

Assessment of Functional Capacity and Its Sociodemographic and Health Determinants in Older Adults from a Region of Peru

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Background: Functional capacity is a key component of healthy aging, as it reflects the degree of autonomy of older adults in their daily activities. In regions of Peru such as Lambayeque, information on factors associated with functionality in this population is still limited, which makes it difficult to plan preventive and social support interventions.

Objective: Assess functional capacity and its sociodemographic and health determinants in older adults in the Lambayeque region, Peru.

Methods: A cross-sectional study was conducted in 2025 with a sample of 657 adults aged 60 years and older selected through stratified sampling. Functional capacity was evaluated using the Katz Index and the Lawton and Brody Scale for basic and instrumental activities of daily living (BADL and IADL). Descriptive statistics, bivariate tests, and binary logistic regression were applied.

Results: Among participants, 58.9% were women, and more than half presented some degree of functional dependence. Logistic regression showed that being male was associated with lower odds of functional dependence (OR = 0.33; 95% CI: 0.17–0.63; $p = 0.001$). In contrast, age ≥ 75 years (OR = 2.71; 95% CI: 1.56–4.71; $p = 0.001$), unemployment (OR = 2.50; 95% CI: 1.12–5.56; $p = 0.041$), and multimorbidity (two or more chronic conditions; OR = 1.89; 95% CI: 1.07–3.34; $p = 0.028$) were significantly associated with higher odds of functional dependence.

Conclusion: Older adults who are unemployed, have multiple chronic diseases, or are of advanced age are more vulnerable to functional dependence. These findings underscore the importance of early detection, functional health monitoring, and programs promoting independence and active aging in older populations in Peru.

Keywords: functional status, healthy aging, activities of daily living, chronic disease, elder care

Introduction

Functional capacity is a core construct in gerontology and public health, as it reflects the ability of individuals to perform activities essential for daily living independently and thus maintain autonomy in older age.^{1,2} It is commonly assessed through two complementary domains: basic activities of daily living (BADL)—including bathing, dressing, eating, toileting, transferring, and continence—and instrumental activities of daily living (IADL), which involve more complex tasks necessary for independent community living, such as managing finances, taking medications, using transportation, shopping, cooking, and telephone use.^{1–4} The systematic assessment of both domains allows for the early identification of functional decline, estimation of future care needs, and guidance of clinical, family, and social decision-making.³

Population aging is one of the most significant demographic phenomena of the 21st century and poses unprecedented challenges for health systems, economies, and social organization worldwide.⁵ According to United Nations projections,



by 2050 the global population aged 65 years or older will exceed that of children under five for the first time in history,⁶ while the proportion of individuals aged 60 years and above is expected to nearly double, increasing from 12% to 22%.⁷ Although this demographic transition reflects substantial advances in life expectancy and human development, it simultaneously underscores the urgent need to adapt health services, social policies, and care systems to ensure not only longer life, but also functional and autonomous aging.

From a public health perspective, functional capacity is a central pillar of healthy aging and a key indicator recognized by the World Health Organization, alongside physical, mental, and social well-being.^{7,8} Preserving functional capacity in later life reduces dependency, limits the demand for long-term care, lowers healthcare costs, and enhances quality of life and social participation among older adults.^{7,8} Conversely, functional decline is strongly associated with adverse outcomes, including increased hospitalization, institutionalization, mortality, and reduced psychological well-being.^{3,9}

Empirical evidence has consistently shown that functional decline is influenced by a combination of health-related and sociodemographic factors. Chronic conditions such as diabetes, hypertension, osteoarticular disorders, and cognitive impairment are closely linked to loss of functional capacity, particularly when multiple diseases coexist.^{10–12} In addition, advanced age, sex, educational level, and labor inactivity have been identified as important correlates of functional dependence.^{13–17} While several studies suggest that men tend to maintain greater functional independence than women—possibly due to higher muscle mass or lifelong engagement in physically demanding activities^{18,19}—the literature remains inconclusive, as other studies report minimal or context-dependent sex differences, particularly for IADL.²⁰ Likewise, functional capacity naturally declines with aging due to progressive deterioration of musculoskeletal, cardiovascular, and neurological systems,^{9,21} and labor inactivity, when not compensated by social or recreational engagement, may accelerate functional loss by reducing opportunities for physical and cognitive stimulation.^{13,17,20}

In Peru, population aging has accelerated markedly in recent decades. The proportion of adults aged 60 years and older increased from 5.7% in 1950 to 13.0% in 2021 and is projected to reach approximately 22% of the total population by 2050.²¹ National survey data indicate that functional limitations are already a substantial public health concern: according to the National Survey on Health and Aging,²² approximately 24–28% of Peruvian adults aged 60 years or older report difficulties in performing BADL or IADL, with higher prevalence among women, individuals aged 75 years and above, and those with lower educational attainment. These figures imply a growing number of older adults requiring assistance in daily life and increasing pressure on families, communities, and health services.

Despite this scenario, evidence on the determinants of functional capacity in Peru remains limited, particularly at the regional level. While national surveys provide overall prevalence estimates, there is a lack of disaggregated analyses by geographic areas that capture local sociodemographic and health profiles. Moreover, existing studies are often centralized in major urban settings or rely on limited samples and descriptive approaches, restricting their utility for regional planning and targeted interventions.^{23,24} This scarcity of methodologically robust and region-specific data hampers the development of effective preventive, rehabilitative, and social support programs tailored to the diverse realities of older adults across the country.

In this context, generating localized evidence on functional capacity and its associated factors is essential to inform public health strategies and social policies aimed at preventing dependency, promoting autonomy, and supporting active aging in Peru. The Lambayeque region represents a particularly relevant setting, given its demographic aging, socio-territorial diversity, and constraints in access to specialized geriatric services.

Therefore, the objective of the present study was to assess functional capacity and its sociodemographic and health determinants among older adults in the Lambayeque region of Peru, providing evidence to support planning and intervention efforts oriented toward maintaining independence and quality of life in this growing population group.

Materials and Methods

Study Design and Participants

A cross-sectional analytical study was conducted between March and July 2025 in the Lambayeque region, Peru. The population comprised community-dwelling older adults aged 60 years and over. Participants were recruited through a multistage convenience sampling process in diverse community settings, including primary health centers, public parks, social clubs for older adults, and home visits. The inclusion of multiple community contexts aimed to capture a wide

range of functional profiles, from active to less active individuals. Inclusion criteria were: age ≥ 60 years, permanent residence in the region, and cognitive ability to respond to the interview assessed using the Pfeiffer Short Portable Mental Status Questionnaire (SPMSQ). Exclusion criteria included severe cognitive impairment, defined as ≥ 8 errors on the Pfeiffer Test, current hospitalization at the time of data collection, or inability to communicate verbally. All participants signed informed consent prior to participation.

Sample Size

The minimum required sample size was estimated a priori using a 95% confidence level, 5% margin of error, and a conservative expected prevalence of functional dependence of 50%. The calculation was performed using Epi Info™ version 7.2 (Centers for Disease Control and Prevention, USA), resulting in a minimum sample size of 384 participants. However, data collection was completed for 657 older adults, which improved the statistical power and precision of subgroup analyses.

Variables and Instruments

Sociodemographic Determinants

A structured form was developed to collect information on sociodemographic and health-related variables. It included age, sex, marital status, educational level, occupation, area of residence, and self-rated health status. Additional variables included the presence of chronic diseases and medication use, which were verified through self-report and medical records when available.

Katz Scale

Functional capacity in basic activities of daily living (BADL) was assessed using the Katz Index, validated for older adults in Spanish-speaking populations. The scale was administered through structured self-report interviews, in which participants were asked to indicate their level of independence for six self-care activities: bathing, dressing, toileting, transferring, continence, and feeding. Each item was rated as 1 (independent) or 0 (dependent), yielding a total score ranging from 0 to 6.²⁵ Five levels of functional performance were established: Total dependence (0–1), Severe dependence (2), Moderate dependence (3), Slight dependence (4–5), and Independence (6). For comparative and multivariate analyses, categories were merged into three groups: dependent (0–3), requires assistance (4–5), and independent (6). This classification has been used in Latin American studies with acceptable validity and reliability (Cronbach's $\alpha = 0.91$).²⁶

Lawton and Brody Scale

The Lawton and Brody IADL Scale,¹ was applied to assess more complex tasks necessary for independent living. The instrument was administered via self-report during face-to-face interviews, using the Spanish-adapted version validated in Latin American populations. The scale consists of eight domains: using the telephone, shopping, preparing meals, housekeeping, doing laundry, using transportation, managing medications, and managing finances. Each activity was scored as 1 (independent) or 0 (dependent), with a total possible score from 0 to 8. For descriptive purposes, functional levels were classified as: Dependent (0–2), Partially dependent (3–5), and Independent (6–8). For the regression model, the variable was dichotomized as dependent (≤ 5) and independent (6–8). The instrument has shown strong psychometric properties in Spanish-speaking contexts (Cronbach's $\alpha = 0.94$; Aiken's $V = 0.89$).^{27–30}

Operational Definition of Functional Dependence

For descriptive analysis, both BADL and IADL were categorized into three levels (dependent, requires assistance, independent). However, for the logistic regression analysis, only the IADL score was used as the dependent variable, given its higher sensitivity in detecting early declines in autonomy among community-dwelling older adults. The decision to focus on instrumental activities was based on evidence indicating that IADL impairments often precede BADL decline and are more closely associated with sociodemographic and health factors.¹

Procedure

Data collection was carried out by trained field researchers with backgrounds in gerontology and nursing. Interviews were conducted face-to-face in participants' homes or designated community spaces, following standardized protocols to ensure consistency and reduce interviewer bias. The average duration of each assessment was approximately 25 minutes.

Ethical Considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical evaluation was completed prior to the initiation of data collection. The formal written approval was issued by the Research Ethics Committee of the Regional Council IX of the Peruvian College of Nurses (Approval Code: 04789–2024-CDN/CEP; Approval Date: October 23, 2024). The study followed a non-interventional, observational design involving minimal risk procedures. All participants provided written informed consent prior to their inclusion in the study.

Statistical Analysis

Data processing and analysis were performed using SPSS[®] statistical software version 26.0. Initially, a descriptive analysis was performed to summarize the characteristics of the sample. For categorical variables, absolute and relative frequencies were calculated, while for numerical variables, measures of central tendency and dispersion, such as the mean and standard deviation, were determined. Subsequently, bivariate analyses were performed using Pearson's chi-square test to identify significant associations between categorical variables (eg., sex, educational level, and occupation) and functional capacity level (dependent, requires assistance, or independent). Finally, a binary logistic regression model was applied to identify the sociodemographic and health factors associated with functional dependence. In this analysis, the B coefficients, odds ratios (OR), 95% confidence intervals, and p-values were estimated. Results were considered statistically significant when the p-value was less than 0.05.

Results

Descriptive Characteristics of the Sample

Table 1 summarizes the sociodemographic and health characteristics of the 657 older adults included in the study. The mean age was 72.8 ± 7.6 years, and 58.9% were women. Most participants were married or cohabiting (51.6%) and lived

Table 1 Sociodemographic and Health Characteristics of Older Adults (n = 657)

Variable	Categories	n (%)
Age (years)	60–69	243 (37.0)
	70–74	179 (27.2)
	≥75	235 (35.8)
Sex	Male	270 (41.1)
	Female	387 (58.9)
Marital status	Married/cohabiting	339 (51.6)
	Single/divorced/widowed	318 (48.4)
Education	Primary or less	310 (47.2)
	Secondary	201 (30.6)
	Higher	146 (22.2)

(Continued)

Table 1 (Continued).

Variable	Categories	n (%)
Employment status	Employed	196 (29.8)
	Unemployed/retired	461 (70.2)
Area of residence	Urban	474 (72.1)
	Rural	183 (27.9)
Chronic diseases	None	242 (36.8)
	≥1 condition	415 (63.2)
Multimorbidity (≥2 diseases)	Yes	314 (47.8)
Self-rated health	Excellent/good	254 (38.7)
	Fair	261 (39.7)
	Poor/very poor	142 (21.6)

in urban areas (72.1%). A total of 63.2% reported at least one chronic disease, and 47.8% had multimorbidity (two or more conditions). Regarding self-rated health, 39.7% perceived it as fair, while 21.6% considered it poor or very poor.

Functional Capacity in BADL and IADL

Table 2 presents the levels of functional performance for both basic and instrumental activities of daily living. In BADL, 16.3% of participants were classified as dependent, 28.9% required assistance, and 54.8% were independent. For IADL, 25.1% were dependent, 35.6% partially dependent, and 39.3% independent. Dependence in IADL was more frequent among participants aged ≥75 years, women, those with lower educational attainment, and individuals with multimorbidity ($p < 0.05$).

Prior to the multivariable analysis, bivariate associations between functional dependence and sociodemographic and health variables were examined using Pearson's chi-square test. Variables showing statistically significant associations in these analyses ($p < 0.05$) were subsequently included in the logistic regression model (Table 3).

Factors Associated with Functional Dependence

Binary logistic regression analysis (Table 4) identified several variables significantly associated with functional dependence (dependent = 1; independent = 0). Older age (≥75 years), female sex, lower educational level, unemployment, and multimorbidity were associated with higher odds of functional dependence. Specifically, being male showed a protective association (OR = 0.33; 95% CI: 0.17–0.63; $p = 0.001$). Participants aged 75 years or older were more likely to be dependent (OR = 2.71; 95% CI: 1.56–4.71; $p = 0.001$). Unemployment also increased the likelihood of dependence (OR = 2.50; 95% CI: 1.12–5.56; $p = 0.041$), as did multimorbidity (OR = 1.89; 95% CI: 1.07–3.34; $p = 0.028$). Higher education acted as

Table 2 Functional Capacity in BADL and IADL Among Older Adults (n = 657)

Functional Domain	Dependent n (%)	Requires Assistance/Partial Dependence n (%)	Independent n (%)
BADL (Katz Index)	107 (16.3)	190 (28.9)	360 (54.8)
IADL (Lawton & Brody)	165 (25.1)	234 (35.6)	258 (39.3)

Notes: Classification based on validated Latin American adaptations.

Abbreviations: BADL, Basic Activities of Daily Living; IADL, Instrumental Activities of Daily Living.

Table 3 Bivariate Associations Between IADL Dependence and Sociodemographic and Health Variables (χ^2 -Test)

Variable	Categories	IADL Independent n (%)	IADL Dependent n (%)	χ^2	p-value
Sex	Male	142 (52.6)	128 (47.4)	18.72	<0.001
	Female	116 (30.0)	271 (70.0)		
Age group (years)	60–69	131 (53.9)	112 (46.1)	34.85	<0.001
	70–74	78 (43.6)	101 (56.4)		
	≥75	49 (20.9)	186 (79.1)		
Education level	Primary or less	88 (28.4)	222 (71.6)	26.41	<0.001
	Secondary	86 (42.8)	115 (57.2)		
	Higher	84 (57.5)	62 (42.5)		
Employment status	Employed	108 (55.1)	88 (44.9)	21.09	<0.001
	Unemployed/retired	150 (32.5)	311 (67.5)		
Multimorbidity (≥2 diseases)	No	127 (52.5)	115 (47.5)	17.64	<0.001
	Yes	131 (41.7)	183 (58.3)		

Note: IADL dependence was dichotomized as dependent (≤ 5) and independent (6–8). Pearson's chi-square test was used. Variables with $p < 0.05$ were included in the multivariate logistic regression model.

Table 4 Binary Logistic Regression Analysis of Factors Associated with Functional Dependence (Dependent = 1)

Variable	Categories (Reference)	OR	95% CI	p-value
Sex	Male (Ref: Female)	0.33	0.17–0.63	0.001
Age group	≥75 (Ref: 60–74)	2.71	1.56–4.71	0.001
Education	Higher (Ref: Primary or less)	0.56	0.32–0.97	0.041
Employment status	Unemployed (Ref: Employed)	2.50	1.12–5.56	0.041
Multimorbidity (≥2 diseases)	Yes (Ref: No)	1.89	1.07–3.34	0.028
Model fit	Hosmer–Lemeshow test	$\chi^2 = 5.98$	$p = 0.42$	—

a protective factor (OR = 0.56; 95% CI: 0.32–0.97; $p = 0.041$). All models were adjusted for sex, age, marital status, and area of residence, and showed adequate fit (Hosmer–Lemeshow $p = 0.42$).

Discussion

In the context of population aging in Peru and many other regions of Latin America, assessing the functional capacity of older adults is a public health priority. Loss of functionality not only limits personal autonomy, but also increases dependence, the burden on families and the health system, and affects the quality of life of older adults. Importantly, the present study focuses specifically on functional dependence in IADL, which are considered sensitive indicators of early functional decline rather than overall functional capacity or severe disability. This study identifies the sociodemographic and health determinants associated with IADL functional dependence in a representative sample of older adults in a region of Peru. Multivariate analysis revealed that male sex, advanced age, labor inactivity, and the presence of multiple chronic diseases were factors significantly associated with functional dependence in IADL. In particular, men were less likely to be dependent, while the risk increased progressively with age, unemployment, and multimorbidity.

One of the findings of this study was that being male was associated with a lower probability of functional dependence compared to women. Although this result is consistent with previous literature and should not be interpreted as a novel finding per se, it provides relevant contextual evidence for the Lambayeque region. Studies conducted in Latin American countries and other regions of the world have reported that older women tend to exhibit higher levels of functional dependence, especially in instrumental activities of daily living.^{15,18} Large-scale cohort studies have identified female gender as a risk factor for future functional dependence, while being male is associated with a lower likelihood of developing limitations in both basic and instrumental activities of daily living over time.¹⁹

This difference can be explained by several biological and social factors. Women generally live longer than men, which increases their exposure to chronic and disabling conditions for extended periods.¹⁴ In addition, in the specific context of Lambayeque, occupational history may play a relevant role, as older men who remain involved in agricultural or other economic activities may maintain higher levels of physical activity, which contributes to preserving IADL-related autonomy. Cultural factors such as gender roles, self-perceived autonomy, and lower self-reported limitations among men may also partially account for the differences observed in this study.

However, not all studies have found this same pattern. For instance, Laguado et al³¹ reported in a Colombian population that older men exhibited a greater degree of functional decline compared to women. Similarly, a study conducted in Ecuador found no statistically significant differences between men and women, although some descriptive trends were observed.³² These findings suggest that the relationship between sex and IADL dependence is not universal but may vary according to sociocultural context, sample characteristics, and population aging patterns. They also reinforce the need to understand functional dependence from a comprehensive and multidimensional perspective that considers age, nutritional status, occupational background, gender roles, and other social determinants of health.

In this study, advanced age was significantly associated with a higher probability of functional dependence, specifically in IADL, showing a progressive decline in independence among older age groups. This finding aligns with evidence from studies conducted in Tehran,⁹ China,¹⁶ and the United States,³³ which consistently report that the likelihood of IADL limitation increases with age. Similarly, research in Latin America indicates that the prevalence of IADL dependence rises exponentially in the oldest age groups.^{18,32} This deterioration can be attributed to multiple physiological and psychosocial mechanisms that accompany aging. Over time, there is a progressive loss of muscle mass and strength (sarcopenia), deterioration of balance and coordination, increased bone fragility, and reduced physiological reserve across several systems.^{34,35} Concurrently, aging is accompanied by greater comorbidity,³⁶ loss of social networks,³⁷ and reduced participation in meaningful activities,³⁸ all of which negatively impact autonomy, particularly in more complex instrumental tasks.

In the present study, participants were analytically grouped using a cutoff at 75 years of age. Although this approach allowed us to identify higher risk of IADL dependence among older adults, the data were not disaggregated by decade of age (eg., 60–69, 70–79, ≥80 years). Therefore, while the discussion highlights how preventive strategies might differ across age groups, this should be interpreted as a conceptual implication rather than a direct empirical finding of the present analysis. Future research should examine age-specific trajectories of IADL decline and explore at which stage instrumental dependence may precede or transition into basic ADL dependence, which would be critical for timing preventive interventions.

The logistic regression analysis showed that older adults without current employment exhibited a higher probability of IADL dependence compared to those engaged in remunerated activities. This finding aligns with previous evidence indicating that occupational engagement serves as a protective factor for maintaining functionality in later life. For instance, a 12-year population-based cohort study in Taiwan¹³ found that unemployment at the end of one's professional career was significantly associated with a greater risk of functional disability, even after adjusting for confounding variables such as age, sex, education, income, self-rated health, and comorbidities. Specifically, the likelihood of developing functional disability was more than twofold higher among unemployed older adults compared with those who remained employed (OR = 2.33).¹³ Similarly, a cross-sectional study in Brazil reported that unemployment was significantly associated with functional dependence, with a prevalence ratio of 1.4.¹⁷ Moreover, unemployment and economic dependence have been linked to worse clinical outcomes, including higher mortality and increased risk of malnutrition among older adults hospitalized with neurological conditions.²⁰ These results suggest that maintaining paid

or productive work during older adulthood may contribute to preserving functional independence, supporting social participation, and mitigating health risks in aging populations.^{13,17,20}

However, these results should be interpreted with caution, as the relationship between employment and functional capacity may be partially influenced by a healthy worker effect, meaning that older adults in better physical and cognitive health are more likely to remain engaged in paid or productive activities.³⁹ Nevertheless, this finding underscores the importance of promoting opportunities for social and productive engagement adapted to the abilities of older adults, beyond formal employment. Community-based programs that encourage volunteering, participation in local initiatives, or involvement in self-care and recreational activities could provide similar benefits in preserving autonomy and functional ability among aging populations.

In the Peruvian context, unemployment among older adults may also reflect formal or informal retirement rather than involuntary job loss, particularly in individuals aged 75 years and older. Therefore, labor inactivity in this study likely captures a combination of retirement status and health-related functional limitations, which should be considered when interpreting its association with IADL dependence.

Another key finding of this study was that older adults with multimorbidity (two or more chronic diseases) exhibited higher odds of functional dependence than those reporting a single condition. This aligns with extensive international evidence identifying multimorbidity as a major determinant of disability and loss of independence in older adults. Numerous longitudinal studies and meta-analyses indicate that as the number and severity of chronic conditions increase, so does the risk of functional impairment. Combinations of cardiometabolic and neurodegenerative diseases, in particular, are associated with the highest levels of dependence.^{40–42}

Importantly, the relationship between multimorbidity and functional decline is bidirectional and synergistic: while multimorbidity accelerates physical and cognitive deterioration, functional dependence can in turn exacerbate disease burden and health deterioration, generating a vicious cycle that compromises quality of life and survival.^{43,44} Longitudinal evidence further confirms that multimorbidity predicts both the onset and progression of functional limitations, especially among older and female adults.^{42,45} Specific multimorbidity patterns, such as those involving neuropsychiatric or cardiometabolic disorders, have been linked to steeper declines in mobility, daily performance, and cognitive functioning.^{44,46}

The mechanisms explaining this association are multifactorial. On one hand, the pathophysiological interaction among multiple chronic diseases produces cumulative physical stress that directly affects mobility, strength, and balance.⁴⁷ On the other hand, polypharmacy, frequent medical appointments, and higher risk of adverse events contribute to decreased autonomy and quality of life.^{48,49} Additionally, multimorbidity has been associated with increased anxiety, fear of falling, reduced social participation, and greater dependence on caregivers. These findings highlight the urgent need for early detection and integrated interventions targeting individuals with multimorbidity to prevent or delay functional decline and disability in older adults.

Public Health Implications of the Study

The findings of this study have important implications for the planning of health services, the design of community-based interventions, and the formulation of public policies aimed at older adults. First, the high proportion of individuals with some degree of functional dependence highlights the need to incorporate regular assessments of functional capacity into primary care services, especially in regions such as Lambayeque, where access to specialized services is limited. Second, the identified associated factors—such as advanced age, multimorbidity, labor inactivity, and female sex—make it possible to profile high-risk groups on which to focus preventive, rehabilitative, and active aging promotion strategies. Likewise, the results suggest that it is crucial to strengthen intersectoral programs that promote the social and productive participation of older adults, comprehensive management of chronic diseases, and education for self-care. Finally, this study provides local evidence that can serve as a basis for the design of regional health and social protection plans that are more sensitive to the functional conditions of the older adult population in Peru.

Limitations of the Study

This study presents some limitations that should be considered when interpreting the results. First, due to its cross-sectional design, it is not possible to establish causal relationships between the variables analyzed and functional capacity, but only associations. In this context, the identified relationships should be interpreted as reflecting early markers of functional decline rather than causal pathways leading to disability. Second, the information was collected through self-report using structured interviews, which may introduce recall bias or social desirability bias, especially regarding aspects related to health status or functional performance. Additionally, although validated instruments such as the Katz Index and the Lawton and Brody Scale were used, the functional assessment did not include objective physical performance tests, which could more accurately complement the diagnosis of dependence.

It is also important to note that functional dependence in this study was operationalized primarily using instrumental activities of daily living (IADL) as the outcome in the regression analyses. While IADL are considered sensitive indicators of early functional decline among community-dwelling older adults, the findings cannot be extrapolated to more severe stages of disability typically reflected by basic activities of daily living (BADL).

Likewise, the study was conducted in a specific region of Peru (Lambayeque), so the results are not generalizable at the national level or to other sociocultural contexts without appropriate contextual adaptations. Additionally, although multiple sociodemographic and health variables were considered, there may be factors not included in the model—such as cognitive decline, habitual physical activity, or the quality of the urban and family environment—that also influence functionality and could be explored in future research. Future studies, particularly longitudinal designs, should examine differential predictors of IADL and BADL decline to better capture the progression of functional loss in aging populations. Finally, employment status was assessed as current labor activity and did not allow differentiation between formal retirement and unemployment, which may partially confound the observed association between labor inactivity and functional dependence in older adults.

Conclusions

The present study revealed that a substantial proportion of older adults in the Lambayeque region experience some degree of functional dependence, specifically in instrumental activities of daily living (IADL), which represent early markers of functional decline rather than global functional performance. Factors such as advanced age, lack of current employment, and multimorbidity were significantly associated with a higher likelihood of IADL dependence, whereas being male was associated with greater instrumental functional independence. These findings highlight the need for comprehensive, preventive strategies aimed at maintaining instrumental autonomy in older adults. Priority should be given to early screening and management of chronic conditions, promotion of active and socially engaged lifestyles, and strengthening of community and family support networks. Moreover, it is recommended that regional and national public health programs systematically include IADL-based functional assessments as core indicators for monitoring the well-being and quality of life of Peru's aging population.

Human Ethics and Consent to Participate

The study was approved by the Bioethics Committee of Regional Council IX of Lambayeque in October 2024. All participants signed a written informed consent form prior to their inclusion in the research. Data confidentiality, respondent anonymity, and voluntary participation were ensured at all times, in accordance with the ethical principles of the Declaration of Helsinki.

Data Sharing Statement

The datasets generated and analyzed during the current study are not publicly available due to confidentiality agreements with participants, but they are available from the corresponding author upon reasonable request.

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Disclosure

The authors declare that they have no conflict of interest regarding the publication of this article.

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