Original article

Clinical-functional vulnerability of older adults assisted in a primary health care unit

Vulnerabilidade clínico-funcional de idosos acompanhados por uma unidade de cuidados primários à saúde

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ABSTRACT | OBJECTIVE: To identify the factors associated with the condition of clinical-functional vulnerability of elderly people in Salvador followed in a primary health care unit. **METHODS:** Cross-sectional study conducted with people aged 60 or over registered in a teaching-assistance unit in Salvador, Bahia. Those who had no history of regular outpatient follow-up or had inactive medical records for more than five years were excluded. Sociodemographic data were collected and the Clinical-Functional Vulnerability Index (IVCF-20) was applied between November 2019 and March 2021. The elderly were classified as robust or non-robust and bivariate analyzes were carried out with the aim of verifying the differences between the groups. The variables that presented associations with p<0.10 were included in the Poisson regression model and adjustments were made for possible confounders. **RESULTS:** 102 elderly people participated in the study and it was found that their aerobic and/or muscular capacity was compromised (RP=2.91; IC95% 1.50 – 6.18), the presence of multiple comorbidities (PR=2.79; IC95 % 1.51 – 5.48), sphincter incontinence (RP=1.86; 95%CI 1.04 – 3.30) and worsening forgetfulness (PR=1.88; 95%CI 1.04 – 3, 55) were the factors independently associated with clinical-functional vulnerability. **CONCLUSION:** The results of the study allow us to conclude that the impairment of aerobic capacity, the presence of multiple comorbidities, sphincter incontinence and memory loss are associated with the condition of clinical-functional vulnerability of elderly people in Salvador accompanied by a primary health care unit. This information must be considered when planning care within the scope of Primary Health Care and comprehensive care.

KEYWORDS: Aging. Health Vulnerability. Delivery of Health Care. Health Services Needs.

RESUMO | OBJETIVO: Identificar os fatores associados à condição de vulnerabilidade clínico-funcional de idosos soteropolitanos acompanhados em uma unidade de cuidados primários à saúde. **MÉTODOS:** Estudo transversal conduzido com pessoas com idade igual ou superior a 60 anos cadastradas em uma unidade docente-assistencial em Salvador, Bahia. Foram excluídas as que não tinham histórico de acompanhamento regular ambulatorial ou com prontuário inativo há mais de cinco anos. Foram coletados dados sociodemográficos e aplicado o Índice de Vulnerabilidade Clínico-Funcional (IVCF-20) entre novembro de 2019 a março de 2021. Os idosos foram classificados como robustos ou não-robustos e análises bivariadas foram realizadas com o intuito verificar as diferenças entre os grupos. As variáveis que apresentaram associações com p<0,10 foram incluídas no modelo regressão de Poisson e foram feitos os ajustes para possíveis confundidores. **RESULTADOS:** Participaram do estudo 102 idosos e foi verificado que a capacidade aeróbica e/ou muscular comprometida (RP=2,91; IC95% 1,50 – 6,18), a presença de comorbidades múltiplas (RP=2,79; IC95% 1,51 – 5,48), a incontinência esfincteriana (RP=1,86; IC95% 1,04 – 3,30) e a piora do esquecimento (RP=1,88; IC95% 1,04 – 3,55) foram os fatores independentemente associados à vulnerabilidade clínico-funcional. **CONCLUSÃO:** Os resultados do estudo permitem concluir que o comprometimento da capacidade aeróbica, a presença de comorbidades múltiplas, incontinência esfincteriana e perda de memória encontram-se associados à condição de vulnerabilidade clínico-funcional de idosos soteropolitanos acompanhados por uma unidade de cuidados primários à saúde. Essas informações devem ser consideradas no planejamento dos cuidados no âmbito da Atenção Primária à Saúde e da atenção integral.

PALAVRAS-CHAVE: Envelhecimento. Vulnerabilidade em Saúde. Prestação de Cuidados de Saúde. Necessidades de Atenção à Saúde.

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1. Introduction

The health of the older adults involves their competence for self-management and the practice of self-care.[1] It can be verified through the performance of activities of daily living, and depends directly on autonomy, decision-making power, independence and the ability to accomplish something by one's own means.[1,2] Therefore, ageing should not only be defined by age, but also by physical, cognitive or functional capacity, which can contribute to the development of a state of vulnerability and increase susceptibility to illness or death.[1-3]

Early identification of situations of vulnerability in community-dwelling older people, as well as an understanding of their associated factors, can favor the planning of specific and more effective health actions.[4] The Índice de Vulnerabilidade Clínico Funcional-20 (IVCF-20) is a Brazilian instrument developed to screen for frailty in older adults assisted in Primary Health Care (PHC).[3]

In Brazilian cross-sectional studies carried out with older people in the context of PHC and using the IVCF-20, researchers found a higher prevalence of low[5-8] and moderate[9,10] risk of clinical-functional vulnerability. Variables such as age and self-perception of health were associated with moderate and high risk of vulnerability[5,6,10], i.e. the greater the age and negative view of health, the greater the risk of non-robustness. Corroborating this finding, Silva et al.[11], using the same assessment tool, found a moderate risk of vulnerability in older people.

Other risk factors associated with clinical-functional vulnerability are described in the literature. Educational level, social isolation and difficulty sleeping were associated with moderate clinical-functional vulnerability. Factors such as physical inactivity and non-participation in social groups were related to a high risk of clinical-functional vulnerability.[7]

Ageing is a heterogeneous process which is modified by the individual's environment and socio-economic and environmental aspects can act as barriers or facilitators.[2,12] Despite the Ministry of Health's recommendation to use the IVCF-20 to screen for vulnerability in the older adults, no studies were found on the population of Salvador, Bahia. Recognizing the diversity of sociodemographic and economic contexts in Brazil, there is an urgent need to expand research that portrays the vulnerability conditions of older individuals in different locations. Therefore, the aim of this study was to identify the factors associated with the condition of clinical-functional vulnerability of older people in Salvador accompanied in a primary health care unit.

2. Material and methods

2.1. Study design

This is a cross-sectional analytical study.

2.2. Population and area

The study population consisted of older individuals who were followed up at a primary health care unit provided by the Complexo Comunitário Vida Plena (CCVP), a teaching and care unit that operates from the perspective of the model proposed by the Estratégia Saúde da Família – ESF (Family Health Strategy) linked to the Bahiana School of Medicine and Public Health. The institution provides care to a population in its catchment area, exclusively through the Sistema Único de Saúde (SUS), in conjunction with the Secretaria da Saúde do Estado da Bahia – SESAB (Bahia State Health Department) and the Secretaria Municipal de Saúde de Salvador – SMS (Salvador Municipal Health Department).

The individuals were invited to take part in the study when they came to the unit for follow-up with the multi-professional health team or to access other services, such as dispensing medication, taking blood pressure, dressings or others. All individuals aged 60 or over with a CCVP registration and medical record who attended the unit in the respective period were included. Those who did not have regular outpatient follow-up with the local health team were excluded, i.e. those without clinical follow-up within a year or those whose records had been inactive for more than 5 years.

2.3. Data source

Primary data was collected by means of an investigation form and secondary data by consulting institutional records to confirm the regularity of follow-up and its inactivity.

2.4. Data collection

The data was collected between November 2019 and March 2021 through direct interviews conducted solely by the main researcher in the offices of the Vida Plena Complex.

2.5. Collection instrument

An investigation form was developed by the researchers, containing sociodemographic data, use of a walking device and the Índice de Vulnerabilidade Clínico Funcional-20 (IVCF-20).[3]

2.6. Definition of variables

The sociodemographic variables included gender, age in years and self-reported skin color, which was classified according to the Instituto Brasileiro de Geografia e Estatística - IBGE (Brazilian Institute of Geography and Statistic)[13] and collapsed into white and black/brown for analysis purposes. Schooling was defined in years of study and marital status was based on the existence or absence of a partner. The variables having support, being part of a religious group, being retired and doing community activities were categorized dichotomously as yes and no. The variable making use of a walking aid was classified in a similar way.

The Índice de Vulnerabilidade Clínico Funcional-20 (IVCF-20) / health professional version is an instrument validated for the Portuguese language spoken in Brazil and with high reliability that assesses, from a multidimensional perspective, eight dimensions considered to be predictors of functional decline and/or death in the older adults.[3] It includes the following dimensions: age, self-perception of health, activities of daily living (ADL) (three instrumental ADL and one basic ADL), cognition, mood/behavior, mobility (reaching, grasping and pinching; aerobic/muscular capacity; gait and sphincter continence), communication (vision and hearing) and the presence of multiple comorbidities represented by polypathology, polypharmacy and/or recent hospitalization.[3]

The maximum score on the IVCF-20 is 40 points, with 0-6 being considered robust, i.e. at low risk of clinical-functional vulnerability, 7-14 being considered at moderate risk of clinical-functional vulnerability, and 15-40 being considered frail, i.e. at high risk of clinical-functional vulnerability.[14] For this study, the sample was categorized as robust (0 to 6 on the IVCF-20) and non-robust (the categories moderate risk of clinical-functional vulnerability and frail were collapsed, i.e. from 7 to 40 points).

2.7. Statistical analysis

For the purposes of this study, the individuals were separated into two groups: "robust" (IVCF-20 < 7) and "non-robust" (IVCF-20 ≥ 7). The descriptive analysis of the variables was presented using proportions for categorical variables and mean and standard deviation for continuous variables, according to the distribution of the sample, after checking for normality using the Kolmogorov-Smirnov test and histogram analysis. Next, a univariate analysis was carried out including the proposed categorical groups (robust and non-robust). The chi-square test or Fischer's exact test for categorical variables and the Student's t-test for continuous variables. Next, the variables that showed $p<0.10$ in the univariate analysis were included in the multivariate logistic regression model in order to adjust for possible confounding biases. Considering that the odds ratio tends to overestimate the magnitude of the association, Poisson logistic regression was also carried out. Variables with a significance level of $p<0.05$ remained in the model.

2.8. Bias control

In order to reduce the possibility of information bias, all data collection was carried out by a single evaluator trained to apply an instrument validated for the Portuguese language. To avoid losses in the study, a communication was made informing about the research and reinforcing the indication for the older adults in care to take part in the study. In addition, data collection took place in a private room in order to ensure the reliability of the data obtained.

2.9. Ethical approval and consent

The research project was approved by the Human Research Ethics Committee under CAAE 08126819.3.0000.5544. All informants signed the Informed Consent Form (ICF) in accordance with Resolutions 466/2012 and 510/2016 of the National Health Council.

3. Results and discussion

The sociodemographic characteristics and use of walking aids, univariately and stratified into robust and non-robust older individuals according to the IVCF-20 are described in Table 1. The eligibility criteria were met by 102 older people, with a mean age of 70.5 (± 7.9) years, 79.4% female and 52.9% self-declared as brown. It was found that 52.9% of the individuals were robust, and that 50.6% were female. As for the non-robust, 50.0% lived without partners, 80.0% had no support, 49.3% were retired, 51.2% were members of religious groups and 47.8% did not do community activities. As for years of schooling, an average of 6.7 (± 4.1) years studied was found for the robust and 5.1 (±3.6) for the non-robust. In general, the differences in proportions between the robust and non-robust did not show statistically significant differences, except for the variables mean age, with the non-robust being older (72.6%) and having a higher prevalence of use of walking aids (88.2%), p-value=0.014 and <0.001 respectively. The estimated association between using a walking aid and being robust was statistically significant (PR: 2.27; 95%CI: 1.20-4.11).

Table 1. Sociodemographic characteristics of robust and non-robust older individuals according to the IVCF-20 Vulnerability Indicator and use of a walking aid. Salvador, Brazil, 2022

		Robust				
Variables	Total (n= 102)	Yes < 7 (n= 54)	No ≥ 7 (n= 48)	p-value	Crude PR (95%CI)	p-value
Age, mean (SD)	70.5 (7.9)	68.7 (6.4)	72.6 (9.0)	**0.014**	1.03 (1.00-1.06)	0.069
Sex n (%)[3]						
Female	81 (79.4)	41 (50.6)	40 (49.4)		1	
Male	21 (20.6)	13 (61.9)	8 (38.1)	0.498	0.77 (0.33-1.56)	0.503
Self-reported color n (%)[4]						
White	4 (4.0)	2 (50.0)	2 (50.0)		1	
Black	44 (43.1)	24 (54.5)	20 (45.5)		0.91 (0.27-5.69)	0.898
Brown	54 (52.9)	28 (51.9)	26 (48.1)	0.939	0.96 (0.29-5.98)	0.959
Schooling, median (IIQ)	5.0 (3.3-8.8)	5.0 (4.0-9.8)	5.0 (3.0-6.3)	0.069	0.95 (0.87-1.02)	0.152
Marital status n (%)[3]						
Without a partner	58 (56.8)	29 (50.0)	29 (50.0)		1	
With a partner	44 (43.2)	25 (56.8)	19 (43.2)	0.629	0.86 (0.48-1.53)	0619
Has support n (%)[4]						
No	5 (4.9)	1 (20.0)	4 (80.0)		1	
Yes	97 (95.1)	53 (54.6)	44 (45.4)	0.185	0.57 (0.23-1.88)	0.277
Retired n (%)[3]						
No	27 (26.5)	16 (59.3)	11 (40.7)		1	
Yes	75 (73.5)	38 (50.7)	37 (49.3)	0.588	1.21 (0.64-2.49)	0.577
In a religious group n (%)[3]						
No	20 (19.7)	14 (70.0)	6 (30.0)		1	
Yes	82 (80.3)	40 (48.8)	42 (51.2)	0.146	1.71 (0.78-4.48)	0.220
Carries out community activities, n (%)[3]						
No	46 (45.1)	24 (52.2)	22 (47.8)		1	
Yes	56 (54.9)	30 (53.6)	26 (46.4)	1.000	0.97 (0.55-1.73)	0.918
Uses walking aid, n (%)[3]						
No	85 (83.4)	52 (61.2)	33 (38.8)		1	
Yes	17 (16.6)	2 (11.8)	15 (88.2)	**<0.001**	**2.27 (1.20-4.11)**	0.008
IVCF-20 score, median (IIQ)[2]	6.0 (3.3-11.0)	3.5 (1.0-5.0)	11.0 (8.0-4.0)	-	-	-

PR = prevalence ratio. 95% CI = 95% confidence interval. p-value = Pearson's chi-squared test.
Source: the authors (2024).

Table 2 shows the differences between robust and non-robust older individuals according to the dimensions of the IVCF-20 and their unadjusted prevalence ratios (PR). Mostly statistically significant differences were found between the robust and non-robust strata for all the variables investigated which indicated greater impairment for the non-robust, except for the variables unable to raise arms above head, unable to handle small objects, two or more falls in the last year, vision problem and hearing problem. The most strongly estimated associations between the non-robust and the dimensions of the IVCF-20 were found for the variables aerobic and/or muscular capacity (PR:3.65; 95%CI 1.89-7.75), difficulty walking preventing daily activities (PR:2.69; 95%CI: 1.44-4.82), sphincter incontinence (PR:2.56; 95%CI 1.44-4.51) and being forgetful (PR:1.41-4.73).

Table 2. Differences between robust and non-robust older individuals according to the dimensions of the IVCF-20 and their unadjusted prevalence ratios (PR). Salvador, Brazil, 2022 (to be continued)

Dimensions of the IVCF-20, n (%)	Robust					
	Total	Yes < 7	No ≥ 7	p-value	Gross PR (CI 95%) Upper-lower	p-value
	(n= 102)	(n= 54)	(n= 48)			
Self-perception of health						
Excellent, very good or good	69 (67.6)	43 (62.3)	26 (37.7)			
Fair or poor	33 (32.4)	11 (33.3)	22 (66.7)	**0.011**	1.77 (0.99-3.12)	**0.049**
Activities of daily living						
Instrumental Activities of Daily Living						
Stopped shopping						
No	85 (83.3)	52 (61.2)	33 (38.8)			
Yes	17 (16.7)	2 (11.8)	15 (88.2)	**<0.001**	**2.27 (1.20-4.11)**	**0.008**
You stopped controlling your money						
No	91 (89.2)	53 (58.2)	38 (41.8)			
Yes	11 (10.8)	1 (9.1)	10 (90.9)	**0.006**	**2.18 (1.03-4.20)**	**0.029**
Stopped doing small jobs						
No	93 (91.2)	54 (58.1)	39 (41.9)			
Yes	9 (8.8)	-	9 (100.0)	**<0.001**	**2.38 (1.08-4.70)**	**0.019**
Basic Activity of Daily Living						
Stopped bathing alone						
No	98 (96.1)	54 (55.1)	44 (44.9)			
Yes	4 (3.9)	-	4 (100.0)	**0.046**	2.23 (0.67-5.49)	**0.125**
Cognition						
It's getting forgotten						
No	57 (55.9)	41 (71.9)	16 (28.1)			
Yes	45 (44.1)	13 (28.9)	32 (71.1)	**<0.001**	**2.53 (1.41-4.73)**	**0,002**
Forgetfulness is getting worse						
No	88 (86.3)	52 (59.1)	36 (40.9)			
Yes	14 (13.7)	2 (14.3)	12 (85.7)	**0.005**	**2.10 (1.05-3.91)**	**0.027**
Forgetfulness prevents you from carrying out everyday activities						
No	94 (92.2)	54 (57.4)	40 (42.6)			
Yes	8 (7.8)	-	8 (100.0)	**0.002**	**2.35 (1.02-4.75)**	**0.027**
Humor						
Discouragement, sadness or hopelessness in the last month						
No	77 (75.5)	49 (63.3)	28 (36.4)			
Yes	25 (24.5)	5 (20.0)	20 (80.0)	**<0.001**	**2.20 (1.22-3.88)**	**0.007**
Lost interest in pleasurable activities in the last month						
No	88 (86.3)	51 (58.0)	37 (42.0)			
Yes	14 (13.7)	3 (21.4)	11 (78.6)	**0.024**	1.87 (0.91-3.54)	**0.069**
Mobility						
Reach, grip and pinch						
Unable to raise arms above shoulder level						
No	100 (98.0)	54 (54.0)	46 (46.0)			
Yes	2 (2.0)	-	2 (100.0)	0.219	2.17 (0.35-7.02)	0.282
Unable to handle small objects						
No	99 (97.1)	54 (54.5)	45 (45.5)			
Yes	3 (2.9)	-	3 (100.0)	0.101	2.20 (0.53-6.01)	0.186
Aerobic and/or muscular capacity						
No	50 (49.0)	40 (80.0)	10 (20.0)			
Yes	52 (51.0)	14 (26.9)	38 (73.1)	**<0.001**	**3.65 (1.89-7.75)**	**<0.001**
March						
Difficulty walking prevents daily activities						
No	86 (84.3)	54 (62.8)	32 (37.2)			
Yes	16 (15.7)	-	16 (100.0)	**<0.001**	**2.69 (1.44-4.82)**	**0.001**
Two or more falls in the last year						
No	92 (90.2)	51 (55.4)	41 (44.6)			
Yes	10 (9.8)	3 (30.0)	7 (70.0)	0.184	1.57 (0.64-3.28)	0.270
Sphincteric continence						
Loss of urine or stool						
No	75 (73.5)	50 (66.7)	25 (33.3)			
Yes	27 (26.5)	4 (14.8)	23 (85.2)	**<0.001**	**2.56 (1.44-4.51)**	**0.001**

Table 2. Differences between robust and non-robust older individuals according to the dimensions of the IVCF-20 and their unadjusted prevalence ratios (PR). Salvador, Brazil, 2022 (conclusion)

Dimensions of the IVCF-20, n (%)	Robust				Gross PR (CI 95%) Upper-lower	p-value
	Total	Yes < 7	No ≥ 7	p-value		
	(n= 102)	(n= 54)	(n= 48)			
Communication						
Vision problems						
No	97 (95.1)	53 (54.6)	44 (45.4)			
Yes	5 (4.9)	1 (20.0)	4 (80.0)	0.185	1.76 (0.53-4.35)	0.270
Hearing problems						
No	100 (98.1)	53 (53.0)	47 (47.0)			
Yes	2 (1.9)	1 (50.0)	1 (50.0)	1.000	1.06 (0.06-4.85)	0.951
Multiple comorbidities *(polypathology, polypharmacy or hospitalization < 6 months)*						
No	55 (53.9)	42 (73.4)	13 (23.6)			
Yes	47 (46.1)	12 (25.5)	35 (74.5)	**<0.001**	**3.15 (1.71-6.18)**	**<0.001**

PR = prevalence ratio. 95% CI = 95% confidence interval. p-value = Pearson's chi-square test.
Source: the authors (2024).

The final multivariate Poisson regression model is shown in Table 3. The prevalence of clinical-functional vulnerability in the non-robust older individuals in the final multivariable analysis model was associated with impaired aerobic and/or muscular capacity (PR: 2.91; 95%CI:1.50-6.18), multiple comorbidities (PR: 2.79; 95%CI:1.51-5.48), sphincter incontinence (PR: 1.86; 95%CI:1.04-3.30) and being forgetful (PR: 1.88; 95%CI:1.04-3.55).

Table 3. Factors associated with the clinical-functional vulnerability condition of non-robust older individuals (IVCF-20 ≥ 7) in the final model of the multivariate regression analysis. Salvador, Brazil, 2022

Variables	PR (95%CI)	p-value*
Compromised aerobic and/or muscular capacity	2.91 (1.50-6.18)	**0.005**
Multiple comorbidities	2.79 (1.51-5.48)	**0.001**
Sphincter incontinence	1.86 (1.04-3.30)	**0.040**
It's getting forgotten	1.88 (1.04-3.55)	**0.049**

PR= Prevalence Ratio. 95%CI= 95% Confidence Interval. p-value= Pearson's chi-square test*. Adjusted for gender and age.
Source: the authors (2024).

4. Discussion

In this study, muscle and/or aerobic capacity, multiple comorbidities, loss of stool or urine and being forgetful were considered independent factors associated with greater vulnerability in the study population. Aerobic and/or muscular capacity, assessed in the mobility dimension, include weight, body mass index, calf circumference and 4-meter walking speed (MV).[3] These factors are considered fundamental parameters for assessing the risk of functional decline and also for identifying sarcopenia, a condition which has a negative impact on the functional performance of older people.[15,16] In different investigations carried out with the same study design and using the IVCF-20, researchers have found significant associations between altered aerobic and/or muscular capacity and greater clinical-functional vulnerability.[17-19]

Fried et al.[20] proposed a frailty phenotype characterized by weight loss, muscle weakness, low physical activity, exhaustion and reduced gait speed. This last variable is considered an important indicator of frailty in older people living in the community and is associated with a sedentary lifestyle, falls, muscle weakness, cognitive impairment and an increased risk of future disability.[16,21]

Sphincter incontinence was also associated with greater clinical and functional vulnerability. It is considered an important geriatric syndrome with a high prevalence in both sexes[22] which impacts activities of daily living and is an early marker of frailty in older people.[23] This finding corroborates studies carried out in other Brazilian regions in which researchers also used the IVCF-20 and found that urinary incontinence is a factor that increases clinical-functional vulnerability.[8,17]

The relationship between urinary incontinence and frailty is multifactorial and is influenced by the impairment of the genitourinary system as we age, as well as by other aspects such as cognitive and behavioral conditions.[23] Despite the consensus on the relationship between frailty and urinary incontinence, studies exploring fecal incontinence are less frequent. Despite this, it is also pointed out as a condition associated with negative outcomes, such as mortality and functional incapacity, and is more prevalent in populations with vulnerable health.[24]

It is known that cognitive decline is more frequent among older people at risk of frailty or frail.[17,25] Similar to other studies, the perception of being forgotten by a family member or friend was found to be a factor independently associated with greater clinical and functional vulnerability.[17,25] In an epidemiological study with a sample of more than 40,000 older people, it was found that the chance of presenting cognitive complaints among individuals with pre-frailty was almost seven times higher when compared to robust individuals. Among those considered frail, this was 19 times higher.[25]

The association between frailty and cognitive decline has been evidenced in the literature and the concomitance of these aspects significantly increases the risk of adverse outcomes such as death and functional incapacity.[26,27] It is known that with increasing age some cognitive functions remain stable and others decline. There is a reduction in memory, executive function and the ability to multitask, as well as slower information processing.[28,29] This decline is often accelerated in the presence of chronic conditions that impact on cardiovascular and nutritional health and engagement in physical activity.[26]

Multiple comorbidities, including polypathology, polypharmacy and recent hospitalization, were also significantly associated with greater clinical-functional vulnerability. These negatively reinforce the evolution of vulnerability during ageing.[30] The frequency of chronic diseases increases with age and many of them are associated with a loss of aerobic and muscular capacity and a greater need for medication.[31] A study carried out in the southeast of Bahia found a prevalence of 4.8% of polypathology, 25.1% of polypharmacy and 4.8% of recent hospitalization, revealing that the practice of polypharmacy scored higher in this dimension.[18]In contrast, the absence of multiple comorbidities was associated with a reduction in the moderate or high risk of frailty among older people treated at a PHC unit.[32] It is suggested that the absence of poly-pathology may favor successful aging.[33]

Tracking factors associated with greater clinical-functional vulnerability contributes to the development of care strategies for the older individuals aimed at preventive and/or intervention measures related to functional decline. Almost half of the older people assessed in this study had clinical-functional vulnerability. This shows that access to health care services can enable specialized multidimensional assessment for the older population in conjunction with primary and secondary prevention strategies. The results obtained can help classify and monitor the health of this population, contributing to the early identification of individuals who need to be referred for specialized assessment and follow-up at other points in the Health Care Network (HCN), taking into account the comprehensive care proposed by the SUS.

The study is not without its limitations. It is important to bear in mind that the sample was made up of older people registered and assessed at a single care unit, so there is a possibility of under-representation of the population with the desired characteristics. Even so, it provides an overview of health conditions in a territory that has not been surveyed before and which may be similar to others in the same municipality. Although the sample was not calculated to generate external validity, it contributes to helping managers define health promotion and protection strategies specifically for older people living in communities. It is worth noting that the data collection was carried out in the context of COVID-19, in which not only has there been a reduction in the provision of care for chronic diseases in around 60% of the country's basic health unit (UBS), but the demand for care has also been reduced, whether due to fear of contracting the disease, worsening health conditions, or even reduced financial resources for travel.[34] Another aspect to be mentioned is that the data was obtained through interviews, however, the IVCF-20 is a multidimensional instrument that is considered reliable, valid and easy to apply and is indicated for screening frail individuals or those at risk of becoming frail.

5. Conclusions

The results of the study lead us to conclude that impaired aerobic capacity, the presence of multiple comorbidities, sphincter incontinence and memory loss are associated with clinical-functional vulnerability among older people in Salvador who are being monitored in a primary health care unit. It is recommended that more robust studies be carried out on the clinical-functional vulnerability of the older population living in various regions of the country in order to help guide policies and improve the organization of comprehensive care for this population.

Author contributions

The authors have declared that they have made substantial contributions to the work in terms of the conception or design of the research; the acquisition, analysis or interpretation of data for the work; and the writing or critical review of relevant intellectual content. All authors approved the final version to be published and agreed to take public responsibility for all aspects of the study.

Conflicts of interest

No financial, legal or political conflicts involving third parties (government, private companies and foundations, etc.) have been declared for any aspect of the work submitted (including but not limited to grants and funding, participation in advisory boards, study design, manuscript preparation, statistical analysis, etc.).

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