RESEARCH ARTICLE
OPEN ACCESS

REVISTA RIICS Investigación e innovación en ciencias de la salud

Caregiver Burden and Quality of Life in Older Adults Receiving Home Care in an Andean Community of Peru

Sobrecarga del cuidador y calidad de vida en adultos mayores con atención domiciliaria en una comunidad andina del Perú

Edwin Martin Ruiz-Sanchez[1], **Pedro Javier Navarrete-Mejía**[1]

[1] *Graduate School, Continental University, Lima, Peru*

Correspondence
Edwin Martin Ruiz-Sanchez
Email: 45926988@continental.edu.pe

Editor
Fraidy-Alonso Alzate-Pamplona, MSc.

Declaration of interests
The authors declare no conflicts of interest.

Funding
This research received no external funding.

Ethics statement
This study was approved by the Institutional Research Ethics Committee of Universidad Continental (approval no. 0295-2025-CEIE-UC). All participants provided written informed consent prior to participation.

Data availability
All data supporting the findings of this study are available within the article. For additional details, please contact the corresponding author.

Abstract

Introduction. Informal caregiver burden is a multidimensional phenomenon that may influence the well-being of dependent older adults. However, evidence regarding its relationship with quality of life in Andean community settings remains limited.

Objective. To evaluate the association between caregiver burden and quality of life among older adults receiving home care in a high-Andean community in Peru, while recognizing that this relationship may be influenced by clinical, functional, nutritional, and contextual factors.

Methods. A quantitative, correlational, nonexperimental, cross-sectional study was conducted. A total of 281 older adult-caregiver dyads were evaluated, selected through simple random sampling. Quality of life was measured with the WHO-QOL-AGE, and caregiver burden with the Zarit Scale. Due to the non-normal distribution of the data, medians and interquartile ranges were reported. Bivariate analyses were performed using Spearman correlation and the Mann-Whitney U and Kruskal-Wallis tests, with statistical significance set at $p < 0.05$. In addition, an exploratory binary logistic regression model was fitted to evaluate the adjusted association between caregiver burden and inadequate quality of life.

Results. Quality of life was inadequate in three-quarters of the sample, and more than half of the caregivers had some degree of burden. Quality-of-life scores differed significantly according to nutritional status and functional status ($p < 0.05$), whereas caregiver burden scores did not differ across the characteristics examined. No significant correlation was observed between older adults' quality of life and caregiver burden ($\rho = -0.079$; $p = 0.189$). However, in an exploratory adjusted logistic regression model, caregiver burden was associated with higher odds of inadequate quality of life (adjusted OR = 1.868; 95% CI: 1.035–3.370; $p = 0.038$).

Conclusion. In this population, the bivariate correlation between caregiver burden and quality-of-life scores was not statistically significant. Nevertheless, an exploratory adjusted logistic regression model suggested that caregiver burden may be associated

Author Contributions
Edwin Martin Ruiz-Sanchez: conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing – original draft, writing – review & editing.
Pedro Javier Navarrete-Mejía: conceptualization, methodology, supervision, validation, visualization, writing – review & editing.

Generative AI declaration
During the preparation of this manuscript, the authors used ChatGPT (OpenAI, GPT-5) solely for language assistance in translating and improving the English-language text, including grammar, clarity, and textual coherence. The tool was not used in the study design, statistical analysis, data processing, interpretation of results, preparation of tables or figures, or formulation of scientific conclusions. The authors developed all scientific content, methodological decisions, analyses, and interpretations independently. The authors critically reviewed the entire manuscript and take full responsibility for its accuracy, coherence, originality, and integrity.

Cite this article
Ruiz-Sanchez EM, Navarrete-Mejía PJ. Caregiver burden and quality of life in older adults receiving home care in an Andean community of Peru. Revista de Investigación e Innovación en Ciencias de la Salud. 2026;8(2):1-17. e-v8n2a574. https://doi.org/10.46634/riics.574

Received: 03/03/2026
Revised: 05/08/2026
Accepted: 07/20/2026
Published: 08/06/2026

with higher odds of inadequate quality of life. Given the cross-sectional design and the possibility of residual confounding, this finding should be interpreted cautiously and viewed as hypothesis-generating.

Keywords

Aged; caregivers; caregiver burden; quality of life; home nursing; house calls; aging; public health; cross-sectional studies.

Resumen

Introducción. La sobrecarga del cuidador informal constituye un fenómeno multidimensional que puede influir en el bienestar del adulto mayor dependiente. Sin embargo, la evidencia sobre su relación con la calidad de vida en contextos comunitarios andinos es limitada.

Objetivo. Evaluar la asociación entre la sobrecarga del cuidador y la calidad de vida de adultos mayores que reciben atención domiciliaria en una comunidad andina del Perú, reconociendo que dicha relación puede estar influida por factores clínicos, funcionales, nutricionales y contextuales.

Métodos. Estudio cuantitativo, correlacional, no experimental y transversal. Se evaluaron 281 díadas adulto mayor–cuidador, seleccionadas mediante muestreo probabilístico aleatorio simple. La calidad de vida se midió con el WHOQOL-AGE y la sobrecarga del cuidador con la Escala de Zarit. Debido a la distribución no normal de los datos, se emplearon medianas y rangos intercuartílicos. Para el análisis bivariado se utilizaron la correlación de Spearman y las pruebas U de Mann–Whitney y Kruskal–Wallis, considerando un nivel de significancia de $p < 0,05$. Además, se ajustó un modelo exploratorio de regresión logística binaria para evaluar la asociación ajustada entre la sobrecarga del cuidador y la calidad de vida inadecuada.

Resultados. La calidad de vida fue inadecuada en tres cuartas partes de la muestra y más de la mitad de los cuidadores presentó algún grado de sobrecarga. Los puntajes de calidad de vida mostraron diferencias significativas según el estado nutricional y el estado funcional ($p < 0,05$), mientras que los puntajes de sobrecarga del cuidador no mostraron diferencias entre las características examinadas. No se observó una correlación significativa entre la calidad de vida del adulto mayor y la sobrecarga del cuidador ($\rho = -0,079$; $p = 0,189$). Sin embargo, en un modelo exploratorio de regresión logística ajustada, la sobrecarga del cuidador se asoció con una mayor probabilidad de presentar calidad de vida inadecuada (ORa = 1,868; IC del 95 %: 1,035–3,370; $p = 0,038$).

Conclusión. En esta población, la correlación bivariada entre la sobrecarga del cuidador y los puntajes de calidad de vida no fue estadísticamente significativa. No obstante, un modelo exploratorio de regresión logística ajustada sugirió que la sobrecarga del cuidador podría estar asociada con una mayor probabilidad de presentar calidad de vida inadecuada. Debido al diseño transversal y a la posibilidad de confusión residual, este hallazgo debe interpretarse con cautela y considerarse como generador de hipótesis.

Palabras clave

Anciano; cuidadores; carga del cuidador; sobrecarga del cuidador; calidad de vida; atención domiciliaria de salud; visita domiciliaria; envejecimiento; salud pública; estudios transversales.

Introduction

Population aging represents an urgent and growing challenge for health systems and social policies worldwide. It is estimated that, by 2030, one in six people worldwide will be aged 60 years or older, increasing the demand for long-term and informal care provided by family members and other close contacts [1]. This trend is occurring more rapidly in low-income regions, where formal support networks and specialized services are insufficient to meet the needs of dependent older adults [2]. In this context, the informal caregiver, defined as an unpaid person who assumes the responsibilities of daily care, becomes central to ensuring the well-being of the older adult, although this role may also generate tensions and adverse effects for both the caregiver and the care recipient [3].

Providing long-term care often involves emotional strain, physical fatigue, financial demands, and restrictions in personal activities. When these demands accumulate over time, caregivers may experience a level of burden capable of affecting both their own well-being and the care process itself [4]. This burden may intensify due to variables such as the intensity of care required, lack of social support, economic limitations, and the absence of targeted public policies, potentially generating a negative impact on the older adult's quality of life and on the relational dynamics between caregiver and care recipient [5]. Despite this theoretical recognition, there is a considerable gap in the literature addressing, in an integrated and systemic manner, how caregiver burden is related to quality-of-life indicators in older adults, particularly in community and sociocultural contexts in Peru.

In a study conducted in Spain, at least one in five caregivers experienced some type of burden, which was associated with the older adult's functional status ($p = 0.002$) and the caregiver being a direct family member ($p = 0.003$) [6]. A higher magnitude of caregiver burden has been reported in Chile, where 83.6% of those evaluated presented some type of burden; the study indicated that caregivers of older adults with stronger social support networks experienced lower levels of burden than those with limited family support [7]. Associations between high burden and deterioration of psychosocial functioning in older adults have been reported; however, this evidence does not always consider moderating variables such as family support, educational level, resilience, or access to health services [8]. This thematic and methodological dispersion limits the generation of robust knowledge needed to inform intervention strategies in local contexts.

The magnitude of caregiver burden has been documented in different settings. Reports from the World Health Organization indicate that a substantial proportion of informal caregivers experience high levels of stress and fatigue, conditions that have been associated with poorer physical and psychological health outcomes. These findings underscore the importance of considering caregiver well-being as an integral component of long-term care strategies for older adults [9].

Evidence from the high-Andean regions of Peru remains limited. Geographic isolation, restricted access to health care, and the limited availability of community services may increase the challenges faced by older adults and their caregivers. Accordingly, the relationship between caregiver burden and quality of life is likely to reflect multiple interacting factors rather than a single causal pathway. Health status, functional capacity, emotional well-being, and

limited family or community support may jointly shape the caregiving experience and older adults' perceived quality of life [10,11]. In these settings, reliance on family caregivers may be greater, whereas access to formal home-care services remains limited. Examining this relationship is therefore particularly relevant given the scarcity of evidence from Andean communities. A better understanding of these interactions may help identify priorities for well-being in later life and inform locally appropriate community support and health programs.

The relationship between caregiver burden and older adults' quality of life may vary according to clinical, functional, family, and community contexts. In older adults with functional dependence, nutritional deterioration, or chronic disease, quality of life may be more directly influenced by loss of autonomy, physical limitation, nutritional status, and disease-related factors than by caregiver-perceived burden alone. Therefore, caregiver burden may act as a complementary, indirect, or context-dependent factor within a broader network of clinical, psychosocial, and family-related determinants.

The main contribution of this study does not lie in proposing a new theoretical model, but in providing empirical evidence on the relationship between caregiver burden and older adults' quality of life in a high-Andean community receiving home care, a context that remains underrepresented in Latin American research. This information may help guide community-based interventions adapted to vulnerable and geographically isolated populations. Therefore, this study aimed to evaluate the association between caregiver burden and quality of life among older adults receiving home care in a high-Andean community in Peru, using bivariate and exploratory adjusted analyses, while considering the potential influence of clinical, functional, nutritional, and contextual factors.

Methodology

Study Design

The research was conducted using a quantitative approach. According to its purpose, the study was applied and correlational in scope, as it sought to evaluate the association between caregiver burden and older adults' quality of life. It also had a nonexperimental, correlational, and cross-sectional design, because the variables were observed and analyzed as they occurred in their natural context at a single point in time [12].

Population and Sample

The population consisted of 1025 older adult-caregiver dyads, including older adults aged 60 years or older with mild to severe functional dependence and their respective informal caregivers residing in a community setting. The informal caregiver was defined as the person who provides direct and continuous care to the older adult without receiving financial remuneration.

The sample was selected through simple random sampling until the calculated sample size of 281 dyads was completed, considering a 95% confidence level, a 5% margin of error, a p value of 0.5, and a Z value of 1.96. The sample size was estimated for the calculation of population proportions, due to the absence of previous local studies that would allow determination of an expected effect size. Previously established inclusion criteria were also considered, including older adults with the ability to respond to the quality-of-life instruments and caregivers with a minimum of six months performing the caregiving role. Paid formal caregivers and older adults institutionalized in nursing homes were excluded from the study. Because the sample size was estimated for prevalence rather than for correlation or regression analyses, the study may have had limited statistical power to detect weak associations between caregiver burden and quality of life.

Variables and Operationalization

The variables evaluated were caregiver burden, understood as the level of physical, emotional, and social burden perceived by the informal caregiver, including impact of care, negative emotional reactions toward the family, family dependence, emotional exhaustion [13], and older adults' quality of life, considered from a multidimensional perspective that includes: functioning and well-being [14].

The study did not include specific caregiver-related variables, such as caregiver age, sex, relationship to the older adult, cohabitation, duration of caregiving, daily hours of care, caregiving intensity, or support network. Consequently, these caregiver-related characteristics could not be included as covariates in the adjusted model, which limits the ability to control for caregiver-level confounding and to explain the mechanisms underlying the observed association.

Data Collection Techniques and Instruments

Data were collected through structured interviews conducted in participants' homes. Because some older adults had a low educational level, trained researchers read each item aloud and directly recorded the participants' responses.

Caregiver burden was evaluated using the Spanish version of the modified Zarit Caregiver Burden Interview (ZBI). This questionnaire measures the level of perceived demand the caregiver feels associated with the provision of ongoing care including emotional strain, care-related impact, and perceived dependence of the care recipient. It comprises 17 items scored on a five-point Likert response scale. The measure has shown good reliability and validity in studies conducted with Spanish-speaking populations with internal consistency coefficients greater than 0.80 [15].

Quality of life was assessed using WHOQOL-AGE, which was specifically developed for older adults. This tool assesses individuals' views of their quality of life through domains related to functioning and well-being. The version used in this study has been evaluated in Latin America and achieved satisfactory psychometric performance, such as internal consistency above 0.85 [16]. The instruments used have previous evidence of validity and reliability in older adults and caregivers in Latin American settings.

Prior to fieldwork, the data collection team received standardized training to ensure consistent instrument administration, reduce measurement bias, and facilitate participants' understanding of the questions. Whenever possible, older adults and caregivers were interviewed separately to reduce social desirability bias and promote independent responses.

Procedure

Prior to data collection, local officials and community representatives held meetings that assisted in the identification of older adults receiving home care and their informal caregivers. The existing community registry served as the sampling frame, and participants were selected through simple random sampling.

Information was collected through scheduled home visits. At the beginning of each visit, the study was explained to prospective participants, and written informed consent was obtained. The quality-of-life questionnaire was administered directly to the older adult after a preliminary interview confirmed sufficient communication and comprehension abilities. Caregiver burden was assessed separately and only among informal caregivers responsible for regular care.

Interviews were conducted in separate places and on different days, if necessary, to reduce social desirability bias and promote independent responses. In the event of visual difficulties or low educational level, the questions were read aloud by the interviewer following standardized administration procedures. Finally, the collected data were checked each day for integrity, consistency, and quality of information before entry into the database. Information was coded and anonymized prior to any statistical analysis.

Data Analysis

The sample was characterized according to age, sex, nutritional status based on body mass index (BMI), functional status, and primary disease category. The data were processed and analyzed using IBM SPSS Statistics version 26. Before the analysis, database quality control, consistency verification, and cleaning of incomplete records were performed.

Quantitative variables were described using measures of central tendency and dispersion. Due to the non-normal distribution of the scores obtained, assessed using the Shapiro-Wilk test, medians and interquartile ranges (IQR) were used. Categorical variables were expressed as absolute frequencies and percentages.

Older adults' quality of life was evaluated based on the total WHOQOL-AGE instrument score, also considering the functioning and well-being dimensions. For descriptive purposes, scores were categorized as adequate and inadequate quality of life according to previously reported cut-off points, considering a score between 13 and 39 points as inadequate and a score greater than 39 points as adequate.

Caregiver burden was evaluated using the total score of the Zarit Caregiver Burden Scale. For the descriptive analysis, the following categories were considered: absence of burden (<36 points), mild burden (36–43 points), and severe burden (>43 points).

To evaluate the association between older adults' quality of life and caregiver burden, continuous scores from both instruments were analyzed at the dyad level. Data distribution was previously verified using normality tests, showing a non-normal distribution in all variables analyzed ($p < 0.05$). Consequently, descriptive results were presented using measures of central tendency and dispersion, specifically the median and interquartile range (IQR).

For the main bivariate analysis, the Spearman correlation coefficient was used to determine the magnitude and direction of the monotonic association between older adults' quality of life and caregiver burden. Likewise, as a secondary bivariate analysis, the nonparametric Mann-Whitney U and Kruskal-Wallis tests were used to compare the scores of the variables of interest according to the sociodemographic and clinical characteristics of the participants.

In addition to the bivariate analyses, an exploratory binary logistic regression model was fitted to evaluate the adjusted association between caregiver burden and inadequate quality of life. The dependent variable was quality of life, categorized as adequate or inadequate, with inadequate quality of life coded as the outcome of interest. For the logistic regression model, caregiver burden was dichotomized as absence of burden versus presence of burden, with mild and severe burden grouped into the burden category. Caregiver burden was included as the main independent variable, and the model was adjusted for age group, sex, nutritional status, functional status, and primary disease category. Categorical variables were entered using indicator contrasts, and adjusted odds ratios (aOR) with 95% confidence intervals (95% CI) were reported. Model fit was assessed using the Hosmer–Lemeshow goodness-of-fit test. In all analyses, a statistical significance level of $p < 0.05$ was considered.

Ethical Considerations

The study was conducted in accordance with the basic ethical principles of the Declaration of Helsinki and the principles of autonomy, beneficence, nonmaleficence, and justice. Participation was voluntary for older adults as well as their informal caregivers. Before enrollment, all participants received detailed information regarding the study objectives, procedures, potential risks, and expected benefits. Written informed consent was obtained from each person providing data; for individuals who had a visual impairment, the consent document was read aloud, and any questions were answered before consent was obtained.

To preserve confidentiality, records were coded and stored in password-protected databases accessible only to the research team. Interviews with older adults and caregivers were conducted separately whenever possible to allow independent responses and reduce response bias.

The study protocol received favorable ethical clearance from the Institutional Research Ethics Committee of Universidad Continental (accredited by the National Institute of Health of Peru) (OFICIO N°0295-2025-CIEI-UC).

Results

The sample consisted mainly of older adults aged 80 years or older, with a predominance of females. More than half of the participants were underweight, while nearly two-fifths showed severe impairment according to the Katz Index. Other grouped chronic conditions and cardiovascular diseases were the most frequently reported primary disease categories, accounting for 33.8% and 32.7% of the sample, respectively. A predominance of older adults with an unfavorable perception of their quality of life was observed. Although 48.8% of caregivers had no burden, 51.2% had some degree of burden, including 33.8% with severe burden (Table 1).

Table 1. Sociodemographic and Clinical Characteristics of the Sample.

Age Group (Mean age: 84.57 ± 7.4 years)	**n**	**%**
Young older adult (60-69 years)	9	3.2
Middle older adult (70-79 years)	53	18.9
Advanced older adult (80-89 years)	144	51.2
Long-lived (>=90 years)	75	26.7
By sex	**n**	**%**
Female	170	60.5
Male	111	39.5
By BMI	**n**	**%**
Underweight	157	55.9
Normal	91	32.4
Overweight	25	8.9
Obesity	8	2.8

Katz functional status	**n**	**%**
No or mild impairment	123	43.8
Moderate impairment	44	15.7
Severe impairment	114	40.6
Primary disease category	**n**	**%**
Cardiovascular disease	92	32.7
Neurological disease	51	18.1
Rheumatologic disease	43	15.3
Other diseases (Endocrine, Pulmonary, Oncologic, Traumatologic, Renal, Other)	95	33.8
Quality of life	**n**	**%**
Adequate	70	24.9
Inadequate	211	75.1
Caregiver burden	**n**	**%**
No burden	137	48.8
Mild burden	49	17.4
Severe burden	95	33.8

The median total quality-of-life score was 32.0 (IQR: 21.0–39.5). The median scores for the functioning and well-being dimensions were 20.0 and 11.0, respectively. The median caregiver-burden score was 36.0 (IQR: 32.0–50.0), and impact of care had the highest median score among the caregiver-burden dimensions evaluated (Table 2).

Table 2. Quality of Life and Caregiver Burden.

Variable	**Median (IQR)**	**Range**
Quality of life–General	**32.0 (21–39.5)**	**13–58**
Quality of life–Functioning	20.0 (12.5–25.0)	8–37
Quality of life–Well-being	11.0 (7.0–15.0)	5–21
Caregiver burden	**36.0 (32.0–50.0)**	**20–73**
Impact of care	15.0 (13.0–20.0)	8–31
Negative emotional reactions toward the family	7.0 (5.0–9.0)	3–14
Family dependence	7.0 (5.0–9.0)	3–15
Emotional exhaustion	9.0 (7.0–12.0)	4–18

No statistically significant differences in quality of life were identified according to sex, age group, or primary disease category. Overall differences in quality-of-life scores were observed according to nutritional status and functional status. Descriptively, the highest median was observed in the overweight group and the lowest in the underweight group; however, because no post hoc pairwise comparisons were performed, it was not possible to determine which specific groups differed significantly (Table 3).

Table 3. Quality of Life According to Sample Characteristics.

Characteristic	Category	n	Median (IQR)	p
Sex[1]	Male	111	35.0 (22.5–40.0)	0.316
	Female	170	29.5 (20.0–39.0)	
Age group[2]	60-69 years	9	29.0 (23.0–38.0)	0.116
	70-79 years	53	37.0 (27.0–45.0)	
	80-89 years	144	32.5 (17.0–39.3)	
	≥90 years	75	28.0 (23.0–38.0)	
BMI[2]	Underweight	157	28.0 (22.0–38.0)	0.022*
	Normal	91	35.0 (14.0–40.5)	
	Overweight	25	39.0 (31.0–45.0)	
	Obesity	8	35.0 (31.0–36.8)	
Functional status[2]	No or mild impairment	123	36.0 (14.0–45.0)	0.011*
	Moderate impairment	44	35.5 (27.0–38.3)	
	Severe impairment	114	27.0 (20.5–38.0)	
Primary disease category[2]	Cardiovascular	92	29.0 (14.0–41.0)	0.331
	Neurological	51	29.0 (24.5–38.0)	
	Rheumatologic	43	37.0 (26.5–39.5)	
	Other diseases	95	31.0 (23.5–40.0)	

Note. [1] Mann-Whitney U test. [2] Kruskal-Wallis test. *Statistically significant

Caregiver burden showed no significant variations according to the sociodemographic, nutritional, functional, or clinical characteristics of the older adults evaluated. The observed scores were similar among the different groups analyzed, indicating no statistically significant between-group differences in caregiver burden within this sample (Table 4).

Table 4. Caregiver Burden According to Sample Characteristics.

Characteristic	Category	n	Median (IQR)	p
Sex[1]	Male	111	35.0 (32.0–47.0)	0.372
	Female	170	36.0 (32.0–50.0)	
Age group[2]	60-69 years	9	36.0 (31.0–46.0)	0.642
	70-79 years	53	36.0 (33.0–50.0)	
	80-89 years	144	36.0 (32.0–50.0)	
	≥90 years	75	35.0 (30.5–48.5)	
BMI[2]	Underweight	157	36.0 (32.0–51.0)	0.836
	Normal	91	35.0 (32.0–47.0)	
	Overweight	25	36.0 (30.0–50.0)	
	Obesity	8	39.0 (32.8–50.0)	

Functional status[2]	No or mild impairment	123	35.0 (31.5–48.5)	0.341
	Moderate impairment	44	35.0 (30.8–50.0)	
	Severe impairment	114	36.5 (32.0–51.0)	
Primary disease category[2]	Cardiovascular	92	36.0 (32.0–49.0)	0.821
	Neurological	51	36.0 (30.5–50.0)	
	Rheumatologic	43	35.0 (31.0–48.0)	
	Other diseases	95	36.0 (32.0–52.0)	

Note. [1] Mann-Whitney U test. [2] Kruskal-Wallis test.

In the bivariate Spearman correlation analysis, no statistical evidence of an association was observed between older adults' quality-of-life scores and total caregiver burden or any of its dimensions. Although the correlation coefficients showed a negative direction, their magnitude was weak. Therefore, this result should be interpreted as the absence of statistical evidence of association between the continuous scores in this sample, rather than as definitive evidence that no relationship exists between caregiver burden and quality of life (Table 5).

Table 5. Relationship Between Caregiver Burden and Quality of Life.

Variable	Spearman's rho (ρ)	p
Caregiver burden	-0.079	0.189
Impact of care	-0.100	0.093
Negative emotional reactions toward the family	-0.051	0.391
Family dependence	-0.076	0.207
Emotional exhaustion	-0.023	0.706

Note. Spearman correlation test. Significance level $p < 0.05$.

In the exploratory adjusted logistic regression model, caregiver burden was associated with higher odds of inadequate quality of life. Older adults whose caregivers experienced burden had higher odds of inadequate quality of life than those whose caregivers had no burden, after adjustment for age group, sex, nutritional status, functional status, and primary disease category (aOR = 1.868; 95% CI: 1.035–3.370; p = 0.038). The overall model was statistically significant ($\chi^2 = 30.804$; df = 13; p = 0.004), and the Hosmer–Lemeshow test indicated adequate model fit (p = 0.673). None of the adjustment variables (age group, sex, nutritional status, functional status, or primary disease category) showed statistically significant independent associations with inadequate quality of life in this exploratory model (Table 6).

Table 6. Exploratory adjusted logistic regression model for inadequate quality of life.

Variable	aOR	95% CI	p
Caregiver burden: burden vs no burden	1.868	1.035–3.370	0.038
Age group	—	—	0.186
70–79 vs 60–69 years	0.706	0.120–4.145	0.699
80–89 vs 60–69 years	1.263	0.225–7.077	0.791
≥90 vs 60–69 years	1.974	0.325–11.991	0.460
Female vs male	1.154	0.629–2.117	0.644
Nutritional status	—	—	0.087
Underweight vs normal	1.471	0.760–2.846	0.252
Overweight vs normal	0.504	0.193–1.316	0.162
Obesity vs normal	4.293	0.469–39.308	0.197
Functional status	—	—	0.256
Moderate impairment vs no or mild impairment	1.239	0.516–2.977	0.631
Severe impairment vs no or mild impairment	1.850	0.889–3.849	0.100
Primary disease category	—	—	0.457
Neurological vs cardiovascular	2.103	0.764–5.787	0.150
Rheumatologic vs cardiovascular	1.242	0.511–3.019	0.633
Other diseases vs cardiovascular	0.988	0.491–1.990	0.973

Note. Binary logistic regression model adjusted for caregiver burden, age group, sex, nutritional status, functional status, and primary disease category. The dependent variable was inadequate quality of life. Caregiver burden was dichotomized as no burden versus burden, with mild and severe burden grouped into the burden category. Reference categories: no caregiver burden, male sex, normal BMI, age 60–69 years, no or mild functional impairment, and cardiovascular disease. Hosmer–Lemeshow goodness-of-fit test: p = 0.673. aOR = adjusted odds ratio; CI = confidence interval.

Discussion

In the present study, three-quarters of the older adults were classified as having inadequate quality of life, and differences were observed mainly according to nutritional status and functional status. Descriptively, the lowest medians were observed among underweight participants and those with severe functional impairment. These patterns suggest that nutritional and functional characteristics may be relevant when interpreting quality of life in this population; however, no post hoc pairwise comparisons were performed, and these variables were not independently associated with the outcome in the adjusted model. This interpretation is consistent with previous studies that have documented that disability in basic activities of daily living is associated with lower quality of life in older adults and that dependence increases the complexity of care and support needs [17,18]. Recent primary studies have also reported that poorer nutritional status and reduced functional capacity are associated with lower health-related quality of life among older adults, supporting the

relevance of considering nutritional and functional dimensions when interpreting quality-of-life outcomes in aging populations [19,20].

Bivariate analyses indicated differences in quality of life according to nutritional status and functional capacity. In contrast, the exploratory adjusted model suggested an association between caregiver burden and inadequate quality of life, whereas the remaining covariates did not show independent associations. Because the bivariate correlation between caregiver burden and continuous quality-of-life scores was not statistically significant, the adjusted finding should be interpreted cautiously and viewed as exploratory rather than confirmatory.

No statistically significant differences in quality of life were identified according to sex, age group, or primary disease category. This finding suggests that, at least in this sample, variability in older adults' well-being appears to depend more on clinical-functional factors than on demographic condition. However, the result should be interpreted with caution, because the absence of significance does not exclude clinically important differences or insufficient statistical power to detect small effects, but it does indicate that in this study there was insufficient evidence to support that sex, age, or main diagnosis alone explain differences in quality of life.

Regarding sex, some studies have indicated that older women, although they tend to have greater longevity, may also experience greater physical, emotional, and social burdens associated with aging and family caregiving roles. Nevertheless, these differences do not always reach statistical significance, reinforcing the idea that deterioration in quality of life in old age is a cross-cutting and multifactorial phenomenon rather than a condition strictly determined by sex [21].

Regarding caregiver burden, the median total score was 36.0 (IQR: 32.0–50.0), and no statistically significant differences were observed according to the sociodemographic, nutritional, functional, or clinical characteristics of the older adults. Likewise, no statistically significant correlation was found between older adults' quality of life and total caregiver burden or its specific dimensions. This result does not necessarily contradict the literature, as several studies have shown that burden is more consistently related to the caregiver's own quality of life than to that of the care recipient. Among family caregivers and caregivers of people with chronic disease or dependence, an inverse association between burden and quality of life has been described, especially when there is greater functional dependence of the patient [18,22,23].

The absence of a statistically significant correlation should not be interpreted as conclusive evidence of no relationship. It is possible that caregiver burden influences older adults' quality of life indirectly or only under certain clinical and family conditions. Variables such as caregiver relationship, cohabitation, duration and intensity of care, social support, cognitive impairment, emotional distress, and symptom burden may modify this association, but they were not measured in the present study. This is consistent with recent primary studies showing that caregiver burden is influenced by psychosocial factors, perceived competence, positive aspects of caregiving, and social support, particularly in caregivers of frail or multimorbid older adults [10,11]. In this context, caregiver burden may be better understood as a complementary or intermediate factor within a broader network of determinants that includes disability, nutritional status, dependence, and caregiving conditions [17,24].

Although the bivariate correlation between caregiver burden and continuous quality-of-life scores was not statistically significant, the exploratory adjusted logistic regression model yielded an association between caregiver burden and higher odds of inadequate quality of life. This discrepancy may reflect differences in outcome scaling, dichotomization, covariate adjustment, or residual confounding rather than evidence of a stronger underlying relationship.

Therefore, the adjusted estimate should be regarded as preliminary and hypothesis-generating, particularly given the cross-sectional design, the absence of caregiver-specific covariates, and the small number of participants in some categories. Recent studies and reviews have shown that caregiving burden has physical, psychological, and social repercussions on informal caregivers, and that factors such as patient dependence, social support, and the availability of family networks modulate the intensity of this burden [24-26]. Caregiver burden tends to be higher when the care recipient has cognitive impairment, particularly due to the accumulation of responsibilities, concerns about the family member's future, and financial strain related to caregiving expenses [27,28]. In the same sense, psychoeducational interventions and home visits have been reported to be useful strategies for reducing stress, anxiety, depression, and burden among caregivers, reinforcing the need to incorporate caregiver management within the comprehensive care of dependent older adults [29].

Other factors discussed in the literature but not assessed in the present study include caregivers' emotional health, social relationships, and family participation. Caregiver burden has been associated with anxiety and depressive symptoms, particularly when caregivers perceive limited control over caregiving demands or face increasing care needs [30,31]. Caregiving responsibilities may also strain family relationships and restrict social participation when care is concentrated in one person and external support is limited. Reduced opportunities for social interaction and leisure activities may further contribute to perceived burden and social isolation among caregivers [32].

The findings of the present study should be interpreted within the broader context of factors that influence quality of life in later life. Although caregiver burden is an important component of the caregiving experience, its relationship with older adults' quality of life may depend on other clinical, functional, and social determinants. Taken together, the present findings suggest that caregiver burden alone is unlikely to explain variations in older adults' quality of life, which appears to result from the interaction of multiple clinical, functional, nutritional, and contextual factors. These results underscore the importance of addressing the needs of both care recipients and informal caregivers through integrated community-based strategies.

Limitations

Several limitations should be considered when interpreting the present findings. First, the cross-sectional nature of the study does not allow conclusions regarding the direction or causality of the observed associations. Second, several relevant variables that may influence both caregiver burden and quality of life were not assessed. These included caregiver-related characteristics such as age, sex, relationship to the older adult, cohabitation, caregiving duration, daily hours of care, caregiving intensity, and support network. In addition, the clinical characterization of older adults was limited, as multimorbidity, cognitive impairment, symptom burden, emotional disorders, disease severity, and perceived social support were not evaluated. These omissions limit the ability of the study to explain the observed findings and to rule out residual confounding or indirect associations.

Another aspect to consider is that the sample size was estimated to determine population proportions rather than to detect correlations or adjusted associations of a predefined magnitude. Consequently, the study may have had limited sensitivity to detect weak but potentially relevant associations between caregiver burden and quality of life. In addition, caregiver burden was dichotomized for the logistic regression model, which may have simplified the variability captured by the original Zarit score. Moreover, some categories included in the adjusted logistic regression model had small frequencies, particularly the 60–69-year age group

and the obesity category. This may have contributed to wide confidence intervals and reduced precision in some estimates. Therefore, the adjusted results should be interpreted cautiously.

Finally, although differences were observed according to nutritional status and functional capacity, no post hoc pairwise comparisons were performed. Future studies should examine which specific categories account for these differences and assess their clinical relevance.

Conclusions

In this sample of older adults receiving home care in an Andean community of Peru, caregiver burden was not significantly correlated with continuous quality-of-life scores. An exploratory adjusted logistic regression model suggested that caregiver burden may be associated with higher odds of inadequate quality of life after adjustment for age group, sex, nutritional status, functional status, and primary disease category. Nutritional status and functional capacity differed in the bivariate analyses but were not independently associated with the outcome in the adjusted model.

These findings should be interpreted cautiously. The cross-sectional design, the sample-size strategy, the dichotomization of caregiver burden, the absence of caregiver-specific and psychosocial variables, and the small cell sizes in some categories limit the precision and strength of the inferences. The adjusted association should therefore be considered exploratory and hypothesis-generating rather than evidence of a causal relationship and requires confirmation in adequately powered longitudinal studies.

References

1. World Health Organization (WHO) [Internet]. Geneva: WHO; c2026 Ageing and health; 2025 Oct 1 [cited 2026 Jun 2]; [about 4 screens]. Available from: https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

2. Diaz Sanchez R, Roldan-Ramirez EL, Vargas CA. Redes sociales de apoyo formales e informales para la reducción de pobreza del adulto mayor y su familia. Salud UIS [Internet]. 2023;55(1):1-11. doi: https://doi.org/10.18273/saluduis.55.e:23004

3. Perez-Najera C, Diaz-Echemendia L, Cabrera-Cabrera X, Llontop-Castañeda BR, Callejas-Torres JC. El cuidador del adulto mayor: mirada en tiempos de COVID-19. Vox Juris [Internet]. 2021;39(1):39-54. Available from: https://portalrevistas.aulavirtualusmp.pe/index.php/VJ/article/view/1940

4. Tsai CF, Hwang WS, Lee JJ, Wang WF, Huang LC, Huang LK, et al. Predictors of caregiver burden in aged caregivers of demented older patients. BMC Geriatr [Internet]. 2021;21(1):59. doi: https://doi.org/10.1186/s12877-021-02007-1

5. Hernandez-Rodriguez M, Gonzalez-Netro MG, Garcia-Casas XM, Tellez-Gonzalez MA, Torres-de los Santos R, Chavez-Rodriguez J. Influencia del apoyo social y la sobrecarga del cuidador en la calidad de vida del adulto mayor. Nure Inv [Internet]. 2021;18(113):1-10. Available from: https://www.nureinvestigacion.es/OJS/index.php/nure/article/view/2051

6. Hernandez-Gomez MA, Fernandez-Dominguez MJ, Blanco-Ramos MA, Alves-Perez MT, Fernandez-Dominguez MJ, Souto-Ramos AI, et al. Depresión y sobrecarga en el cuidado de personas mayores. Rev Esp Salud Publica [Internet]. 2019;93:e1-10. Available from: https://ojs.sanidad.gob.es/index.php/resp/article/view/1251

7. Flores E, Rivas E, Seguel F. Nivel de sobrecarga en el desempeño del rol del cuidador familiar de adulto mayor con dependencia severa. Cienc Enferm [Internet]. 2012;18(1):29-41. doi: https://doi.org/10.4067/S0717-95532012000100004

8. Ogungbemi AO, Afolabi BA, Adeleke AA, Ajayi AA, Lagbenro SA, Falope IV, et al. Caregiver burden and quality of life of elderly patients attending a family medicine geriatric clinic at a teaching hospital, Osun State, South-West Nigeria. The Nigerian Health Journal [Internet]. 2025;25(2):685-96. doi: https://doi.org/10.71637/tnhj.v25i2.1066

9. World Health Organization (WHO). Global report on ageism [Internet]. Geneva: WHO; 2021 Mar 18. 202 p. Available from: https://www.who.int/publications/i/item/9789240016866

10. Bongelli R, Busilacchi G, Pacifico A, Fabiani M, Guarascio C, Sofritti F, et al. Caregiving burden, social support, and psychological well-being among family caregivers of older Italians: a cross-sectional study. Front Public Health [Internet]. 2024;12:1474967. doi: https://doi.org/10.3389/fpubh.2024.1474967

11. Chan CY, De Roza JG, Ding GTY, Koh HL, Lee ES. Psychosocial factors and caregiver burden among primary family caregivers of frail older adults with multimorbidity. BMC Prim Care [Internet]. 2023;24(1):36. doi: https://doi.org/10.1186/s12875-023-01985-y

12. Hernandez-Sampieri R, Mendoza Torres CP. Metodología de la investigación: las rutas cuantitativa, cualitativa y mixta. Ciudad de México: McGraw-Hill Education; 2018. 714 p.

13. Martin Carrasco M. Adaptación para nuestro medio de la Escala de Sobrecarga del Cuidador de Zarit. Revista Multidisciplinar de Gerontología [Internet]. 1996 [cited 2026 Jul 13];6(4):338-46. Available from: https://dialnet.unirioja.es/servlet/articulo?codigo=2959659

14. Baernholdt M, Hinton I, Yan G, Rose K, Mattos M. Factors associated with quality of life in older adults in the United States. Qual Life Res [Internet]. 2012;21(3):527-34. doi: https://doi.org/10.1007/s11136-011-9954-z

15. Martin Carrasco M, Ballesteros Rodriguez J, Ibarra Gandiaga N, Loizaga Arnaiz C, Serrano Valenzuela B, Larumbe Lizarraga MJ, et al. Sobrecarga del cuidador de pacientes con enfermedad de Alzheimer y distrés psíquico: una asociación relegada en la valoración de las demencias. Actas Esp Psiquiatr [Internet]. 2002;30(4):201-6. Available from: https://actaspsiquiatria.es/index.php/actas/article/view/1058

16. Queirolo-Ore SA, Barboza-Palomino M, Ventura-Leon J. Medición de la calidad de vida en adultos mayores institucionalizados de Lima, Perú. Enf Global [Internet]. 2020;19(4):259-88. doi: https://doi.org/10.6018/eglobal.420681

17. Salinas-Rodriguez A, Manrique-Espinoza BS, Montañez-Hernandez JC. Mediator effect of caregiver burden on the association between disability and quality of life among older adults. Salud Publica Mex [Internet]. 2022;64(5):507-14. doi: https://doi.org/10.21149/13491

18. Ruiz-Martinez AO, Vargas-Santillán ML, Rodriguez-Garcia C, Ruelas-Gonzalez MG, Gonzalez-Arratia Lopez-Fuentes NI. Sobrecarga y calidad de vida en cuidadores de enfermos crónicos con base en el nivel de independencia. Ciencia ergo-sum [Internet]. 2022;29(3). doi: https://doi.org/10.30878/ces.v29n3a3

19. Kunvik S, Kanninen JC, Holm A, Suominen MH, Kautiainen H, Puustinen J. Nutritional status and health-related quality of life among home-dwelling older adults aged 75 years: The PORI75 Study. Nutrients [Internet]. 2024;16(11):1713. doi: https://doi.org/10.3390/nu16111713

20. Cano F, Alves E, Pinho L, Fonseca C. Functional capacity of institutionalized older people and their quality of life, depressive symptoms and feelings of loneliness: A cross-sectional study. Nurs Rep [Internet]. 2024;14(4):3150-64. doi: https://doi.org/10.3390/nursrep14040229

21. Patwardhan V, Gil GF, Arrieta A, Cagney J, DeGraw E, Herbert ME, et al. Differences across the lifespan between females and males in the top 20 causes of disease burden globally: a systematic analysis of the Global Burden of Disease Study 2021. Lancet Public Health [Internet]. 2024;9(5):e282-94. doi: https://doi.org/10.1016/S2468-2667(24)00053-7

22. Marroquin-Escamilla AR, Santos-Flores JM, Montes de Oca-Luna R, Santos-Flores I, Obregon-Sanchez NH, Trujillo-Hernandez PE. Calidad de vida y sobrecarga de cuidadores familiares en primer nivel de atención. SU [Internet]. 2024;40(2):416-30. doi: https://doi.org/10.14482/sun.40.02.357.753

23. Linares-Canovas LP, Lemus-Fajardo NM, Linares-Canovas LB, Moreira-Diaz LR, Toledo del Llano R. Calidad de vida en cuidadores familiares de adultos mayores frágiles. SU [Internet]. 2022;38(1):129-45. doi: https://doi.org/10.14482/sun.38.1.613.044

24. Sanchez-Barcenas RA, Lopez-Hernandez D, Brito-Aranda L, Garcia-Mantilla BB, Thompson-Bonilla MR, Pavon-Delgado E, et al. Factores asociados a la sobrecarga del cuidador en cuidadores primarios de personas adultas mayores con diabetes tipo 2. Aten Primaria [Internet]. 2024;56(10):102948. doi: https://doi.org/10.1016/j.aprim.2024.102948

25. Madrid-Lopez R, Guzman-Fernandez L, Albaladejo-Garrido NM. Abordaje de la sobrecarga del cuidador principal de pacientes con demencia desde su prevalencia, factores de protección y de riesgo. Eur J Health Res [Internet]. 2023;9(1):1-18. doi: https://doi.org/10.32457/ejhr.v9i1.2232

26. Del-Pino-Casado R, Frias-Osuna A, Palomino-Moral PA, Ruzafa-Martinez M, Ramos-Morcillo AJ. Social support and subjective burden in caregivers of adults and older adults: a meta-analysis. PLoS One. 2018;13(1):e0189874. doi: https://doi.org/10.1371/journal.pone.0189874

27. Barba-Lara LE, Shuguli-Zambrano CN. Niveles de sobrecarga en cuidadores del adulto mayor con y sin deterioro cognitivo. Estudio comparado. Revista Eugenio Espejo [Internet]. 2022;16(2):67-80. Available from: https://www.redalyc.org/journal/5728/572870672014/html/

28. Araujo EL, Lacerda SS. Psychosocial factors affected by burden in family caregivers of people with Alzheimer's disease. Dement Neuropsychol. 2024;18:e20230115. doi: https://doi.org/10.1590/1980-5764-DN-2023-0115

29. Tinoco-Camarena JM, Hidalgo-Blanco MA, Daifuku-Sansano N, Lluch Canut MT, Raigal-Aran L, Puig-Llobet M. Intervenciones enfermeras para disminuir la sobrecarga de cuidadores informales: revisión sistemática de ensayos clínicos. Enf Global [Internet]. 2022;21(4):562-86. doi: https://doi.org/10.6018/eglobal.502351

30. Melendez-Mogollon IC, Garcia-Silvera EE, Berrios-Rivas AT, Cabascango-Camuendo CP, Perez-Arias A. Relación entre el estado emocional y la sobrecarga en cuidadores de personas con discapacidad. Med Segur Trab [Internet]. 2025;71(278):6-19. doi: https://doi.org/10.4321/s0465-546x2025000100001

31. Aberg-Cobo M, Moscardi R, Ortega J. Impacto psicológico en los cuidadores principales de familiares bajo tratamiento paliativo. Rev Fac Cien Med Univ Nac Cordoba [Internet]. 2024;81(2):415-31. doi: https://doi.org/10.31053/1853.0605.v81.n2.44824

32. Cantillo-Medina P, Perdomo-Romero AY, Ramirez-Perdomo CA. Characteristics and experiences of family caregivers in the mental health setting. Rev Peru Med Exp Salud Publica [Internet]. 2022;39(2):185-92. doi: https://doi.org/10.17843/rpmesp.2022.392.11111