Artigo

Cardiovascular health and functional capacity in hospitalized older adults

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Abstract. To analyze the association between cardiovascular risk factors and functional dependence among hospitalized older adults. This cross-sectional study included 233 individuals aged 60 years and older who were hospitalized in a public hospital in Minas Gerais, Brazil. Data on sociodemographic, clinical, anthropometric, and lifestyle characteristics were collected. Functional dependence was assessed using validated scales for basic and instrumental activities of daily living. Bivariate analyses were conducted to examine the relationships between cardiovascular risk factors and levels of dependence. The participants had a mean age of 70.9 ± 8.1 years and were predominantly male (63.1%) and white (62.2%). The most prevalent risk factors were hypertension (66.5%), sedentary behavior (97.4%), and a family history of hypertension (65.2%). Most individuals presented partial dependence in both basic and instrumental activities of daily living. Peripheral arterial disease and nephropathy were associated with moderate dependence in basic activities, while diabetes mellitus and chronic obstructive pulmonary disease were related to total dependence in instrumental activities. Functional dependence was frequent among hospitalized older adults and showed significant associations with cardiovascular risk factors and chronic comorbidities. These findings highlight the need for integrated and multidisciplinary clinical approaches to help maintain functional capacity and improve health outcomes in this population.

Keywords: activities of daily living; functional status; aging. cardiovascular risk factors; disability evaluation.

Recebido: 10 de Julho 2025; Revisado: 14 de Agosto de 2025; Aceito: 18 de Agosto 2025.

Saúde cardiovascular e capacidade funcional em idosos hospitalizados

Resumo. Analisar a associação entre fatores de risco cardiovascular e dependência funcional em idosos hospitalizados. Estudo transversal realizado com 233 indivíduos com 60 anos ou mais, internados em um hospital público de Minas Gerais, Brasil. Foram coletados dados sociodemográficos, clínicos, antropométricos e de estilo de vida. A dependência funcional foi avaliada por meio de escalas validadas para atividades básicas e instrumentais da vida diária. Análises bivariadas foram realizadas para investigar associações entre fatores de risco cardiovascular e níveis de dependência. Os participantes apresentaram média de idade de 70,9 ± 8,1 anos, sendo predominantemente do sexo masculino (63,1%) e da raça branca (62,2%). Os fatores de risco mais prevalentes foram hipertensão arterial sistêmica (66,5%), comportamento sedentário (97,4%) e histórico familiar de hipertensão arterial sistêmica (65,2%). A maioria dos indivíduos apresentou dependência parcial tanto para as atividades básicas quanto instrumentais da vida diária. Doença arterial periférica e nefropatia foram associadas à dependência moderada em atividades básicas, enquanto diabetes mellitus e doença pulmonar obstrutiva crônica foram associadas à dependência total em atividades instrumentais. A dependência funcional foi frequente entre idosos hospitalizados e apresentou associações signifi-

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cativas com fatores de risco cardiovascular e comorbidades crônicas. Esses achados reforçam a necessidade de abordagens clínicas integradas e multidisciplinares para auxiliar na manutenção da capacidade funcional e na melhoria dos desfechos de saúde nessa população.

Palavras-chave: atividades da vida diária; estado funcional; Envelhecimento; fatores de risco cardiovascular; avaliação da incapacidade.

1. Introduction

The World Health Organization (WHO) defines healthy aging as a multidimensional process that promotes the maintenance of older adults' functional capacity, allowing them to live independently in the community and avoiding the need for long-term care facilities and/or hospitalizations[1]. Functional capacity is essential to the quality of life in older adults and can be assessed through the Basic Activities of Daily Living (BADL) and Instrumental Activities of Daily Living (IADL)[2]. BADL refers to fundamental tasks such as dressing, eating, bathing, and personal hygiene, while IADL involves more complex tasks, including managing finances, shopping, and performing household chores[3-4].

Several factors influence BADL and IADL in older adults, including mental and emotional health, physical environment, social support network, physical activity level, medication use, nutritional status, socioeconomic conditions, and physical health problems. Cardiovascular diseases (CVDs) are of particular relevance, as they are often associated with pre-existing conditions and contribute to the development of multiple comorbidities that impair functional capacity[5]. In Brazil, a multi-institutional study on cardiovascular statistics reported that the prevalence of CVD increases significantly with age, making it the leading cause of death in the general population[6]. Among older adults, CVD often results in reduced functional capacity, leading to physical limitations, impaired mobility, diminished quality of life, increased demand for medical care, more frequent hospitalizations, and premature mortality[7].

Functional capacity is also a critical indicator for stratifying cardiovascular risk and other causes of mortality. In hospital settings, the daily assessment of functional status is essential for predicting outcomes, guiding therapeutic decisions, and evaluating patient vulnerability[7].

Despite the growing relevance of these issues, there is a notable scarcity of data regarding the relationship between cardiovascular health and functional capacity in hospitalized older adults in Brazil. Most studies focus on community-dwelling older populations, leaving a significant gap in understanding how cardiovascular conditions affect functional independence during hospitalization. Addressing this gap is essential to inform clinical strategies to preserve autonomy and improve outcomes for this vulnerable population.

Considering the steady increase in the number of hospitalized older adults – which is associated with lower quality of life, higher healthcare costs, and increased readmission rates[8] - as well as the importance of preserving functional capacity in this context, this study aims to analyze the relationship between functional capacity and cardiovascular risk factors associated with dependence in BADL and IADL among hospitalized older adults. Specifically, the study will examine how cardiovascular conditions such as hypertension, diabetes, myocardial infarction, stroke, dyslipidemia, congestive heart failure, and peripheral arterial disease impact the ability of older adults to perform daily activities. This approach will contribute to a better understanding of the mechanisms underlying functional decline and help guide interventions to maintain independence and quality of life in this population.

2. Methods

This observational, cross-sectional, quantitative study was conducted at a large teaching hospital in an academic setting in Minas Gerais state, Brazil.

Sample size estimation was based on the total population of hospitalized older adults in 2020 (n = 4,280), with a finite population correction and a 20% adjustment for potential refusals. A simple random sampling method was used to select participants according to the hospital admission flow. The final sample size was 233 participants.

Inclusion criteria: adults aged 60 years or older, of both sexes, hospitalized, and with preserved cognitive capacity, as assessed using the Mini-Mental State Examination (MMSE). MMSE cutoff scores were defined according to education level: illiterate (20 points); 1-4 years of schooling (25 points); 5-8 years (26.5 points); 9-11 years (28 points); and > 11 years (29 points)[9].

- Data collection occurred from October 2021 to February 2022 using a structured instrument developed by the researchers, which included the following variables: Sociodemographic data: age, sex, self-reported race, religion, marital status, education, employment status, and per capita income.
- Clinical data: weight, height, blood pressure (BP), heart rate (HR), and comorbidities.
- Lifestyle habits: smoking, sedentary behavior, alcohol consumption, and medication use.
- Family history of CVD.

To assess BADLs, the validated Portuguese version of the Katz Index was used[3], which evaluates six activities: bathing, dressing, toileting, transferring, continence, and feeding. Each activity is scored 1 (independent) or 0 (dependent), with total scores interpreted as 6 (independent), 4 (moderate dependence), and ≤ 2 (severe dependence)[10].

IADLs were assessed using the Lawton & Brody Scale[4], which measures seven tasks: using the telephone, transportation, shopping, meal preparation, housekeeping, managing medications, and handling finances. Each task is scored as 3 (independent), 2 (needs assistance), or 1 (unable to perform). Total scores range from 7 to 21, classifying in-

dividuals as dependent (7), partially dependent (8-20), or independent (21)[11].

Anthropometric measurements:Weight was measured using an OMRON HBF-214 digital platform scale (capacity: 150 kg; sensitivity: 50 g).Height was measured using a non-stretchable tape fixed to a wall, perpendicular to the floor, with no baseboards.Body mass index (BMI) was calculated as weight (kg) divided by height squared (m^2) and classified as underweight (< 22.0 kg/m^2), normal weight (22.0-27.0 kg/m^2), or overweight (> 27.0 kg/m^2).BP measurement: BP was measured using portable automatic devices (OMRON HEM-7113) with appropriately sized cuffs, following the Brazilian guidelines for arterial hypertension[12]. Three BP measurements were taken at one-minute intervals, with the mean of the last two considered.

Peripheral arterial disease assessment: The ankle-brachial index (ABI), used for the non-invasive diagnosis of peripheral arterial disease, was calculated as the ratio between the systolic BP of the ankle arteries (anterior or posterior tibial) and the systolic BP of the brachial artery. Values between 0.9 and 1.4 were considered normal[13].

Comorbidity data were assessed based on information extracted from medical records. The cardiovascular conditions analyzed included hypertension, diabetes, myocardial infarction, stroke, obesity, dyslipidemia, congestive heart failure, chronic obstructive pulmonary disease, and peripheral arterial disease.

Participants were considered smokers if they reported smoking at least one cigarette per day. Sedentary individuals did not engage in regular and frequent physical activity during the week. Alcohol consumers were defined as individuals who reported consuming any type or amount of alcoholic beverage, regardless of frequency.

2.1. Data analysis

Data were entered in duplicate into an electronic spreadsheet. Continuous variables were described as means and standard deviations (Mean ± SD), while categorical variables were expressed as absolute and relative frequencies. Associations between functional capacity and socioeconomic, demographic, clinical, and lifestyle variables were analyzed using Pearson's chi-square test. Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated for each variable. A p-value of ≤ 0.05 was considered statistically significant.

3. Results

A total of 233 older adults were included in the study, with a mean age of 70.9 ± 8.1 years. The majority of participants were male (63.1%), white (62.2%), and married (51.1%). Most had up to 8 years of formal education (55.4%) and were retired (81.5%). A family history of hypertension was reported by 65.2%, and 97.4% exhibited a sedentary lifestyle. Hypertension was the most prevalent comorbidity (66.5%), followed by diabetes (30.9%) and dyslipidemia (30.0%). The detailed sociodemographic, clinical, and lifestyle characteristics of the participants are presented in Table 1.

Table 1 - Sociodemographic, clinical, and lifestyle characteristics of study participants (n = 233). Uberlândia, Minas Gerais, Brazil, 2021-2022.

Variables	
Male, N. (%)	147 (63.1%)
White, N. (%)	145 (62.2%)
Catholics, N. (%)	142 (60.9%)
Married, N. (%)	119 (51.1%)
Educational level ≤ 8 years of education, N. (%)	129 (55.4%)
Retired, N. (%)	190 (81.5%)
Income ≥ 1 Mw, N. (%)	155 (66.5%)
BMI, kg/m^2	24.9 ± 4.3
SBP, mmHg	128.5 ± 20.3
DBP, mmHg	75.3 ± 8.5
ABI, mmHg	1.1 ± 0.1
HR, bpm	75.4 ± 12.9
Hypertension, N. (%)	155 (66.5%)
Diabetes, N. (%)	72 (30.9%)
MI, N. (%)	35 (15.0%)
CVA, N. (%)	29 (12.4%)
Obese, N. (%)	61 (26.2%)
Dyslipidemia, N. (%)	70 (30.0%)
CHF, n (%)	58 (24.9%)
COPD, n (%)	25 (10.7%)
PAD, n (%)	49 (21.0%)
Nephropaties, N. (%)	31 (13.3%)
Smokers, N. (%)	43 (18.5%)
Sedentary lifestyle, N. (%)	227 (97.4%)
Alcohol consumption, N. (%)	47 (20.2%)
Medication used	
• Statin, N. (%)	76 (32.6%)
• CCB, N. (%)	8 (3.4%)
• BB, N. (%)	37 (15.9%)
• ARB, N. (%)	105 (45.1%)
• ACEI, N. (%)	69 (29.6%)
• Diuretics, N. (%)	99 (42.5%)
• Anxiolytic/antidepressant, N. (%)	59 (25.3%)
Family history of hypertension, N. (%)	152 (65.2%)
Family history of diabetes, N. (%)	92 (39.5%)
Family history of heart attack, N. (%)	54 (23.2%)
Family history of stroke, N. (%)	50 (21.5%)
BADL (Katz Scale)	
• Independent	110 (47.2%)
• Moderate dependency	123 (52.8%)
IADL (Lawton & Brody Scale)	
• Independent	5 (2.1%)
• Partial dependency	138 (59.2%)
• Total dependency	90 (38.6%)

Values are expressed as absolute (n) and relative frequencies or mean ± standard deviation. SM: minimum wage; BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure; ABI: ankle-brachial index; HR: heart rate; MI: myocardial infarction (heart attack); CVA: cerebrovascular accident (stroke); CHF: congestive heart failure; COPD: chronic obstructive pulmonary disease; PAD: peripheral arterial disease; CCB: calcium channel blockers; BB: beta-blockers; ARB: angiotensin receptor blockers; ACEI: angiotensin-converting enzyme inhibitors; BADL: basic activities of daily living; IADL: instrumental activities of daily living.

Table 2 shows that the probability of moderate dependence in Basic Activities of Daily Living (BADL) was higher among participants with peripheral arterial disease (PAD) and nephropathy. Specifically, older adults with PAD had a higher risk of moderate dependence (CRR = 1.92; 95% CI: 0.99-3.71; p = 0.05), and those with nephropathy showed a significantly higher risk (CRR = 2.44; 95% CI: 1.07-5.57; p = 0.03). Alcohol consumption was associated with a lower probability of moderate dependence (CRR = 0.43; 95% CI: 0.22-0.83; p = 0.01).

Table 2 - Association between sociodemographic and clinical characterization, risk factors, and lifestyle habits of participants and degree of dependence on basic activities of daily living - Katz Scale. Uberlândia, Minas Gerais, Brazil, 2021-2022.

	Independent (N. = 110)	Moderate dependence (N. = 123)	CRR* (CI)	p
Age				
≤ 79 years, N. (%)	96 (49.0%)	100 (51.0%)	1.58 (0.77 -3.24)	0.28
> 80 years, N. (%)	14 (37.8%)	23 (62.2%)		
Sex				
Male, N. (%)	75 (51.0%)	72 (49.0%)	1.52 (0.89-2.60)	0.14
Female, N. (%)	35 (40.7%)	51 (59.3%)		
Race				
White, N. (%)	67 (46.2%)	78 (53.8%)	0.90 (0.53 - 1.53)	0.79
Non white, N. (%)	43 (48.9%)	45 (51.1%)		
BMI				
Normal	86 (50.0%)	86 (50.0%)	1.54 (0.85 - 2.79)	0.18
Abnormal	24 (39.3%)	37 (60.7%)		
Hypertension				
No	41 (52.6%)	37 (47.4%)	1.381 (0.80 -2.38)	0.27
Yes	69 (44.5%)	86 (55.5%)		
Diabetes				
No	81 (50.3%)	80 (49.7%)	1.50 (0.86 - 2.64)	0.20
Yes	29 (40.3%)	43 (59.7%)		
Heart attack				
No	91 (46.0%)	107 (54.0%)	0.72 (0.35 - 1.47)	0.46
Yes	19 (54.3%)	16 (45.7%)		
Stroke				
No	101 (49.5%)	103 (50.5%)	2.18 (0.95 - 5.01)	0.07
Yes	9 (31.0%)	20 (69.0%)		
Dyslipidemia				
No	72 (44.2%)	91 (55.8%)	0.67 (0.38 - 1.17)	0.20
Yes	38 (54.3%)	32 (45.7%)		
CHF				
No	82 (46.9%)	93 (53.1%)	0.95 (0.52 - 1.71)	0.88
Yes	28 (48.3%)	30 (51.7%)		
COPD				
No	100 (48.1%)	108 (51.9%)	1.39 (0.60 - 3.23)	0.53
Yes	10 (40.0%)	15 (60.0%)		
PAD				
No	93 (50.5%)	91 (49.5%)	1.92 (1.0 - 3.71)	0.05
Yes	17 (34.7%)	32 (65.3%)		
Nephropathy				
No	101 (50.0%)	101 (50.0%)	2.44 (1.07 - 5.57)	0.03
Yes	9 (29.0%)	22 (71.0%)		
Smoker				
No	85 (44.7%)	105 (55.3%)	0.58 (0.30-1.14)	0.13
Yes	25 (58.1%)	18 (41.9%)		
Physical active				
No	108 (47.6%)	119 (52.4%)	1.82 (0.33 - 10.11)	0.69
Yes	2 (33.3%)	4 (66.7%)		
Alcohol consumption				
No	80 (43.0%)	106 (57.0%)	0.43 (0.22 - 0.83)	0.01
Yes	30 (63.8%)	17 (36.2%)		

BMI: body mass index; CHF: congestive heart failure; COPD: chronic obstructive pulmonary disease; PAD: peripheral arterial disease; CRR* = Crude Relative Risk; CI = Confidence Interval; p = probability (p ≤ 0.05).

Table 3 indicates a higher prevalence of diabetes and chronic obstructive pulmonary disease (COPD) among individuals with total dependence in Instrumental Activities of Daily Living (IADL), with statistically significant associations ($p \leq 0.05$).

Table 3 - Association between sociodemographic and clinical characterization, risk factors, and lifestyle habits of participants and degree of dependence on instrumental activities of daily living - Lawton & Brody Scale. Uberlândia, Minas Gerais, Brazil, 2021-2022.

	Independent (N. = 5)	Partially dependent (N. = 138)	Totally dependent (N. = 90)	p
Age				
≤ 79 years, N. (%)	4 (2.0%)	120 (61.2%)	72 (36.7%)	0.37
> 80 years, N. (%)	1 (2.7%)	18 (48.6%)	18 (48.6%)	
Sex				
Male, N. (%)	5 (3.4%)	88 (59.9%)	54 (36.7%)	0.08
Female, N. (%)	0 (0.0%)	50 (58.1%)	36 (41.9%)	
Race				
White, N. (%)	4 (2.8%)	83 (57.2%)	58 (40.0%)	0.55
Non white, N. (%)	1 (1.1%)	55 (62.5%)	32 (36.4%)	
BMI				
Normal	3 (1.7%)	108 (62.8%)	61 (35.5%)	0.17
Abnormal	2 (3.3%)	30 (49.2%)	29 (47.5%)	
Hypertension				
No	1 (1.3%)	52 (66.7%)	25 (32.1%)	0.23
Yes	4 (2.6%)	86 (55.5%)	65 (41.9%)	
Diabetes				
No	5 (3.1%)	104 (64.6%)	52 (32.3%)	0.01
Yes	0 (0.0%)	34 (47.2%)	38 (52.8%)	
Heart attack				
No	5 (2.5%)	117 (59.1%)	76 (38.4%)	0.43
Yes	0 (0.0%)	21 (60.0%)	14 (40.0%)	
Stroke				
No	5 (2.5%)	125 (61.3%)	74 (36.3%)	0.10
Yes	0 (0.0%)	13 (44.8%)	16 (55.2%)	
Dyslipidemia				
No	3 (1.8%)	90 (55.2%)	70 (42.9%)	0.11
Yes	2 (2.9%)	48 (68.6%)	20 (28.6%)	
CHF				
No	5 (2.9%)	101 (57.7%)	69 (39.4%)	0.20
Yes	0 (0.0%)	37 (63.8%)	21 (36.2%)	
COPD				
No	5 (2.4%)	128 (61.5%)	75 (36.1%)	0.05
Yes	0 (0.0%)	10 (40.0%)	15 (60.0%)	
PAD				
No	4 (2.2%)	109 (59.2%)	71 (38.6%)	1.00
Yes	1 (2.0%)	29 (59.2%)	19 (38.8%)	
Nephropaty				
No	5 (2.5%)	117 (57.9%)	80 (39.6%)	0.33
Yes	0 (0.0%)	21 (67.7%)	10 (32.3%)	
Smoker				
No	5 (2.6%)	107 (56.3%)	78 (41.1%)	0.08
Yes	0 (0.0%)	31 (72.1%)	12 (27.9%)	
Physically active				
No	5 (2.2%)	133 (58.6%)	89 (39.2%)	0.41
Yes	0 (0.0%)	5 (83.3%)	1 (16.7%)	
Alcohol consumption				
No	4 (2.2%)	108 (58.1%)	74 (39.8%)	0.76
Yes	1 (2.1%)	30 (63.8%)	16 (34.0%)	

BMI: body mass index; CHF: congestive heart failure; COPD: chronic obstructive pulmonary disease; PAD: peripheral arterial disease; CRRR* = Crude Relative Risk; CI = Confidence Interval; p = probability ($p \leq 0.05$).

4. Discussion

This study examined the association between functional capacity and cardiovascular risk factors among older patients hospitalized for various conditions. The findings indicate that a significant proportion of older adults experience limitations in their functional capacity, with factors such as multimorbidity and lifestyle behaviors contributing to these limitations.

Multimorbidity emerges as a central factor in the decline of functional capacity among older individuals. A study found that combinations of chronic diseases, such as hypertension and diabetes, were prevalent among older adults and significantly impacted their ability to perform daily activities[14]. In the Brazilian context, the increasing burden of cardiovascular diseases and their direct association with reduced functional performance, especially in older adults, has been highlighted[6].

Hypertension is another major factor impacting functional capacity in older adults. The hypertension management guidelines in Brazil[10] emphasize the importance of adequate blood pressure control to prevent complications such as functional disability. Consistent with these guidelines, the present study identified an association between elevated blood pressure and greater difficulty in performing daily tasks, aligning with findings from the international literature[15].

Alcohol consumption is another factor that may influence functional capacity. Several studies have pointed to the complex relationship between alcohol use and physical function. One study found that alcohol consumption was linked to functional impairments in older adults, though the relationship varied by the amount and frequency of consumption[16]. In contrast, a more recent study suggested that moderate alcohol consumption may not necessarily impair functional capacity but could increase cardiovascular risk over time[17].

Another association observed in this study was between PAD and dependence on BADL. It is well established that individuals with PAD tend to have decreased functional capacity, as this clinical condition results in several physical limitations that compromise the performance of BADL and other activities that interfere with quality of life. The main complications include pain in the lower extremities, decreased muscle strength in the lower limbs, reduced blood flow to these limbs, claudication, loss of function, ulceration, and, in extreme cases, amputation[18-19-20].

Cognitive impairment, assessed through screening instruments, also plays a vital role in functional limitations. Recent evidence demonstrates that mental decline is strongly associated with reduced ability to perform activities of daily living (ADLs). For example, a study found that early identification of cognitive deficits in older adults was crucial for preventing functional decline and promoting independence[21]. This reinforces the importance of regular cognitive assessment in elderly care strategies.

Moreover, comprehensive and multidisciplinary care is essential to prevent functional decline in older populations. Implementing approaches such as physical therapy, nutritional counseling, and medication adherence has shown benefits for functional outcomes[7]. As recommended by global health authorities[1], a holistic approach is vital for maintaining older adults' independence and quality of life.

4.1. Limitations of the study

Several limitations should be considered when interpreting the results. First, the absence of a more robust statistical analysis that could account for possible confounding factors limits the ability to draw definitive conclusions. The study design did not incorporate advanced statistical techniques such as multivariable regression, which could have provided a clearer picture of the relationships between functional capacity and cardiovascular risk factors.

Furthermore, the study's cross-sectional design restricts the ability to establish causal relationships, as it does not allow for the assessment of the temporal sequence of risk factors and functional decline. Another limitation is the potential bias inherent in self-reported data, particularly related to alcohol consumption and lifestyle behaviors. Additionally, the study did not control for important confounding variables, such as socioeconomic status and medication adherence, which may have affected the results.

Finally, the sample was limited to older patients hospitalized for various conditions. These aspects should be considered when analyzing the findings, and future investigations using larger and more representative samples with robust analytical strategies are recommended.

5. Conclusion

Moderate or total dependence in basic and instrumental activities of daily living (BADL and IADL) was prevalent in the study population. Peripheral arterial disease and nephropathy were associated with moderate dependence in BADL, while diabetes and COPD were associated with total dependence in IADL. These findings highlight a relevant public health issue and underscore the need for adequate health policies and multidisciplinary strategies to promote, protect, and restore cardiovascular health and functional independence in older adults.

5.1. Ethical considerations

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the local ethics committee (CAAE N. 19650619.8.0000.5152; Approval N. 4,341,867).

Acknowledgments

We want to thank the participants for their support of this study.

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UMA MISSÃO, UM PARCEIRO:

Aprimorar o controle & adesão para um cuidado melhor com o paciente

Apresentamos AS ONE by Servier, uma iniciativa global que une nossos produtos e serviços personalizados em um único portifólio para ajudar a melhorar o controle e a adesão dos pacientes agora e no futuro.[1,2A]

1. .Campano E. et al. Impact of SEvierPatient Solution: "Sempre Cuidando" program aNd dIGital Solution "Elfie" on Adherence among hypERtensive patients – the ENGAGE real-world study – Poster apresentado no II Congresso Internacional SOBREXP 2024, 18 a 20 de setembro de 2024. Disponível em :file:///C:/Users/ER22_BR1/Downloads/20240814_Servier_Engage_Poster_SOBREXP%202024_V0.1.pdf
2. BARROSO, Weimar Kunz Sebba et al. Diretrizes Brasileiras de Hipertensão Arterial–2020. Arquivos Brasileiros de Cardiologia, v. 116, p. 516-658, 2021.
A- Um programa completo de educação e engajamento para ajudar seus pacientes no tratamento, com programas de suporte ao paciente, parcerias para melhora da adesão e programas de conscientização. Com isso, há uma melhora na adesão ao tratamento, por meio da educação em saúde e da facilitação de acesso ao medicamento, evitando desfechos negativos, sendo o único promovido pela Servier do Brasil. Comprovado pelo ESTUDO ENGAGE. Imagem ilustrativa

Material destinado a profissionais de saúde habilitados a prescrever e/ou dispensar medicamentos. M-NO-BR-202505-00081. MAIO/2025