

Original Research Article

Vulnerability profile of the elderly population in primary health care in Canoas-RS using the VES-13

Mariana S. Forster^{1*}, Maria E. S. Affonso¹, Marjana M. Wojcicki¹, Tricia N. M. Rosa¹,
Maria R. Burg², Miria E. B. Camargo²

¹Department of Medicine, Lutheran University of Brazil, Ulbra Canoas, Canoas-RS, Brazil

²Department of Nursing, Lutheran University of Brazil, Ulbra Canoas, Canoas-RS, Brazil

Received: 26 May 2026

Revised: 30 July 2026

Accepted: 02 August 2026

*Correspondence:

Dr. Mariana S. Forster,

E-mail: marianasaffer@rede.ulbra.br

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Population aging has been accompanied by an increased prevalence of frailty and vulnerability among older adults, especially in more advanced age groups. This study aimed to assess the vulnerability of older adults residing in Canoas, RS, using the Vulnerable Elders Survey (VES-13), and to analyze its association with sociodemographic variables, self-rated health, and functional capacity.

Methods: This was a cross-sectional study including a sample of 1,260 older adults seen at Primary Health Care Centers in Canoas, RS, during the post-pandemic period. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) and Pearson's chi-square test.

Results: Most participants were younger than 75 years (56.7%), and 67.8% were female. Individuals aged 85 years or older showed a progressive increase in negative self-rated health (67.6%; $p=0.02$), as well as in physical limitations and disabilities in activities of daily living ($p=0.01$). The mean VES-13 score increased from 2.01 among those younger than 75 years to 8.10 among the oldest-old ($p<0.05$). High-risk classification accounted for 30.8% of the sample and was more frequent among older individuals with poorer self-rated health and greater functional impairment. Women showed a higher prevalence of physical limitations and functional disability compared to men ($p=0.01$).

Conclusions: There is a need for more targeted care and monitoring strategies, especially for individuals aged 85 years or older, in order to prevent functional decline and improve quality of life.

Keywords: Public health, Older adults, Vulnerable elders survey

INTRODUCTION

The elderly population has been increasingly represented in the population of Rio Grande do Sul, highlighting the state's population aging process, in line with national trends. The reconfiguration of the population structure in Rio Grande do Sul, observed since the mid-20th century, reflects the decline in fertility rates and the increase in life expectancy. Parallel to this demographic transition, changes in epidemiological patterns are observed, with a progressive increase in non-communicable chronic

diseases. This scenario is driven by aging and greater exposure to modifiable risk factors, such as sedentary lifestyles and smoking, generating increasing demands for long-term care. In Rio Grande do Sul confirm this trend, with elderly mortality led by circulatory diseases, followed by neoplasms, respiratory and metabolic causes.¹

In this context, tracking vulnerability becomes a fundamental strategy for promoting healthy and active aging, allowing healthcare teams to organize timely

interventions that preserve autonomy and independence before declines become irreversible, as well as supporting strategic planning in primary care for efficient clinical monitoring. Frailty and functional dependence are frequently underdiagnosed due to the bias of naturalizing aging. It is imperative that the identification of clinical vulnerability be based on active outreach, anticipating functional decline rather than merely reacting to it. To enable this practice, the Vulnerable Elders Survey-13 (VES-13) stands out as an instrument that is easy to apply and highly sensitive, adopted by the Ministry of Health in the Elderly Person's Health Booklet, and quickly identifies individuals at risk of clinical deterioration.²

The Vulnerable Elders Survey-13 (VES-13) is a brief screening tool fundamental in clinical practice for identifying older adults at increased risk of functional decline and mortality. Simple to administer, this questionnaire eliminates the need for direct clinical examination and can be completed by the older adult, their family, or healthcare professionals. Its main purpose is to serve as a strategic "case-finding" tool, allowing healthcare professionals to perform rapid initial screening in primary care settings to select individuals who require a more detailed and in-depth geriatric assessment. By identifying a high-risk subgroup early, the VES-13 assists in risk stratification, allowing the healthcare team to plan targeted preventive interventions and establish priorities in clinical follow-up.³

Based on age, self-perceived health, presence of physical limitations and disabilities, each item receives a specific score, and the final total can range from 0 to 10 points. The VES-13 score is obtained by summing four main domains: in the Age item, points are awarded according to age range (0 points for 60-74 years, 1 point for 75-84, and 3 points for 85 years or more); in Self-perceived health, 1 point is awarded only if the elderly person considers their health "fair" or "poor." In the Physical Limitation field, although six activities are listed, the maximum score is limited to 2 points, with 1 point awarded for each activity with "significant difficulty" or disability. Finally, the disabilities domain awards 4 points if the elderly person has ceased to perform at least one of the five described functions due to health reasons. The final sum of these items defines the vulnerability index and should be recorded both in the specific field and in the annual monitoring chart.⁴

The VES-13 stratification protocol divides users into two distinct risk groups to guide clinical decision-making. The first group, with scores of 0 to 2, comprises elderly individuals without immediate signs of functional vulnerability, for whom continued follow-up with the routine primary health care unit is recommended. The second group, composed of those who score 3 points or more, is characterized by latent frailty that exponentially increases the probability of negative outcomes, such as loss of autonomy or death in the short term (24 months). This epidemiological correlation is so robust that it

ignores variables such as the type of comorbidity present, focusing strictly on the functionality of the elderly person.⁴

The main objective of this study is to map and analyze the clinical vulnerability profile of the elderly population assisted by the healthcare network in the municipality of Canoas, Rio Grande do Sul. Based on the collected data, the aim is to provide a detailed diagnosis of the prevalence of frailty and the health conditions that characterize population aging in the specific context of Canoas-RS.

METHODS

This is a cross-sectional study with a sample composed of 1,260 elderly individuals attended at Primary Health Care Units in the municipality of Canoas, RS, between 2023 and 2025. Sociodemographic information (age and sex), self-rated health, physical limitations and disabilities in instrumental activities of daily living (IADL), as well as vulnerability classification using the VES-13 were collected.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics (frequencies, percentages, means, and 95% confidence intervals) and inferential tests were used. Pearson's chi-square test was applied to analyze the association between categorical variables. The Kruskal-Wallis test was used to compare VES-13 scores between age groups, considering the absence of a normal distribution. A significance level of 5% was adopted.

The theoretical framework of this research was constructed from a review of scientific literature, encompassing articles available on the Google Scholar, PubMed, and SciELO platforms, as well as books and government agency websites. Specific inclusion criteria were established for the selection of sources: articles had to have been published between 2012 and 2026, be available in full text, and written in Portuguese or English. Dissertations, theses, monographs, and other publications that did not directly address the theme of elderly vulnerability were excluded. The search was conducted using the descriptors "VES-13", "Vulnerability", and "Primary Health Care". From these terms, 404 articles were found, of which 57 were selected for reading, 15 were included in the detailed analysis, and finally, 8 were used to theoretically support the research findings.

RESULTS

Table 1 presents the sociodemographic characteristics of the 1,260 elderly individuals evaluated in the municipality of Canoas, RS, in the post-pandemic period. The variables analyzed were age group, primary health care unit (UBS) of reference, and sex, with the aim of describing the profile of the studied population.

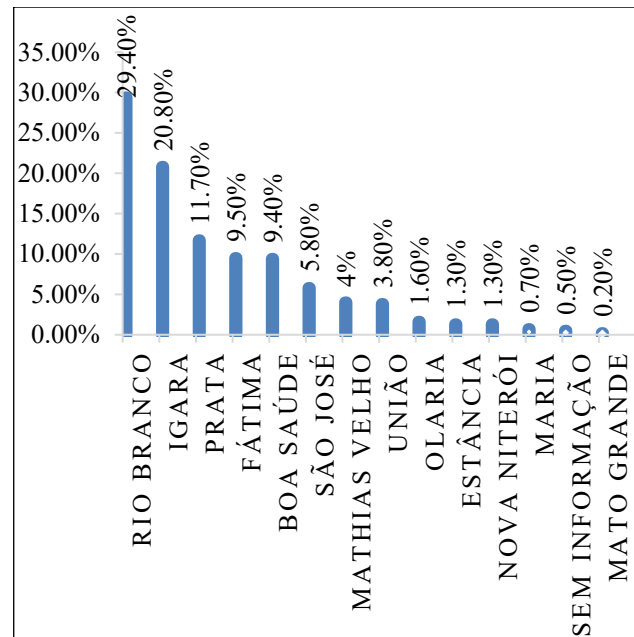
Table 1: Sociodemographic characteristics of elderly individuals evaluated in the municipality of Canoas, RS, post-pandemic (n=1260).

Variables	Number (%)
Age groups in years	
Under 75	690 (56.7)
75 to 84	310 (25.5)
Over 85	216 (17.8)
Gender	
Female	824 (67.8)
Male	392 (32.2)

Note: Data presented as absolute frequency (n) and percentage (%), calculated in relation to the total sample (n=1260).

Source: 2026 Survey Data

The sample consisted of 1,260 elderly residents of the municipality of Canoas, RS, evaluated in the post-pandemic period. The majority were under 75 years old (56.7%), while 25.5% were in the 75-84 age range and 17.8% were 85 years or older, representing the oldest-old group. There was a predominance of females (67.8%), highlighting the feminization of aging in the studied population. The distribution of the elderly according to their neighborhood of residence can be seen in Figure 1.

**Figure 1: Distribution of elderly people according to neighbourhood of residence in the municipality of Canoas, RS, post-pandemic (n=1,260).**

Note: Data presented as a percentage (%), Source: 2026 survey data

Table 2: Association between age group, sex and self-rated health among the elderly, Canoas, RS (n=1260).

Variables	Under 75 years, N (%)	75 to 84 years, N (%)	Over 85 years, N (%)	P value (*)
Gender				
Female	450 (65.2)	211 (68.1)	163 (75.5)	0.02*
Male	240 (34.8)	99 (31.9)	53 (24.5)	
Self-perceived health				
Excellent/very good/good	415 (60.1)	142 (45.8)	70 (32.4)	0.02*
Fair/poor	275 (39.9)	168 (54.2)	146 (67.6)	

Note: Data presented as absolute frequency (n) and percentage (%) per column. p-value refers to the chi-square test for association between age group and the variables analyzed, *Significant at the 0.05 level, Source: 2026 survey data

The distribution of participants across Primary Health Care Units showed a higher concentration in the Rio Branco (29.4%) and Igara (20.8%) Primary Health Care Units, followed by the Prata (11.7%) and Fátima (9.5%) Primary Health Care Units. Table 2 presents the distribution of elderly individuals according to age group, sex, and self-rated health, seeking to identify possible associations between age and these variables.

The distribution by sex varied according to age group, with a progressive increase in the proportion of women in older age groups. Among the elderly under 75 years of age, women represented 65.2%, a percentage that rose to 68.1% in the 75-84 age group and reached 75.5% among the very old (≥ 85 years), highlighting the feminization of aging ($p = 0.02$). The perception of one's own health also changed with advancing age. While 60.1% of older adults under 75 rated their health as excellent, very good, or good, this percentage decreased to 45.8% among those aged 75 to 84 and to 32.4% among the very old.

Conversely, self-perception of average or poor health progressively increased, reaching 67.6% among older adults aged 85 or more ($p = 0.02$). Table 3 presents the distribution of physical limitations assessed by the VES-13 according to age group, allowing us to observe how functional performance changes as age increases.

The results show a gradual increase in physical limitations in all activities analyzed. Difficulty bending over was reported by 29.4% of older adults under 75 years of age, a proportion that rose to 45.2% among those aged 75 to 84 and reached 73.6% in the very old ($p=0.01$). A similar pattern was observed for standing up, with limitations in 21.9% of the younger group and in 64.8% of older adults aged 85 or more.

In activities requiring greater mobility or strength, the difference between age groups became even more evident. Walking limitations affected 60.6% of the very old, while among those under 75 years of age this

proportion was 20.3% ($p=0.01$). For performing household chores, 77.3% of those aged 85 or older presented limitations, a percentage more than double that observed in the younger group (34.9%). Even in activities considered less physically demanding, such as writing, a significant increase in limitations with age was observed,

rising from 8.4% in those under 75 years of age to 26.4% among the very old ($p=0.01$). Overall, all variables analyzed showed a statistically significant association with age group, evidencing a progressive functional decline in older ages.

Table 3: Distribution of physical limitations of the VES-13 according to age group, Canoas, RS (n=1260).

Variables	Under 75 years, N (%)	75 to 84 years, N (%)	Over 85 years, N (%)	P value (*)
Bending down				0.01*
No limitation	487 (70.6)	170 (54.8)	57 (26.4)	
With limitation	203 (29.4)	140 (45.2)	159 (73.6)	
Standing up				0.01*
No limitation	539 (78.1)	196 (63.4)	76 (35.2)	
With limitation	89 (12.9)	66 (21.3)	75 (34.7)	
Reaching up				0.01*
No limitation	601 (87.1)	244 (78.7)	141 (65.3)	
With limitation	58 (8.4)	45 (14.5)	57 (26.4)	
Walking				0.01*
No limitation	549 (79.9)	187 (60.3)	85 (39.4)	
With limitation	140 (20.3)	123 (39.7)	131 (60.6)	
Doing housework				0.01*
No limitation	449 (65.1)	157 (50.6)	49 (22.7)	
With limitation	241 (34.9)	153 (49.9)	167 (77.3)	

Note: Data presented as absolute frequency (n) and percentage (%) by age group. p-value refers to the chi-square test for association between age group and the variables analyzed, *Significant at the 0.05 level, Source: 2026 survey data

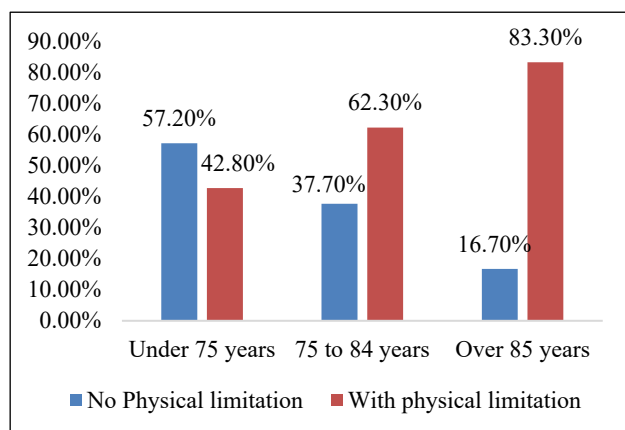


Figure 2: Distribution of the presence of physical limitations according to age group of the elderly, Canoas, RS (n=1260).

Note: Data presented as a percentage (%), calculated by age group, Source: 2026 survey data

Figure 2 illustrates the distribution of the presence of physical limitations according to age group, summarizing the pattern observed in the analyses of the activities evaluated by the VES-13.

Figure 2 illustrates the progressive increase in physical limitations among older adults at advanced ages. Among participants under 75 years of age, 29.4% presented limitations, while this proportion rises to 45.2% in the 75-84 age group and reaches 73.6% among those aged 85 or older. Conversely, the absence of limitations becomes

progressively less frequent in older age groups. The figure visually reinforces the functional decline associated with aging, highlighting greater physical vulnerability among the elderly.

Table 4 shows the distribution of disabilities in instrumental activities of daily living (IADLs) assessed by the VES-13, according to age group. These activities reflect a higher level of autonomy and participation in daily life, and are frequently affected in the later stages of aging.

The findings indicate a progressive increase in disability with older age groups in all activities analyzed. Difficulty shopping for personal items was reported by 18% of older adults under 75 years of age, a percentage that nearly doubled in the 75-84 age group (35.2%) and reached 66.2% among the very elderly ($p=0.01$).

A similar pattern was observed in handling money, with disability affecting 12.6% of younger individuals and 55.1% of those aged 85 or older ($p=0.01$). Limitations in performing household tasks also intensified with advanced age, reaching 44.4% among the very elderly. Even in the activity of walking across a room, considered to have lower instrumental complexity, the proportion of disability increased from 7.8% in the group under 75 years old to 27.3% among those aged 85 or older ($p=0.01$).

The activity of showering or bathing showed a similar pattern, with disability in 10% of the younger elderly and

in 37.5% of the very old ($p=0.01$). Overall, all IADLs analyzed showed a statistically significant association

with age group, indicating a progressive loss of autonomy in older ages.

Table 4: Association between age group and disabilities in IADLs assessed by the VES-13.

Variables	Under 75 years (n=690) (56.7%), N (%)	75 to 84 years (n=310) (25.5%), N (%)	85 years and older (n=216) (17.8%), N (%)	P value (*)
Do personal shopping				
Able	566 (82)	201 (64.8)	73 (33.8)	0.01*
Unable	124 (18)	109 (35.2)	143 (66.2)	
Manage money				
Able	603 (87.4)	226 (72.9)	97 (44.9)	0.01*
Unable	87 (12.6)	84 (27.1)	119 (55.1)	
Crossing a quarter and/or walking across the room				
Able	636 (92.2)	255 (82.3)	157 (72.7)	0.01*
Unable	54 (7.8)	55 (17.7)	59 (27.3)	
Performing household chores				
Able	612 (88.7)	246 (79.4)	120 (55.6)	0.01*
Unable	78 (11.3)	64 (20.6)	96 (44.4)	
Taking a bath or shower				
Able	621 (90)	255 (82.3)	135 (62.5)	0.01*
Unable	69 (10)	55 (17.7)	81 (37.5)	

Note: Data presented as absolute frequency (n) and percentage (%) by age group. p-value refers to the chi-square test for association between age group and the variables analyzed, *Significant at the 0.05 level, Source: 2026 survey data

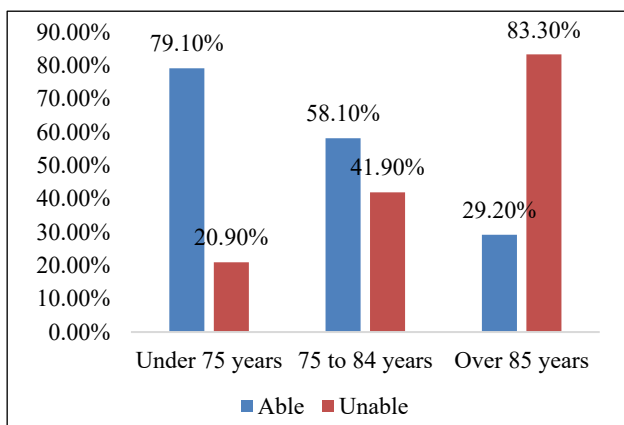


Figure 3: Distribution of overall functional capacity according to age group of elderly individuals, Canoas, RS (n=1260).

Figure 3 shows the distribution of overall functional capacity according to age group, considering the presence or absence of disability in performing at least one of the activities assessed.

A progressive reduction in the proportion of older adults capable of performing all activities was identified as age advances. Among those under 75 years of age, 79.1% maintained full functional capacity, while this percentage decreased to 58.1% in the 75-84 age group and to 29.2% among older adults aged 85 or more.

Conversely, the prevalence of functional disability increased significantly in the older age groups. The

proportion of elderly people unable to perform at least one activity rose from 20.9% among the youngest to 41.9% in the intermediate group and reached 70.8% among the oldest. This figure succinctly confirms the impact of aging on functionality, highlighting greater impairment among the elderly aged 85 or older.

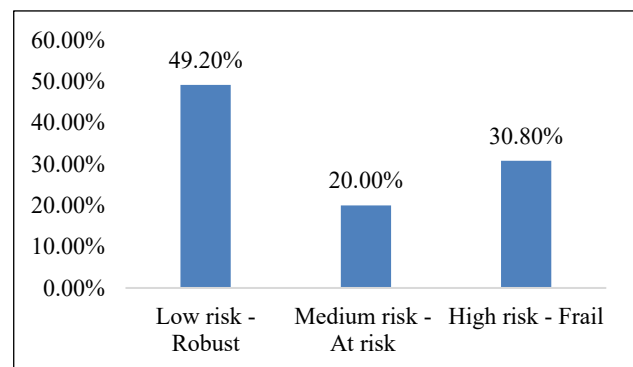


Figure 4: Distribution of VES-13 classification according to risk categories, Canoas, RS (n=1260).

Note: Percentages calculated in relation to the total sample (n=1260).

Figure 4 shows the distribution of older adults according to the VES-13 risk categories, allowing visualization of the proportion of individuals classified as robust, at risk of frailty, or frail.

Figure 4 shows that almost half of the sample was classified as low risk (49.2%), while 20.0% were at risk of frailty. The high-risk category, corresponding to frail elderly individuals, comprised 30.8% of the participants.

These data indicate that approximately one-third of the elderly individuals evaluated presented high vulnerability

according to the VES-13, highlighting the significant presence of frailty in the studied population.

Table 5: Association between VES-13 classification and sociodemographic and functional variables.

Variables	Low risk - robust elderly, N (%)	Medium risk - elderly at risk, N (%)	High risk - frail elderly, N (%)	P value (*)
Gender				
Female	367 (61.4)	170 (70)	287 (76.5)	0.01*
Male	231 (38.6)	73 (30)	88 (23.5)	
Age group in years				
Under 75	477 (79.8)	110 (45.3)	103 (27.5)	0.01*
75 to 84	121 (20.2)	70 (28.8)	119 (31.7)	
Over 85	0 (0)	63 (25.9)	153 (40.8)	
Health is				
Excellent	46 (7.7)	9 (3.7)	2 (0.5)	0.01*
Very good	83 (13.9)	20 (8.2)	5 (1.3)	
Good	358 (59.9)	52 (21.4)	52 (13.9)	
Fair	106 (17.7)	133 (54.7)	215 (57.3)	
Poor	5 (0.8)	29 (11.9)	101 (26.9)	
Self-perceived health				
Excellent/good/very good	487 (81.4)	81 (33.3)	59 (15.7)	0.01*
Fair/poor	111 (18.6)	162 (66.7)	316 (84.3)	
Physical limitation				
No limitation	489 (81.7)	54 (22.2)	5 (1.3)	0.01*
With limitation	109 (18.3)	189 (77.8)	370 (98.7)	
Disabilities				
Able to perform all activities	598 (100)	191 (78.6)	0 (0)	0.01*
Unable to perform at least one	0 (0)	52 (21.4)	375 (100)	

Note: Data presented as absolute frequency (n) and percentage (%) by VES-13 Classification. p-value refers to the chi-square test for association between VES-13 Classification and the variables analyzed. *Significant at the 0.05 level, Source: 2026 survey data

Table 5 presents the association between the VES-13 classification and sociodemographic variables, health perception, and functional capacity, allowing us to understand how the different risk levels are distributed in the studied population.

The proportion of women increased in the higher-risk categories, representing 61.4% of the elderly classified as low risk and 76.5% of those at high risk ($p=0.01$). The distribution by age group showed an even more evident gradient: while 79.8% of the elderly under 75 years of age were in the low-risk group, 40.8% of the very old (≥ 85 years) were concentrated in the high-risk category ($p=0.01$).

The perception of health followed this pattern. Among the elderly classified as high risk, 84.3% rated their health as fair or poor, while in the low-risk group this proportion was 18.6% ($p=0.01$). Similarly, the presence of physical limitations was observed in 98.7% of the elderly classified as high risk, contrasting with 18.3% among those considered low risk ($p=0.01$).

Functional disability showed an even more striking association: all elderly individuals classified as high risk were unable to perform at least one activity, while 100% of those in the low-risk group were able to perform all the activities assessed ($p=0.01$).

The data demonstrate a strong correlation between higher scores on the VES-13, advanced age, poorer self-rated health, and functional impairment, reinforcing the instrument's consistency in identifying more vulnerable older adults.

Table 6 presents the association between sex, self-rated health, and functional capacity, allowing the identification of possible differences between men and women regarding health conditions and performance in the evaluated activities.

A significant difference was found in how men and women assess their own health. The perception of fair or poor health was more frequent among women (52.1%) than among men (40.8%), while a positive assessment (excellent, very good, or good) was more common in men (59.2%) ($p=0.01$). The presence of physical limitations

was also higher among women, reaching 59.2%, compared to 45.9% among men ($p=0.01$). Similarly, the inability to perform at least one of the assessed activities was observed in 39.6% of women and 25.8% of men.

Greater functional impairment and a worse perception of health were evident among women, despite their greater representation in the sample, reinforcing the pattern frequently described in the literature on female aging.

Table 6: Association between sex, self-rated health and functional capacity of the elderly, Canoas, RS.

Variables	Female (N=824) (67.8%), N (%)	Male (N=392) (32.2%), N (%)	P value (*)
Health is			
Excellent	294 (35.7)	168 (42.9)	0.01*
Very good	34 (4.1)	23 (5.9)	
Good	67 (8.1)	41 (10.5)	
Fair	332 (40.3)	122 (31.1)	
Poor	97 (11.8)	38 (9.7)	
Self-perceived health			
Excellent/good/very good	395 (47.9)	232 (59.2)	0.01*
Fair/poor	429 (52.1)	160 (40.8)	
Physical limitation			
No limitation	336 (40.8)	212 (54.1)	0.01*
With limitation	488 (59.2)	180 (45.9)	
Disabilities			
Able to perform all activities	498 (60.4)	291 (74.2)	0.01*
Unable to perform at least one	326 (39.6)	101 (25.8)	

Note: Data presented as absolute frequency (n) and percentage (%) per column. p-value refers to the chi-square test for association between sex and the variables analyzed, *Significant at the 0.05 level, Source: 2026 survey data.

DISCUSSION

The prevalence of clinical-functional vulnerability of 30.8% identified in the elderly population of Canoas signals a significant demand for the primary care network. Analyzing this data, it is observed that the result is similar to a study conducted in Mato Grosso, whose findings indicated 27.1% vulnerability. This similarity suggests that the risk profile of elderly Brazilians attended in Primary Health Care (PHC) has transversal patterns, regardless of geographic region, reinforcing the applicability of the VES-13 as a population screening tool. The reliability of this instrument in the national context is supported by the translated version, which demonstrated the preservation of the psychometric properties necessary to accurately identify vulnerable elderly individuals.^{4,5}

A critical point observed in the results from Canoas was the drastic worsening of health conditions with advancing age. While elderly individuals under 75 years of age maintained an average score of 2.01, the group aged 85 years or older reached an average of 8.10, far exceeding the cutoff point for vulnerability. This phenomenon is expected in follow-up studies, since the vulnerability identified by the VES-13 acts as a direct predictor of functional decline in instrumental activities of daily living (IADLs). Thus, the high score observed in the oldest-old individuals from Canoas serves as a warning of the imminent risk of loss of autonomy in this age group.⁶

Regarding physical barriers, difficulty performing movements such as bending over was the most frequent complaint among participants. The literature highlights that such limitations are not merely isolated signs of senescence, but indicators of unfavorable prognoses. Health vulnerability is intrinsically associated with adverse outcomes, which becomes even more relevant in the post-pandemic scenario analyzed in this study, where social isolation may have exacerbated sedentary lifestyles and sarcopenia.⁷

The significant female presence in the sample (67.8%) and the worse self-rated health reported by women confirm the paradigm of the feminization of aging. Although women have greater longevity, they are more susceptible to the accumulation of morbidities and clinical frailty. This profile requires that health units in Canoas develop care strategies that consider gender specificities, focused not only on survival but also on quality of life.⁸

The practical application of these findings should guide care management in primary health care. The VES-13 allows for effective stratification: older adults with low scores (robust) should remain under preventive care in primary health care, while those with high scores (vulnerable) require specialized geriatric follow-up. This concept is reinforced by another study stating that the main challenge for health teams is to transform this epidemiological data into intervention plans that delay frailty. Additionally, the usefulness of the VES-13 extends even to older adults with complex clinical

conditions, such as heart failure, assisting in the prediction of mortality and hospitalization.¹⁰⁻¹²

The study has some limitations that should be considered when interpreting the findings. The sample, which is restricted to users of primary health care in Canoas, limits the generalizability of the results to institutionalized older adults or those in the private sector. The use of self-reported data on health perception and the assessment of functional capacity may introduce memory bias, as these were not validated through objective clinical functional tests. Data collection in the post-pandemic context may reflect residual impacts on the population's functional status. Despite these limitations, the study provides robust epidemiological data on the vulnerability of older adults, informing strategic public health interventions.

CONCLUSION

The results highlight an important association between aging, vulnerability, and functional impairment in the elderly population evaluated in the municipality of Canoas, RS, in the post-pandemic period. A consistent gradient of worsening in health and functionality indicators was observed as age increased, particularly in the group of elderly people aged 85 years or older. Age progression was associated with an increase in negative self-rated health, a growth in physical limitations and disabilities in instrumental activities of daily living, as well as a significant increase in the average score on the VES-13. The oldest age group concentrated the highest proportions of functional limitation, disability, and high-risk classification, indicating greater vulnerability in this segment.

The VES-13 classification showed strong consistency with functional and health perception indicators, demonstrating its discriminatory capacity to identify older adults in situations of greater frailty. Furthermore, greater functional impairment was observed among women, who presented worse indicators of self-perceived health, a higher frequency of physical limitations, and a greater proportion of functional disability.

Taken together, the findings demonstrate that advanced aging, especially among the very old, is associated with greater functional vulnerability and poorer perceived health, reinforcing the need for specific care, monitoring, and intervention strategies aimed at this age group within the context of primary health care.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. RIO GRANDE DO SUL. Health Secretariat. Technical Note No. 02/2022 - Health Policy for the Elderly/DPCV/DAPPS/SES: care for the elderly in primary health care. Porto Alegre: SES/RS, 2022. Available at: <https://atbasica.hml.rs.gov.br/upload/arquivos/202207/21091933-nt-atencao-a-pessoa-idosa-na-aps-1.pdf>. Accessed on March 17, 2026.
2. TOURINHO, Priscila Martins da Silva. Vulnerability in the Elderly: A Study in a Family Health Strategy in Porto Velho - RO. 2021. 66 p. Dissertation (Professional Master's Degree in Family Health - PROFSAÚDE) - Leônidas and Maria Deane Institute, Manaus, 2021. Available at: https://profsaude-abrasco.fiocruz.br/sites/default/files/dissertacao_priscila_0.pdf. Accessed on March 17, 2026.
3. Wdowiak K, Kozak-Szkopek E, Imiela AM, Silczuk A, Skowerska A, Czyżewski Ł. Care and health needs of older patients with frailty in general practice. *InHealthcare* 2026;14(4):518).
4. Ministry of Health, BRAZIL. Secretariat of Health Care. Department of Strategic Programmatic Actions. Manual for the use of the Elderly Person's Health Booklet, 2018. Available at: https://bvsms.saude.gov.br/bvs/publicacoes/manual_utilizacao_caderneta_pessoa_idosa.pdf. Accessed on March 18, 2026.
5. Cabral JF, Silva AM, Mattos IE, Neves ÁD, Luz LL, Ferreira DB, et al. Vulnerability and associated factors in elderly people attended by the Family Health Strategy. *Ciência & Saúde Coletiva*. 2019;24(9):3227-36.
6. Maia FD, Duarte YA, Secoli SR, Santos JL, Lebrão ML. Cross-cultural adaptation of the Vulnerable Elders Survey-13 (VES-13): contributing to the identification of vulnerable elderly people. *Revista da Escola de Enfermagem da USP*. 2012;46(spe):116-22.
7. Cabral JF, Silva AM, Andrade AC, Lopes EG, Mattos IE. Vulnerability and Functional Decline in older people in Primary Health Care: a longitudinal study. *Revista Brasileira de Geriatria e Gerontologia*. 2021;24:e200302.
8. Assis FC, Silva MC, Geber-Júnior JC, Roschel H, Peçanha T, Drager LF, et al. Association of health vulnerability with adverse outcomes in older people with COVID-19: A prospective cohort study. *Clinics*. 2021;76:e3369.
9. Valentim CA, Valentim AS, Sousa MD, Batista MJ. Clinical-functional vulnerability of older adults in primary care in a Brazilian municipality: associated factors. *Int J Envir Res Publ Heal*. 2025;22(10):1583.
10. Duarte MB, Carteador LR, de Oliveira Andrade R, da Cunha Daltro CH. Accuracy of the VES-13 in a reference geriatric outpatient clinic. *Revista Baiana de Saúde Pública*. 2021;45(4):42-52.
11. Costa CM, Coelho KR, Oliveira PP, Silva RC, Martínez CS, Torres GD, et al. Vulnerability in older adults in Primary Health Care: challenges associated with frailty and functionality. *Revista*

Brasileira de Enfermagem. 2025;78(Suppl 2):e20240219.

12. Roig T, Zamora E, Lupón J, González B, Pulido A, Crespo E, et al. Utility of the Vulnerable Elders Survey-13 (VES-13) in detecting frailty and predicting prognosis in heart failure outpatients. *JGC*. 2026;23(1):17.

Cite this article as: Forster MS, Affonso MES, Wojcicki MM, Rosa TNM, Burg MR, Camargo MEB. Vulnerability profile of the elderly population in primary health care in Canoas-RS using the VES-13. *Int J Community Med Public Health* 2026;13:4841-9.