Prevalence of risk factors for bone fragility fractures among elderly residents in the municipality of Mineiros – Goiás

Prevalência de fatores de risco para fraturas por fragilidade óssea entre idosos residentes no município de Mineiros – Goiás

Prevalencia de factores de riesgo de fracturas por fragilidad ósea en ancianos residentes del municipio De Mineiros - Goiás

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Abstract
The aging process and the increase in life expectancy point to an improvement in quality of life due to its disabling events. Bone fragility fractures and their physical and psychological consequences can be avoided by recognizing the risk factors. The aim of this study was to evaluate the risk factors for fragility fractures in the elderly in the city of Mineiros/GO. An analytic-descriptive study, with cross-sectional design, was carried out, including 100 elderly assisted in health care units in Mineiros, GO. A questionnaire about incidence and risk factors for fragility fractures was carried out, determining the prevalence and risk of fractures by the FRAX-Brazil scale, the possible outcomes and the association of risk factors for fragility fractures. Thus, the prevalence of risk factors for fragility fractures was identified, and most of them were female, Caucasian, mean age 70.54 years (standard deviation 8.48), and 80% of the surveyed individuals had never undergone bone densitometry, and most of them had moderate to high risk factors for major fracture and hip fracture. We conclude that there is a need for osteoporosis prevention, early diagnosis and effective treatment, reducing the rates of these fractures. The identification of the most prevalent risk factors facilitates the implementation of short- and long-term preventive and socio-educational measures by the health service. Furthermore, it is expected to contribute to the construction of a care network for elderly patients vulnerable to falls and fragility fractures.
Keywords: Densitometry; Osteoporosis; Osteoporosis fracture.

Resumo
O processo de envelhecimento e o aumento da expectativa de vida apontam para a melhora na qualidade de vida devido a seus eventos incapacitantes. As fraturas por fragilidade óssea e suas consequências físicas e psíquicas podem ser evitadas através do reconhecimento dos fatores de risco. O objetivo desse estudo foi avaliar os fatores de risco para fraturas por fragilidade em idosos no município de Mineiros/GO. Foi realizado um estudo analítico-descritivo, com delineamento transversal, sendo inclusos 100 idosos atendidos em unidades de saúdecde Mineiros/GO. Foi realizado um questionário sobre incidência e fatores de risco para fraturas por fragilidade óssea, determinando a prevalência e o risco de fraturas pela escala FRAX-Brasil, os possíveis desfechos e a associação dos fatores de risco para fraturas por fragilidade óssea. Assim, identificou-se a prevalência dos fatores de risco para fraturas por fragilidade, sendo que sua maioria foram do sexo feminino, cor branca, idade média 70,54 anos (desvio padrão 8,48) e 80% dos pesquisados nunca realizaram densitometria óssea, e desses, a maioria apresentaram fatores de risco para fratura maior e de quadril entre moderado e alto. Concluímos que existe a necessidade de prevenção da osteoporose, diagnóstico precoce e tratamento eficaz, reduzindo os índices dessas fraturas. A identificação dos fatores de risco mais prevalentes facilita a implementação de medidas preventivas e socioeducativas a curto e a longo prazo pelo serviço de saúde. Além disso, espera-se contribuir para construção de uma rede de cuidado ao paciente idoso vulnerável a quedas e fraturas por fragilidade.
Palavras-chave: Densitometria; Osteoporose; Fratura por osteoporose.

Resumen

El proceso de envejecimiento y el aumento de la esperanza de vida apuntan a una mejora de la calidad de vida debido a sus eventos discapacitantes. Las fracturas por fragilidad ósea y sus consecuencias físicas y psicológicas pueden evitarse mediante el reconocimiento de los factores de riesgo. El objetivo de este estudio fue evaluar los factores de riesgo de fracturas por fragilidad en personas mayores del municipio de Mineiros/GO. Se realizó un estudio analítico-descriptivo con diseño transversal, incluyendo 100 ancianos atendidos en unidades de salud de Mineiros/GO. Se realizó un cuestionario sobre incidencia y factores de riesgo de fracturas por fragilidad, determinando la prevalencia y el riesgo de fracturas por la escala FRAX-Brasil, los posibles resultados y la asociación de factores de riesgo de fracturas por fragilidad. Así, se identificó la prevalencia de los factores de riesgo de fractura por fragilidad, siendo la mayoría de ellos mujeres, de raza blanca, con una edad media de 70,54 años (desviación estándar de 8,48) y el 80% de los encuestados no se había sometido nunca a una densitometría ósea, y la mayoría de ellos presentaba factores de riesgo de fractura mayor y de fractura de cadera entre moderados y altos. Concluimos que es necesaria la prevención de la osteoporosis, el diagnóstico precoz y el tratamiento eficaz, reduciendo las tasas de estas fracturas. La identificación de los factores de riesgo más prevalentes facilita la aplicación de medidas preventivas y socioeducativas a corto y largo plazo por parte del servicio sanitario. Además, se espera que contribuya a la construcción de una red de atención a los pacientes mayores vulnerables a las caídas y a las fracturas por fragilidad.

Palabras clave: Densitometría; Osteoporosis; Fractura por osteoporosis.

1. Introduction

Osteoporosis is an osteometabolic disorder characterized by altered bone metabolism, with reduced bone mineral density, increased bone fragility and fracture risk (WHO, 2003; Silva et al, 2019), with fragility fracture being the leading cause of morbidity and mortality in these individuals (Stolnicki et al., 2016). This osteometabolic disease and fractures have become increasingly prevalent in developing countries, where longevity has been rapidly increasing (Silva et al, 2019). In the US population, the numbers of fragility fractures exceed the annual incidence of stroke, heart attack, and breast cancer (Lee et al, 2019). It is worth noting that osteoporosis and fractures should be treated as a public health problem (Tran et al, 2017; Gold, 2001). In Brazil, epidemiological data regarding osteoporosis and fractures are still insufficient, making it difficult to develop public health policies (Xavier et al, 2019).

There are several possible risk factors for fractures, among them advanced age; female gender; low body weight; physical inactivity; use of glucocorticoids; personal and family history of fractures; smoking; alcoholism and low calcium intake (Rocha et al, 2018). The risk of osteoporotic fractures can be measured through clinical assessment instruments, and the FRAX calculator is one of the tools validated for use in the Brazilian population. The recognition of potential risks allows for early, prophylactic or therapeutic intervention and guidance as to the need for densitometric evaluation (Radominski et al, 2017).

Risk stratification for osteoporosis and fractures coupled with preventive measures and health education reduce the incidence rates of osteoporotic fractures (van der Vet et al, 2019; Silva et al, 2019). Therefore, this study aims to assess the prevalence of risk factors for fragility fractures in elderly residents in the municipality of Mineiros - GO.

2. Methodology

This study was approved by the Ethics Committee on Human Research of the Universidade Federal de Goiás - Regional of Jataí under opinion number 4,067,574.

This was an analytical-descriptive study, with a cross-sectional design. For data collection, a specific questionnaire (Appendix 1) was applied about incidence and risk factors for pathological fractures and bone fragility fractures. We interviewed 100 elderly individuals (aged 60 years or older), 62% female and 38% male, seen at the Health Care Units in the city of Mineiros/GO, from June/2020 to March/2021.

For the application of the questionnaires, the interviewers were trained, with discussion of the topics addressed, scales, prior reading and on the need to sign the Informed Consent Form (ICF). For this research, the team participating in the project underwent previous training, in order to avoid any kind of unpleasant and embarrassing situation with any volunteer who was able to participate in the research and to provide homogeneity and increase the reliability of the data collected.

The clinical and epidemiological data collected were used to characterize the sample: age, sex, skin color, weight, height, and profession. In addition, data related to lifestyle habits such as amount of calcium intake, smoking, alcohol consumption, physical activity, as well as some clinical aspects related to osteoporosis and bone fragility were collected, such as the presence of dementia, densitometric data and current diagnosis of osteoporosis, menopause, related chronic diseases such as rheumatoid arthritis, personal history of previous fractures, family history of fractures, use of related medications (such as corticoids).

In addition, the fracture risk was calculated using the FRAX-Brazil calculator, with a version already validated in Portuguese. The interviewee was also asked whether he had ever been instructed by a health professional about fractures and their potential risk factors. The fall risk assessment was based on the Fall Risk score instrument, already validated for use in Brazil. Each participant was identified by a different code (Arabic numbers), so that his/her name would not be exposed. Institutionalized elderly people, individuals under 60 years of age, those with advanced cognitive deficits that made it impossible to answer the questionnaire, and those who did not agree to participate in this study were excluded from the study.

For data analysis we used the statistical package SPSS (Statistical Package for Social Science) version 26.0. Data normality was tested using the Shapiro-Wilk test. The characterization of the sociodemographic profile and risk factors for fractures of the elderly was performed by means of absolute frequency, relative frequency, mean, standard deviation, minimum and maximum. The association between the risk for major hip fracture and the profile of the elderly was performed by applying Pearson's chi-square test. Person's or Spearman's correlation analysis was used in order to verify the relationship between age and BMI with the number of risk factors for fracture and Frax for fracture. In all analyses the significance level adopted was 5% ($p < 0.05$).

3. Results

This study was carried out with 100 elderly individuals seen in the period from June/2020 to March/2021 in Health Units located in the city of Mineiros-Goiás. An interview was conducted with this public, with questions directed to risk factors for fragility fractures to obtain the characterization of the epidemiological profile (Table 1). Thus, it was verified that the mean age of the elderly interviewed was 70.54 years (SD = 8.48), 62% female and 38% male. As for marital status, 57% live with a partner and 43% are without a partner, but the vast majority (85%) share the house with another person and 15% live alone. As for skin color, 46% reported being white, 23% brown, 28% black, and 3% other color. The vast majority (93%) has no caregivers and 7% have a caregiver; as for paid work, 75% do not perform it, 21% are still active and 4% did not inform and of these, 74% receive some welfare benefit and 26% do not. For habits such as smoking and alcoholism, 83% and 87% respectively do not practice them and 17% and 13% respectively still do. In the item referring to education, 22% were classified as illiterate, 66% as elementary school, 7% as high school, and 5% did not inform. Finally, 80% of the interviewees had never had an BMD exam and 20% had already done it (Table 1).

Table 1. Characterization of the sociodemographic profile of the interviewed individuals.

Age (years)	Mean ± DP	Minimum - Maximum
	70,54 ± 8,48	60,00 - 96,00
	N	%
Sex		
Female	62	62,0
Male	38	38,0
Marital Status		
With partner	57	57,0
Without partner	43	43,0
Live with someone		
No	15	15,0
Yes	85	85,0
Skin color		
White	46	46,0
Brown	23	23,0
Black	28	28,0
Other	3	3,0
Has a caregiver		
No	93	93,0
Yes	7	7,0
Paid work		
No	75	75,0
Yes	21	21,0
Not informed	4	4,0
Social Security Benefit		
No	26	26,0
Yes	74	74,0
Current smoking		
No	83	83,0
Yes	17	17,0
Current alcoholism		
No	87	87,0
Yes	13	13,0
Education		
Illiterate	22	22,0
Elementary	66	66,0
High School	7	7,0
Not Informed	5	5,0
Ever performed DMO		
No	80	80,0
Yes	20	20,0

n = absolute frequency; % = relative frequency; SD = standard deviation. Source: Authors.

Then, an evaluation of the risk factors for fractures was performed, where 2.4% of the elderly were classified as having a low BMI, 3.0% had fractures in the last year, 4.9% use corticoids, 6.1% have dementia and 8.5% are alcoholics. Moreover, 8.5% of the interviewees reported a previous fracture, 9.8% had already witnessed a family history of fracture, 22% were smokers, 36.6% had low calcium intake, 39% had some cognitive alteration, 41.5% were sedentary, 45.5% had altered BMD and 57.3% had some functional alteration. Only 19% of the interviewees had been oriented about fracture risks (Figure 1).

Figure 1. Prevalence of risk factors for fractures of the elderly interviewees.
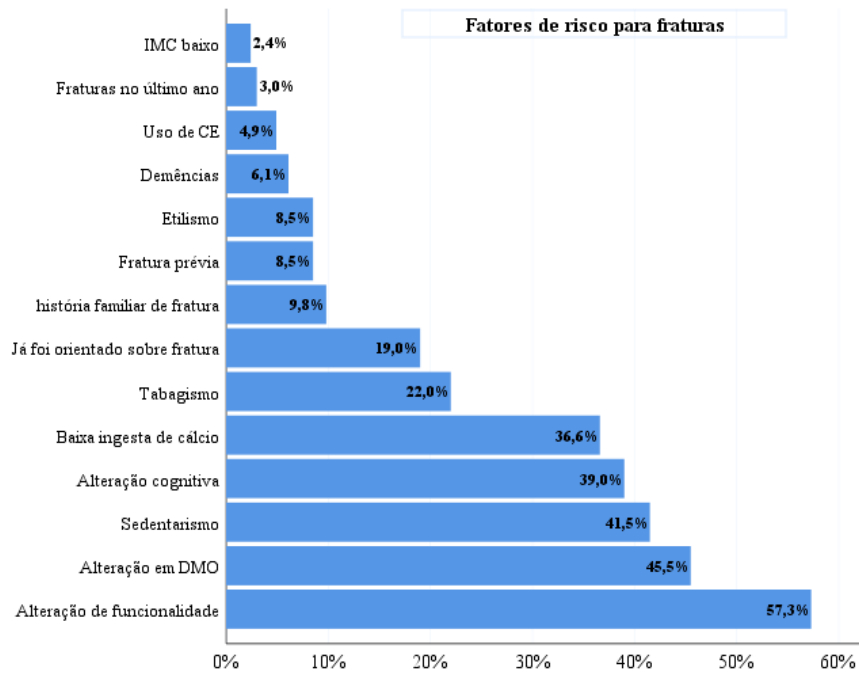
*EC use = Corticoid use. Source: Authors.

Subsequently, a classification of the number of risk factors for fractures in the elderly interviewed was performed. In a classification from 0 to 7, it was observed that most of the elderly (82%) had at least one risk factor for fractures, and 43% were classified with three or more of these factors (Figure 2).

Figure 2. Distribution of the number of risk factors for fractures in the elderly.
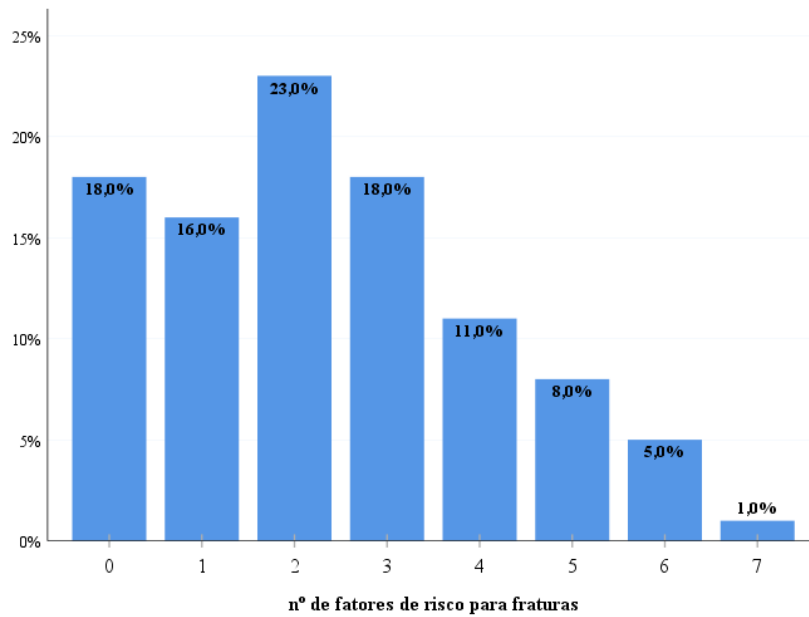
Source: Authors.

The risk of major fracture was calculated by the Frax Risk Assessment Tool (FRAX Score), being considered moderate in 40% of the elderly and high in 7%. The risk of hip fracture was moderate in 36% of the elderly and high in 12% of the total respondents (Table 2). The absolute values and the respective standard deviation are also described in the same table.

Table 2. Characterization of the risk for fracture of the elderly.

	Mean ± DP	Minimum - Maximum
Frax for major fracture	6,05 ± 5,96	1,70 - 33,00
Frax for hip fracture	3,10 ± 4,86	0,10 - 29,00
	N	%
Risk of major fracture		
Low	53	53,0
Moderate	40	40,0
High	7	7,0
Risk of hip fracture		
Low	52	52,0
Moderate	36	36,0
High	12	12,0

n = absolute frequency; % = relative frequency; SD = standard deviation. Source: Authors.

Table 3 shows the association data between the risk of major fracture and specific variables of characterization of the elderly. The moderate/high risk of major fracture was slightly higher in females and in the 60-70 age group. Most of the elderly respondents who presented moderate or high risk had never been oriented about fractures and their potential risk factors or had not had bone densitometry performed at some point in their lives. There were no statistically significant differences between the variables analyzed and the higher fracture risk, only a trend regarding the absence of a caregiver (p = 0.05).

Table 3. Results of the association of the risk of major fracture with the profile of the elderly.

	Risk of major fracture			$p*$
	Low	Moderate	High	
Sex				
Female	35 (66,0)	20 (50,0)	7 (100,0)	0,06
Male	18 (34,0)	20 (50,0)	0 (0,0)	
Age Group				
60 a 70	30 (56,6)	25 (62,5)	3 (42,9)	0,59
71 a 96	23 (43,4)	15 (37,5)	4 (57,1)	
Marital Status				
With partner	30 (56,6)	23 (57,5)	4 (57,1)	0,99
Without partner	23 (43,4)	17 (42,5)	3 (42,9)	
Has a caregiver				
No	51 (96,2)	37 (92,5)	5 (71,4)	0,05
Yes	2 (3,8)	3 (7,5)	2 (28,6)	
Current alcoholism				
No	48 (90,6)	33 (82,5)	6 (85,7)	0,51
Yes	5 (9,4)	7 (17,5)	1 (14,3)	
Education				
Illiterate	12 (24,5)	10 (25,6)	0 (0,0)	
Elementary	32 (65,3)	27 (69,2)	7 (100,0)	0,38
High School	5 (10,2)	2 (5,1)	0 (0,0)	
He has already been oriented about fracture				
No	41 (77,4)	36 (90,0)	4 (57,1)	0,07
Yes	12 (22,6)	4 (10,0)	3 (42,9)	
Ever performed DMO				
No	42 (79,2)	34 (85,0)	4 (57,1)	0,23
yes	11 (20,8)	6 (15,0)	3 (42,9)	
Fall Risk				
Normal	33 (62,3)	22 (55,0)	5 (71,4)	0,63
Changed	20 (37,7)	18 (45,0)	2 (28,6)	
Nº Fall Risk (Score)				
0	4 (7,5)	6 (15,0)	2 (28,6)	
1	11 (20,8)	7 (17,5)	1 (14,3)	
2	18 (34,0)	9 (22,5)	2 (28,6)	
3	10 (18,9)	11 (27,5)	1 (14,3)	0,41
4	7 (13,2)	2 (5,0)	0 (0,0)	
5	2 (3,8)	3 (7,5)	0 (0,0)	
6	1 (1,9)	1 (2,5)	1 (14,3)	
7	0 (0,0)	1 (2,5)	0 (0,0)	

*Chi-square; n = absolute frequency; % = relative frequency. Source: Authors.

Regarding the risk of hip fracture, there was no statistically significant association between the variables analyzed, with a trend towards significance for females (p=0.05) (Table 4).

Table 4. Association of hip fracture risk and profile of the elderly.

	Risk of hip fracture			p^*
	Low	Moderate	High	
Sex				
Female	37 (71,2)	16 (44,4)	9 (75,0)	0,05
Male	15 (28,8)	20 (55,6)	3 (25,0)	
Age Group				
60 a 70	31 (59,6)	20 (55,6)	7 (58,3)	0,93
71 a 96	21 (40,4)	16 (44,4)	5 (41,7)	
Marital Status				
With partner	32 (61,5)	19 (52,8)	6 (50,0)	0,62
Without partner	20 (38,5)	17 (47,2)	6 (50,0)	
Has a caregiver				
No	51 (98,1)	32 (88,9)	10 (83,3)	0,09
Yes	1 (1,9)	4 (11,1)	2 (16,7)	
Current alcoholism				
No	47 (90,4)	32 (88,9)	8 (66,7)	0,08
Yes	5 (9,6)	4 (11,1)	4 (33,3)	
Education				
Illiterate	11 (22,9)	10 (28,6)	1 (8,3)	
Elementary	6 (12,5)	1 (2,9)	0 (0,0)	0,18
High School	31 (64,6)	24 (68,6)	11 (91,7)	
He has already been oriented about fracture				
No	41 (78,8)	31 (86,1)	9 (75,0)	0,59
Yes	11 (21,2)	5 (13,9)	3 (25,0)	
Ever performed DMO				
No	42 (80,8)	29 (80,6)	9 (75,0)	0,89
yes	10 (19,2)	7 (19,4)	3 (25,0)	
Fall Risk				
Normal	31 (59,6)	23 (63,9)	6 (50,0)	0,69
Changed	21 (40,4)	13 (36,1)	6 (50,0)	
Nº Fall Risk (Score)				
0	4 (7,7)	6 (16,7)	2 (16,7)	
1	10 (19,2)	8 (22,2)	1 (8,3)	
2	17 (32,7)	9 (25,0)	3 (25,0)	
3	11 (21,2)	7 (19,4)	4 (33,3)	0,66
4	7 (13,5)	1 (2,8)	1 (8,3)	
5	2 (3,8)	3 (8,3)	0 (0,0)	
6	1 (1,9)	1 (2,8)	1 (8,3)	
7	0 (0,0)	1 (2,8)	0 (0,0)	

*Chi-square; n = absolute frequency; % = relative frequency. Source: Authors.

Next, a correlation was performed between the number of risk factors for fracture, FRAX values and age of the elderly respondents. A positive and significant correlation was observed between the analyzed variables (Pearson r = 0.25, p= 0.01) (Figure 3A). When analyzing the specific risk of major fracture and specific risk of hip fracture with age, a positive and significant correlation was also observed, where r = 0.62 and 0.76 respectively, with p<0.001 for both (Figure 3B).

Figure 3. Correlation between the number of risk factors for fracture and age of the elderly (3A) and specific risk of major fracture, specific risk of hip fracture with age (3B). Spearman's correlation test was used.
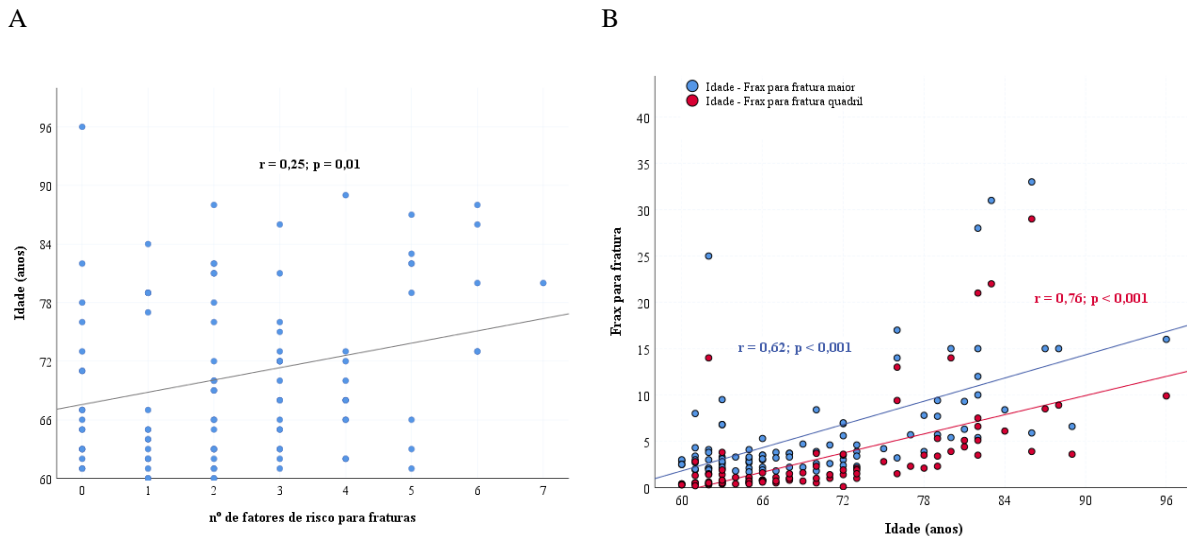
Source: Authors.

4. Conclusão

The incidence of fractures was calculated based on interviewees' reports, which could justify the low incidence rate of fracture in the sample analyzed (3%). In addition, data collection was performed using a structured questionnaire applied directly to the elderly, which may have contributed as a possible memory bias. In a sample of 4332 women from Greater São Paulo over 40 years old, 11.5% had some osteoporotic fracture, confirming the need for screening with BMD (Silva et al, 2015).

The data presented prove a higher frequency of osteoporosis and osteoporotic fracture for females. Another study points out that 50% of postmenopausal white women had an osteoporotic fracture. Despite the lower risk in white men (20%), they have twice the mortality rate for hip fracture (Porter & Varacallo, 2021; van der Vet et al, 2019). In females, when compared to males, they have a higher incidence of pathological fractures. The incidence rates of fragility fractures between female and male sexes are 969 and 768 cases per 100,000 population per year, respectively, which equates to a 40% higher risk for females (van der Vet et al, 2019; Mclellan et al, 2003; Lippuner et al, 2004). In addition, most of the individuals interviewed were elderly white (46%), with a mean age of 70.54 years (SD = 8.48), had some partner (57%), had no caregivers (93%), and received some welfare benefit (74%). In Brazil, in a study also conducted with elderly people in the state of Minas Gerais, it was found that among the respondents with a history of fragility fracture after falls, 25% were aged between 60 and 70 years and 34% were older than 71 years (Cruz et al, 2012).

Regarding lifestyle habits, 17% use cigarettes and 13% consume alcoholic beverages. It is important to note that a Chinese study of elderly people over 60 years of both sexes pointed to alcohol consumption as an important factor in the risk

of low-energy fractures. This reaffirms the need for greater awareness of the importance of alcohol consumption in fragility fractures and to firm up health policies that focus on reducing or eliminating these habits (Rocha et al, 2018; Zhu et al, 2019).

Of the total sample of respondents, 80% reported never having had BMD. A study conducted with the US population pointed out the need for better approach by medical professionals in the preventive areas of osteoporosis, among them the performance of BMD, with the aim of reducing fragility fracture risk (Bunta et al, 2016; Lagari et al, 2019). Some North American institutions have implemented "Own the Bone", a secondary fracture prevention program. This health action contributed to performing BMD and/or prescribing pharmacological therapy in 53% of patients who had a clinical indication (Xavier et al, 2019; Bunta et al, 2016). BMD is an important clinical tool in the propedeutics of osteoporosis, aiding in early diagnosis and directing treatment before fractures even occur. Most patients with fragility fracture present densitometric alteration, so this test is sensitive to detect osteometabolic alteration and useful to prevent osteoporotic fractures by introducing early treatment (Stolnicki & Oliveira, 2016; Kim et al, 2020).

Although a significant percentage of the sample showed moderate/high risk for major and hip fracture, 80% reported never having had BMD, an important test in the diagnosis and follow-up of osteoporosis. Osteoporosis can be considered a "silent epidemic" because the loss of bone mineral tissue can be asymptomatic and in some cases is only diagnosed after the first fracture, which makes densitometric screening indispensable (Silva et al, 2015; Andrade, 2016). It is estimated that one in every two women will suffer some fracture during her lifetime and that bone mineral density tends to decrease after menopause. In a sample of 4332 women from Greater São Paulo over 40 years old and using the primary health care service, it pointed out that 11.5% would have osteoporotic fractures, confirming the need for screening with BMD (Silva et al, 2015; Bandeira & Carvalho, 2007; Abey-Nesbit et al, 2019).

In New Zealand, an interRAI household study showed that the risk of fracture in men and women is multifactorial, rarely is it possible to identify a single risk factor. The main risk factors for hip fracture identified in this sample were female gender, low weight, tobacco use, and Parkinson's disease, and the frequency was significantly different between men and women (Abey-Nesbit et al, 2019). Similar data was identified in our study, where the majority of the elderly (66%) had two or risk factors for fractures.

Changes in functionality and cognitive dysfunction contribute to the higher risk of fractures (Jeong et al, 2019). In addition to these, significant prevalence of other risk factors such as sedentary lifestyle and low calcium intake were also observed. In patients with osteoporosis or at risk, physical activity and a therapeutic plan with increased calcium intake or pharmacological supplementation should be instituted (Nguyen et al, 2004; Soares et al, 2021). According to the work entitled "One-Minute Osteoporosis Risk Test", the main risk factors for fractures include physical inactivity (38%), low calcium (28%) and vitamin D (29.9%) intake associated with less than 10 minutes of daily outdoor activity (Lin et al, 2020), corroborating what was identified in our sample. Thus, recognizing the risks for fractures is essential for individual and collective action planning.

According to Fillion et al. (2019), screening for frailty in the elderly should be part of primary clinical management in order to identify those at higher risk and in need of preventive and therapeutic approaches. In our study, moderate/high risk for major and hip fracture was identified in a considerable portion of the sample (Tables 3 and 4). The risk of major fracture was more significant in females, in elderly people who had no caregiver or who had never been advised about the risk of falls. The risk of hip fracture was higher in female patients, elderly people who did not have a caregiver and those who drank alcohol. The identification of elderly at risk of fracture is a decisive factor in the choice of the propaedeutic to be instituted. Thus, based on the National Osteoporosis Guideline Group - United Kingdom (NOGG-UK) methodology, approximately 38 elderly subjects were indicated for bone densitometry. Of these 38 elderly subjects, 10 had a high probability of having a major osteoporotic fracture and/or hip fracture in the next 10 years, and pharmacologic treatment was recommended even if BMD

was not performed. The management based on risk factors for fracture should be understood as a guideline for the investigation and initiation of drug treatment of osteoporosis. However, the final decision should always be interpreted in light of the clinical context of the patient evaluated (Zerbini et al, 2015).

Life expectancy after 60 years in Brazil has been increasing by about 9 years in just over half a century (Zerbini et al, 2015; Camargos et al, 2019), consequently some comorbidities in the elderly age group have also increased. The expenses with osteoporosis by the Brazilian Unified Health System are considered high (Moraes et al, 2014). This meets the need for health professionals to pay attention to preventive measures and the management of osteoporosis and fractures (Tran et al, 2017; Balasubramanian et al, 2018). In the study observed that the greater the age range of individuals the greater the number of risk factors for falls and, therefore, the greater the care so that these are avoided.

In a study conducted in southern Brazil, the annual incidence of hip fragility fractures among elderly people in the 80-year age group was 59 times higher than among people in the 50-year age group (Silva et al, 2019). This draws attention in the sample studied, since the results point to a directly proportional correlation between age and the risk of major and hip fracture as measured by Frax-Score.

Osteoporosis is a common disease in developed countries and is becoming increasingly important in emerging countries like Brazil, where life expectancy is increasing. Osteoporosis-related fracture comprises a large proportion of public health costs worldwide and is directly associated with increased morbidity and mortality. The considerable prevalence of risk factors for fragility bone fractures among elderly residents in the city of Mineiros - Goiás proves the importance of recognizing these factors and the need to guide the geriatric population and their caregivers about these factors in order to minimize them. A conduct based on the identification of fracture risk may contribute to reduce the incidence rates of pathological fractures and unfavorable clinical outcomes.

Furthermore, the results draw attention to the constant need for orientation of health professionals on the importance and timing of bone densitometry in the elderly population.

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