

Obstructive sleep apnea in older adults belonging to an institution in Santander

Apnea obstructiva del sueño en personas adultas mayores pertenecientes a una institución en Santander

Paula Juliana Durán Quintero¹ | ORCID: 0009-0005-9860-1262

David Santiago Palacios Carreño¹ | ORCID: 0009-0005-2157-6935

Maryi Yulieth Betancur Buitrago¹ | ORCID: 0009-0001-5535-475X

Luz Mery Contreras Ramos¹ | ORCID: 0000-0002-1858-6789

María Andreina Pulido Montes¹ | ORCID: 0000-0002-3978-8574

¹ Universidad Cooperativa de Colombia. Santander, Bucaramanga, Colombia.

Submitted: 08-09-2025 | Revised: 19-11-2025 | Accepted: 26-12-2025 | Published: 30-12-2025

ABSTRACT

Introduction: Obstructive sleep apnea (OSA) is a sleep disorder characterized by frequent episodes of complete (apnea) or incomplete (hypopnea) collapse of the upper airway, leading to oxygen desaturation or nocturnal awakenings. OSA occurs predominantly in men due to hormonal, anatomical, and body fat distribution factors; however, in postmenopausal women, the prevalence of OSA increases, leading to differences between the sexes in older age groups. **Objective:** To describe the prevalence of obstructive sleep apnea among older adults in a care facility in Santander. **Methodology:** This article presents a quantitative, descriptive, cross-sectional study of older adults residing in a nursing home in Santander. Data collection included a sociodemographic questionnaire and the use of a screening tool such as the STOP-BANG questionnaire to detect obstructive sleep apnea in the older adults at the facility. **Results:** The sample consisted of 120 older adults from the Albeiro Valgas & Ángeles Custodios facility, with a median age of 77 years (60–93), comprising 51 men and 69 women residing in an urban area of Santander. The BMI distribution showed that most participants fell within the normal weight and overweight ranges. On the other hand, 46% of the older adults evaluated had a moderate risk of obstructive sleep apnea (OSA), 37% had a high risk, and 17% had a low risk of developing this condition. Finally, this study revealed that the highest prevalence was observed among women, who showed a high risk of developing OSA (26%), while among men, the risk of developing this condition was 20%. **Conclusion:** The majority of older adults analyzed in the study present a moderate or high risk of obstructive sleep apnea (OSA), indicating that this condition is underdiagnosed and that early detection is required for this population group.

Keywords: Nursing; elderly and obstructive sleep apnea.

RESUMEN

Introducción: la apnea obstructiva de sueño (AOS) se conoce como un trastorno del sueño por episodios frecuentes de colapso completo (apnea) o incompleto (hipopnea) de las vías respiratorias superiores, ocasionando esto una desaturación de oxígeno o despertares nocturnos. AOS se presenta mayormente en hombres, debido a los factores hormonales, anatómicos y de distribución de grasa corporal, sin embargo, en las mujeres después de la menopausia la prevalencia de AOS aumenta, generando las diferencias entre los sexos en edades avanzadas. **Objetivo:** describir el nivel de la apnea obstructiva del sueño en adultos mayores de una institución de Santander. **Metodología:** este artículo es un estudio cuantitativo, descriptivo de corte transversal con adultos mayores residentes en un hogar de bienestar en Santander. La recopilación de datos incluyó un cuestionario sociodemográfico y la aplicación de una escala como el cuestionario de STOP-BANG para detectar apnea obstructiva del sueño en los adultos mayores de la institución. **Resultados:** la muestra estuvo compuesta por 120 adultos mayores de la institución Albeiro Valgas & Ángeles Custodios, con una mediana de edad de 77 años (60–93), y conformada por 51 hombres y 69 mujeres residentes en zona urbana de Santander. La distribución del IMC mostró que la mayoría de los participantes se ubicó entre rangos de peso normal y sobrepeso. Por otro lado, el 46 % de los adultos mayores evaluados presentó un riesgo moderado de apnea obstructiva del sueño (AOS), el 37 % mostró un riesgo alto y el 17 % evidenció un riesgo bajo de padecer esta condición. Y finalmente se evidencio en este estudio la participación mayor fue en el sexo femenino mostrando un alto riesgo de desarrollar AOS (26%), mientras que en sexo masculino fue de desarrollar esta enfermedad (20%). **Conclusión:** La mayoría de los adultos mayores analizados en el estudio presenta un riesgo moderado o alto de apnea obstructiva del sueño (AOS), dando así que esta condición es subdiagnosticada y que se requiere una detención temprana para este grupo poblacional.

Palabras clave: Enfermería; adulto mayor; apnea obstructiva del sueño.

INTRODUCTION

Obstructive sleep apnea (OSA) is typically a chronic condition characterized by recurrent obstruction of the upper airway in the pharynx during sleep, causing complete (apnea) and incomplete (hypopnea) cessation of airflow. The most common symptoms of this condition are loud snoring, witnessed apneas, excessive daytime sleepiness, and risk factors such as cardiovascular complications in this population.

Obstructive sleep apnea is more prevalent in men because of hormonal factors that affect the musculature and structure of the upper airway, as well as differences in body fat distribution and pharyngeal anatomy. However, in postmenopausal women, the frequency of this disorder has increased, suggesting a possible role for hormones, although this is not yet fully understood. Furthermore, in older adults, sex differences tend to disappear, with rates becoming comparable between men and women.

Globally, and specifically in Spain, the Spanish Society of Pulmonology and Thoracic Surgery (SEPAR) celebrates the National "Obstructive Sleep Apnea" (OSA) Day every September 21. This highlights that the number of patients diagnosed with this condition is steadily increasing between 8% and 10%, accounting for 50% of pulmonology consultations, with the prevalence increasing among women.

In Latin America and the Caribbean, there are currently 88.6 million people over the age of 60, which is equivalent to 13.4% of the total population. It is estimated that by 2030, this percentage will increase to 16.5%. The region's rapid aging process projects that by 2050, the elderly population will reach 193 million, representing 25.1% of the total population. This means that in less than three decades, the number of older adults will double compared with the figures recorded in 2022.

In Latin America, a recent study estimated that nearly 45% of the population has a moderate or high risk of suffering from sleep apnea. More than 80% of cases are estimated to remain undiagnosed, reflecting the urgent need to improve the detection and care of this condition.

Between 2017 and 2021, 363,204 cases of sleep apnea were diagnosed in Colombia, of which 50.5% were women. Furthermore, 250,477 of these cases (69% of the total) occurred in people over 50 years of age, with a national prevalence of 21.67 per 1,000 inhabitants in this age group. However, in Santander, 5,583 cases with this diagnosis were observed among adults over 50 years of age, resulting in a prevalence of 10.53%. For this reason, the objective of this study was to describe the prevalence of obstructive sleep apnea among older adults at a facility in Santander.

METHODS

This article presents a descriptive, quantitative, cross-sectional study.

The study population consisted of 325 older adults residing in a senior care facility in the Department of Santander, Colombia. The final sample comprised 120 individuals, including noninstitutionalized older adults affiliated with the "Albeiro Vargas y Ángeles Custodios" Foundation.

The inclusion criteria considered in the research were noninstitutionalized older adults enrolled in the foundation's program, individuals over 18 years of age with preserved consciousness and orientation, and individuals without difficulties in oral and auditory language. Likewise, older adults with communication difficulties or who speak a language other than Spanish, as well as individuals living in locations with difficult access due to geographical location, were excluded.

A sociodemographic questionnaire was created, which included questions on age, sex, socioeconomic status, marital status, number of children, whether the participant had children, place of origin, and religion.

To assess obstructive sleep apnea (OSA), the "Stop Bang" questionnaire was administered, which consists of four subjective measures requiring yes or no answers: snoring, fatigue, observed apnea, and high blood pressure; it also includes four demographic items with yes or no answers: body mass, age, neck circumference, and sex. The questionnaire establishes an OSA risk range of ≤ 5 for low risk, ≤ 15 for moderate risk, and > 15 for high risk. This instrument has a Cronbach's alpha coefficient greater than 0.8 and less than 0.9.

Data collection took place during the first and second semesters of 2024. The head nurse of the nursing home was contacted, and a presentation was held in the presence of the psychologist, social worker, and head nurse, during which the research topic to be addressed at the institution was explained.

Informed consent and assent forms were provided in hard copies to each older adult for their signature and participation in the research. The instrument corresponding to the phenomenon under study was administered virtually via a Google Forms questionnaire. Notably, the confidentiality of the data obtained was ensured, and patient participation was entirely voluntary. This project was reviewed by the institution's research ethics committee on March 14, 2024, and received approval on April 16 of the same year.

RESULTS

For the analysis of this project, a form created in Google Forms was used, and the data were exported to an Excel spreadsheet. This file included sociodemographic variables and the STOP-BANG questionnaire to identify the risk of obstructive sleep apnea. The data corresponded to a population of 120 older adults from the Albeiro Valgas & Ángeles Custodios institution.

The median age was 77 years, with an age range between 60 and 93 years. The sample consisted of 51 men (43%) and 69 women (58%), all from an urban area in the Department of Santander. The other variables are presented below.

Table 1. Study variables.

	Variable	Frequency	%
Waist circumference (cm)	42–52	2	1.6
	52–82	15	12.6
	82–92	28	23.3
	92–102	42	35
	102–112	26	21.6
	112–122	5	4.1
	122–132	0	0
	132–142	2	1.6
Weight (kg)			
	40–53	25	20.8
	54–67	57	47.50
	68–81	32	26.67
	82–95	6	5.0
Height (cm)			
	1.01 – 1.21	1	0.83
	1.21 – 1.41	4	3.33
	1.41 - 1.60	78	65.0
	1.60 – 1.80	37	30.83

Source: Author's own calculations.

Similarly, the body mass index (BMI) range was evaluated; 39% of the participants had a BMI ranging from 21.9 to 25.5, with the majority falling within the normal weight and overweight ranges. Twenty-six percent of participants were overweight, with a BMI between 25.5 and 29.1; 28% had a BMI between 18.3 and 21.9, which was within the normal weight range; 13% had a BMI between 29.1 and 32.7, which was within the overweight and mild obesity ranges; 8% had a BMI between 32.7 and 36.3, indicating obesity; and 3% had a BMI between 14.7 and 18.3, indicating being underweight.

Furthermore, nearly half of the participants (46%) had a moderate risk of OSA, more than one-third (37%) had a high risk of OSA, and 17% had a low risk of developing this condition, thus demonstrating the prevalence of risk factors associated with this sleep-related respiratory disorder in the geriatric population.

DISCUSSION

According to the findings of the study, the prevalence of obstructive sleep apnea (OSA) increases with age in this population; as demonstrated in our study, this group has a high risk of OSA (37%). In comparison with various studies from recent years, we report that in Buenos Aires, the prevalence of OSA is 10.05%, indicating that OSA is a common health problem among older adults because of the anatomical and functional changes associated with aging.

Similarly, globally, approximately 35.9% of the population is estimated to suffer from this disorder, according to a recent analysis that combined 39 studies involving more than 33,000 participants and revealed a higher prevalence in Asia (37%). In Korea, among older adults who use tobacco, nonsmokers are 0.23 times less likely to suffer from OSA than smokers are. In contrast, in the present study, 17% of nonsmokers were found to have a low risk of developing this condition.

In our study population, which consisted of 120 older adults with a median age of 77 years (range 60–83 years), a trend consistent with the international literature was observed. However, in the United States, a marked increase in cases among this population aged 70–85 is projected to occur by 2050. In contrast, our analysis revealed that the majority of participants were of advanced age, suggesting that aging is a determining factor in the presence of excess weight and the risk of OSA.

With respect to sex, global data from U.S. and Asian populations suggest that older men have a higher risk of developing OSA and a higher prevalence of overweight and risk factors for this condition. This is evidenced in our study, which included 51 men (43%) and 69 women (58%), with women being predominant. Given that in the Colombian context, risk patterns are comparable, it is important to intervene in BMI and lifestyle to reduce the impact of the condition in this population group.

Furthermore, the results of the study revealed that the majority of older adults who participated in the research fell into the BMI ranges of 39% (between 21.9 and 25.5) and 28% (between 18.3 and 21.9), resulting in an overall average of 22.2 kg/m² across these two categories, indicating that half of this population group maintained a normal weight. However, a study conducted in Japan involving 32 older adults revealed that the average BMI was 23.5 kg/m², suggesting that this population is within the normal weight range.

Equally important, in the study conducted, 26% of the older adults who participated were overweight and 13% were mildly obese, while 8% were obese, indicating that these individuals were overweight in this population group. Moreover, a global meta-analysis of older adults and their body mass index revealed that in South America, 40.4% (95% CI: 12.5–76.4) of them have a high BMI, thus demonstrating that overweight and obesity can lead to many diseases, such as type 2 diabetes, hypertension, dyslipidemia, ischemic heart disease, and obstructive sleep apnea.

Similarly, it is evident that the elderly population is growing rapidly in different parts of the world; consequently, obstructive sleep apnea (OSA) is becoming increasingly recognized, along with its risk factors, such as various chronic conditions that a person may have, such as hypertension, heart failure, daytime sleepiness, type 2 diabetes, and depression. In our analysis, 50% of the participants had hypertension, indicating that advanced age and chronic diseases are risk factors for OSA.

In China, older adults with OSA present a distinctive clinical profile, with hypertension (OR 1.89), coronary artery disease (OR 4.83), and ischemic stroke (OR 2.92); our study revealed a similar pattern, with 60% of older adults presenting cardiovascular diseases, constituting a group with the most frequent comorbidities. These findings, along with international scientific evidence, indicate that older adults in institutions have a high risk of developing OAS because of their high burden of chronic diseases.

Similarly, regarding other related conditions in our analysis, we found that 26% of this population had metabolic diseases, primarily type II diabetes, 21% had degenerative conditions, and 12% had respiratory diseases. These findings suggest that these factors can exacerbate the symptoms of obstructive sleep apnea (OSA) or even hinder its diagnosis, highlighting the need for early OSA screening in this population because of the consequences of this disease within the group of chronic comorbidities, as it increases cardiovascular risk.

This condition commonly occurs in older adults, specifically in patients with underlying cardiovascular diseases, with between 40% and 80% having severe OSA. Consequently, this condition is often underdiagnosed and undertreated in cardiovascular practice. . These conditions can cause progressive damage over time, manifesting throughout a person's lifespan, whereas obstructive sleep apnea may become less evident with aging, making diagnosis and treatment of the condition challenging. .

On the other hand, at the international level, OSA imposes a considerable socioeconomic burden, posing risks to public safety and causing systemic complications, affecting 936 million adults and requiring the implementation of universal screening strategies to mitigate its effects. . Therefore, in the studies conducted on this population, most of them rely on family support or a government subsidy, and they typically live in low socioeconomic conditions.

A likely explanation for the high risk observed in the study is the presence, first, of factors inherent to the aging process; second, obesity and body mass index (BMI); and, finally, underlying conditions such as cardiovascular and metabolic diseases and reduced lung capacity. The aforementioned factors are clinical characteristics of this population group that predispose them to developing obstructive sleep apnea (OSA).

Overall, these findings highlight the importance of implementing preventive measures and early detection in older adults, considering regional differences and specific risks, to reduce the progression of OSA and its effects on health and well-being. Furthermore, obstructive sleep apnea (OSA) is considered an underdiagnosed and undertreated condition in this population group.

CONCLUSIONS

First, it was found that most older adults have a moderate or high risk of obstructive sleep apnea, suggesting that this condition may be underdiagnosed and requires earlier evaluation in this population.

Second, the literature indicates a higher incidence of OSA in men, whereas in this study, women had a higher incidence of developing a high risk of OSA.

Finally, upon analyzing body mass index, a significant proportion of participants were overweight or mildly obese, indicating that body mass index is a risk factor for developing this condition in this population.

RECOMMENDATIONS

It is suggested that strategies for early screening, follow-up, and timely treatment of the disease should be improved.

Confirmatory diagnostic tools and longitudinal designs should be implemented to achieve early risk analysis for this condition.

More comparative research studies should be conducted among healthcare institutions to understand the magnitude of the problem in the Colombian context.

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FUNDING

No financing

CONFLICT OF INTEREST

None

AUTHORSHIP CONTRIBUTIONS

Conceptualization: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Data curation: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Formal Analysis: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Research: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Methodology: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Project administration: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Resources: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Software: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Supervision: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Validation: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Visualization: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.

Writing – review and editing: Maria Andreina Pulido Montes, Paula Juliana Durán Quintero, Maryi Yulieth Betancur Buitrago, David Santiago Palacios Carreño, Luz Mery Contreras Ramos.