% were female and 42.0% were male. Regarding educational level, 46.1% had completed primary school, while 33.9% were illiterate. More than half of the participants (59.2%) had a living spouse, 57.6% lived with their spouse, and 93.9% had at least one chronic disease. In addition, 48.2% reported visual impairment, 37.1% reported hearing impairment, and 24.5% used an assistive device.

Table 2
Descriptive statistics of the study variables (n = 245)

Variable	n	Mean ± SD	Min	Max
Barthel Activities of Daily Living Index (ADL)	245	71.53 ± 21.62	31	100*
Lawton and Brody Instrumental Activities of Daily Living Scale (IADL)	245	18.94 ± 5.70	9	27
Mini Nutritional Assessment–Short Form (MNA-SF)	245	8.81 ± 3.29	0	14
Geriatric Depression Scale-30 (GDS-30)	245	15.77 ± 6.63	2	30
Fall Risk Assessment Scale	245	6.87 ± 3.70	0	21

Data are presented as mean ± standard deviation (SD), with minimum (Min) and maximum (Max) values. ADL = Activities of Daily Living; IADL = Instrumental Activities of Daily Living; MNA-SF = Mini Nutritional Assessment–Short Form; GDS-30 = Geriatric Depression Scale-30. *The theoretical maximum score of the Barthel Activities of Daily Living Index is 100.

Descriptive statistics for the study variables are presented in Table 2. The mean Barthel Activities of Daily Living (ADL) score was 71.53 ± 21.62, and the mean Lawton and Brody Instrumental Activities of Daily Living (IADL) score was 18.94 ± 5.70. The mean Mini Nutritional Assessment–Short Form (MNA-SF) score was 8.81 ± 3.29, the mean Geriatric Depression Scale-30 (GDS-30) score was 15.77 ± 6.63, and the mean Fall Risk Assessment Scale score was 6.87 ± 3.70. Based on the established scoring criteria, the participants generally demonstrated a profile characterized by risk of malnutrition, mild depressive symptoms, and elevated fall risk.

Table 3
Correlations among the study variables (Pearson correlation analysis)

Variables	1	2	3	4	5
1. ADL	1				
2. IADL	.806**	1			
3. MNA-SF	.547**	.578**	1		
4. GDS-30	− .434**	− .436**	− .443**	1	
5. Fall Risk Assessment Scale	− .462**	− .509**	− .490**	.458**	1

ADL = Barthel Activities of Daily Living Index; IADL = Lawton and Brody Instrumental Activities of Daily Living Scale; MNA-SF = Mini Nutritional Assessment–Short Form; GDS-30 = Geriatric Depression Scale-30. Pearson correlation coefficients are presented. **p < .01.

Correlations among the study variables are presented in Table 3. ADL was strongly and positively correlated with IADL ($r = 0.806$, $p < 0.001$). Both ADL and IADL showed moderate positive correlations with MNA-SF scores ($r = 0.547$ and $r = 0.578$, respectively; $p < 0.001$) and moderate negative correlations with GDS-30 scores ($r = -0.434$ and $r = -0.436$, respectively; $p < 0.001$) and fall risk scores ($r = -0.462$

and r = − 0.509, respectively; p < 0.001). MNA-SF scores were negatively correlated with both GDS-30 scores (r = − 0.443, p < 0.001) and fall risk scores (r = − 0.490, p < 0.001). In addition, GDS-30 scores were moderately and positively correlated with fall risk scores (r = 0.458, p < 0.001).

Table 4
Multiple linear regression analysis predicting activities of daily living (ADL)

Variable	B	SE	β	t	p
Sex	-1.162	2.309	-0.026	-0.503	0.615
Nutritional status (MNA-SF)	2.362	0.400	0.360	5.898	< 0.001
Depressive symptoms (GDS-30)	-0.557	0.197	-0.170	-2.821	0.005
Fall risk	-1.151	0.365	-0.196	-3.156	0.002
Age group	-3.754	1.667	-0.117	-2.251	0.025

SE = standard error; β = standardized regression coefficient; MNA-SF = Mini Nutritional Assessment–Short Form; GDS-30 = Geriatric Depression Scale-30. Model statistics: R = 0.621, R^2 = 0.386, adjusted R^2 = 0.373, F = 30.004, p < 0.001.

The results of the multiple linear regression analysis examining the effects of age group, sex, nutritional status (MNA-SF), depressive symptoms (GDS-30), and fall risk on ADL are presented in Table 4. The regression model was statistically significant (F = 30.004, p < 0.001) and explained 38.6% of the variance in ADL scores (R^2 = 0.386; adjusted R^2 = 0.373). MNA-SF score was the strongest positive predictor of ADL (β = 0.360, p < 0.001). In contrast, depressive symptoms (β = − 0.170, p = 0.005), fall risk (β = − 0.196, p = 0.002), and age group (β = − 0.117, p = 0.025) were significant negative predictors of ADL. Sex was not significantly associated with ADL (p = 0.615).

Table 5
Multiple linear regression analysis predicting instrumental activities of daily living (IADL)

Variable	B	SE	β	t	p
Sex	-2.003	0.543	-0.174	-3.687	< 0.001
Nutritional status (MNA-SF)	0.607	0.094	0.353	6.445	< 0.001
Depressive symptoms (GDS-30)	-0.127	0.046	-0.148	-2.734	0.007
Fall risk	-0.422	0.087	-0.270	-4.862	< 0.001
Age group	-2.151	0.392	-0.255	-5.485	< 0.001

SE = standard error; β = standardized regression coefficient; MNA-SF = Mini Nutritional Assessment–Short Form; GDS-30 = Geriatric Depression Scale-30. Model statistics: *R* = 0.711, R^2 = 0.506, adjusted R^2 = 0.495, *F* = 48.712, *p* < 0.001.

The results of the multiple linear regression analysis examining the effects of age group, sex, nutritional status (MNA-SF), depressive symptoms (GDS-30), and fall risk on IADL are presented in Table 5. The regression model was statistically significant ($F = 48.712$, $p < 0.001$) and explained 50.6% of the variance in IADL scores ($R^2 = 0.506$; adjusted $R^2 = 0.495$). MNA-SF score was a significant positive predictor of IADL ($\beta = 0.353$, $p < 0.001$), whereas age group ($\beta = -0.255$, $p < 0.001$), fall risk ($\beta = -0.270$, $p < 0.001$), sex ($\beta = -0.174$, $p < 0.001$), and depressive symptoms ($\beta = -0.148$, $p = 0.007$) were significant negative predictors of IADL.

Discussion

This study examined the relationships between functional independence, nutritional status, depressive symptoms, and fall risk among community-dwelling older adults. Overall, the participants demonstrated moderate functional independence, were at risk of malnutrition, had mild depressive symptoms, and had elevated fall risk scores. Nutritional status emerged as the strongest predictor of both ADL and IADL, whereas depressive symptoms and fall risk were independently associated with lower functional independence. These findings support the view that functional independence is a multidimensional construct influenced by the interaction of biological, psychological, and functional factors [11, 19, 20]. This interpretation is consistent with the Ecological Systems Perspective, which suggests that healthy ageing and functional independence are shaped through the interaction between individual characteristics and the surrounding environment [1, 4].

The most important finding of this study was that nutritional status was the strongest predictor of both ADL and IADL. This finding indicates that nutritional status plays a central role in maintaining functional independence among older adults. Similar findings have been reported in previous studies showing that malnutrition is associated with functional decline, sarcopenia, frailty, reduced physical performance, and increased dependency [20–25]. A possible explanation is that inadequate nutritional intake gradually reduces muscle mass, muscle strength, and physical endurance, making it increasingly difficult for older adults to perform daily activities independently. Within the Ecological Systems Perspective, nutritional status can be considered a key microsystem factor because it directly affects the individual's functional capacity. Accordingly, the findings of the present study suggest that preserving adequate nutritional status is fundamental to maintaining functional independence in later life.

Depressive symptoms were another important factor associated with functional independence. Older adults with higher GDS-30 scores had lower ADL and IADL scores, and depressive symptoms remained a significant negative predictor in both regression models. This finding is consistent with previous studies reporting that depression is associated with reduced physical functioning, limitations in activities of daily living, and increased dependency among older adults [4, 10, 11, 26]. Depression may contribute to functional decline by reducing motivation, physical activity, self-care behaviors, and social participation, all of which are essential for maintaining independence in later life [27]. An additional finding of this study was the moderate negative correlation between nutritional status and depressive symptoms. Similar associations have been reported in previous studies showing that poor nutritional status is

associated with a higher prevalence of depressive symptoms in older adults [2, 8, 10, 20, 24, 28]. This relationship is likely bidirectional. While inadequate nutrition may contribute to fatigue, weakness, and reduced quality of life, depressive symptoms may impair appetite, food intake, and self-care, thereby increasing the risk of malnutrition [29]. Within the Ecological Systems Perspective, nutritional status and depressive symptoms can be viewed as interacting microsystem factors that together influence functional independence. Moreover, because depressive symptoms may affect an older adult's interactions with family members and caregivers, their impact may extend beyond the individual and influence the immediate social environment.

Fall risk was another significant factor associated with functional independence. Older adults with higher fall risk scores had lower ADL and IADL scores, and fall risk remained an independent negative predictor in both regression models. This finding is consistent with previous studies demonstrating that falls and fall-related risk factors contribute to functional decline, loss of independence, and disability among community-dwelling older adults [12, 26, 30, 31]. Balance problems, limited mobility, and fear of falling may discourage older adults from engaging in daily activities, which can gradually reduce their ability to perform everyday tasks independently. Previous studies have also shown that depressive symptoms may increase fear of falling and further reduce physical activity, creating a cycle that accelerates functional decline [13, 32, 33]. Within the Ecological Systems Perspective, fall risk can be considered an important microsystem factor because it directly influences an individual's physical functioning. As functional limitations become more pronounced, older adults may increasingly rely on support from family members and caregivers, indicating that the effects of fall risk may extend beyond the individual and influence the immediate social environment.

Age was significantly associated with both ADL and IADL, whereas sex was associated only with IADL. The stronger association between age and instrumental activities of daily living is consistent with previous research showing that more complex daily tasks are often affected earlier in the ageing process than basic self-care activities [19, 22, 34]. Instrumental activities, including shopping, transportation, medication management, and financial tasks, depend on the coordinated functioning of physical, cognitive, and social capacities, which makes them particularly susceptible to age-related decline. The observed relationship between sex and IADL may be explained by differences in lifelong roles, health conditions, and daily routines among older adults, although such patterns can differ across cultural and population contexts [4]. From an Ecological Systems Perspective, these findings suggest that age-related changes at the individual level may gradually influence interactions with the surrounding environment and the ability to maintain independent living.

These findings have important implications for geriatric nursing practice. Consistent with the Ecological Systems Perspective, maintaining functional independence requires attention not only to individual risk factors but also to the immediate care environment in which older adults live and receive support. Nutritional status, depressive symptoms, and fall risk should therefore be assessed together as interrelated determinants of functional independence rather than as isolated conditions [35, 36]. Family members, caregivers, and primary healthcare professionals play complementary roles in supporting

older adults, while nurses are well positioned to recognize early changes, coordinate multidisciplinary care, and deliver person-centered care that addresses the complex and interconnected needs of older adults [37, 38].

Limitations

By examining nutritional status, depressive symptoms, and fall risk simultaneously in relation to both ADL and IADL, this study provides a comprehensive perspective on the multidimensional determinants of functional independence among community-dwelling older adults. In addition, interpreting the findings within the Ecological Systems Perspective contributes to a more holistic understanding of functional independence in later life. Nevertheless, several limitations should be considered when interpreting the findings.

First, because of the cross-sectional design, the observed associations cannot be interpreted as causal relationships. Longitudinal studies are needed to clarify the temporal relationships between nutritional status, depressive symptoms, fall risk, and functional independence.

Second, the study was conducted among older adults registered at a single Family Health Center, which may limit the generalizability of the findings to other populations and settings.

Third, some of the study variables were based on self-reported data. Therefore, responses related to depressive symptoms, sensory changes, and certain health characteristics may have been influenced by recall or social desirability bias.

Finally, although the study was guided by the Ecological Systems Perspective, the analyses primarily focused on microsystem-level factors, including nutritional status, depressive symptoms, and fall risk. Variables representing mesosystem, exosystem, and macrosystem influences, such as family support, access to healthcare services, social support networks, and environmental characteristics, were not directly measured. Future longitudinal and multicenter studies incorporating these ecological dimensions may provide a more comprehensive understanding of functional independence in older adults.

Conclusions

This study provides a comprehensive perspective on functional independence by examining the combined roles of nutritional status, depressive symptoms, and fall risk among community-dwelling older adults. Nutritional status emerged as the strongest predictor of both basic and instrumental activities of daily living, while depressive symptoms, fall risk, and age were also associated with functional independence. These findings highlight that functional independence is shaped by multiple interacting factors rather than a single health condition. Consistent with the Ecological Systems Perspective, preserving functional independence requires consideration of both individual health characteristics and the immediate care environment. The findings support the implementation of

person-centered geriatric nursing care that integrates nutritional, psychological, and functional assessments to help maintain functional independence among older adults.

Declarations

Ethics approval and consent to participate

Ethical approval was obtained from the Aksaray University Health Sciences Scientific Research Ethics Committee on February 5, 2026 (Decision No: 2026/39). The study was conducted in accordance with the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants before data collection.

Consent for publication

Not applicable.

Clinical trial number

Clinical trial number: not applicable.

Competing interests

The author declares no competing interests.

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Author Contribution

F.T.S. was responsible for the conceptualization and design of the study, data collection, statistical analysis, interpretation of the results, and preparation of the manuscript. F.T.S. read and approved the final manuscript.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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