



## QUALITY OF LIFE OF PATIENTS WITH BRONCHIECTASIS FOLLOWING OUTPATIENT TREATMENT

*Qualidade de vida de pacientes com bronquiectasia em acompanhamento ambulatorial*

*Calidad de vida de pacientes con Bronquiectasia en seguimiento en el ambulatorio*

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### ABSTRACT

**Objective:** To assess the quality of life of patients with bronchiectasis following outpatient treatment. **Methods:** Quantitative descriptive cross-sectional study of 31 patients diagnosed with bronchiectasis carried out in the Department of Respiratory Physical Therapy of the Santa Edwiges Teaching Clinic (Clínica-escola Santa Edwiges – APAE) and in the Outpatient Pulmonology Clinic of the Asthma Patient Care Program of the University Hospital (Programa de Assistência ao Paciente Asmático do Hospital Universitário – PAPA) in São Luís, Maranhão, from July to August 2015, using a socioeconomic and demographic questionnaire and the SF-36 questionnaire to assess quality of life. A descriptive analysis of the data was carried out in Epi Info, version 7.0 and the data are presented in tables using absolute (n) and relative (%) values, mean, median, minimum value, maximum value and standard deviation. **Results:** The mean age of the participants was  $46.96 \pm 15.52$  years and there was a predominance of women (54.8%, n=17), pardos (58.0%, n=18), married individuals (35.4%, n=11) and complete elementary education (51.6%, n=16). Regarding quality of life, there was impairment of emotional aspects ( $16.1 \pm 30.9$ ), physical aspects ( $19.3 \pm 30.7$ ), general health status ( $35.8 \pm 19.5$ ) and functional capacity ( $50.3 \pm 25.0$ ), and vitality ( $55.0 \pm 27.4$ ), social aspects ( $60.2 \pm 24.9$ ), mental health ( $66.7 \pm 23.6$ ) and pain ( $68.0 \pm 27.7$ ) exhibited good results. **Conclusion:** The evaluation of the SF-36 indicated a decreased quality of life in patients with bronchiectasis in the following domains: emotional aspects, physical aspects, general health status and functional capacity.

**Descriptors:** Lung Diseases; Bronchiectasis; Quality of Life.

### RESUMO

**Objetivo:** Avaliar a qualidade de vida dos pacientes com bronquiectasia em acompanhamento ambulatorial. **Métodos:** Estudo transversal, quantitativo e descritivo, realizado com 31 pacientes com diagnóstico de bronquiectasia, desenvolvido no setor de fisioterapia respiratória da Clínica-escola Santa Edwiges – APAE e no Ambulatório de Pneumologia do Programa de Assistência ao Paciente Asmático do Hospital Universitário (PAPA) em São Luís, Maranhão, de julho a agosto de 2015, em que se aplicaram um questionário socioeconômico e demográfico e o questionário Short-Form-36 (SF-36) para avaliação da qualidade de vida. Realizou-se análise descritiva dos dados no software Epi Info, versão 7.0, sendo apresentados na forma de tabelas, através de valores absolutos (n), relativos (%), média, mediana, valor mínimo, valor máximo e desvio padrão. **Resultados:** Observou-se idade média de  $46,96 \pm 15,52$  anos, predomínio do sexo feminino (54,8%; n= 17), cor parda (58,0%; n=18), casados (35,4%; n=11) e ensino fundamental completo (51,6%; n=16). Quanto à qualidade de vida, os domínios aspectos emocionais ( $16,1 \pm 30,9$ ), aspectos físicos ( $19,3 \pm 30,7$ ), estado geral de saúde ( $35,8 \pm 19,5$ ) e capacidade funcional ( $50,3 \pm 25,0$ ) apresentaram-se comprometidos, enquanto os domínios vitalidade ( $55,0 \pm 27,4$ ), aspectos sociais ( $60,2 \pm 24,9$ ), saúde mental ( $66,7 \pm 23,6$ ) e dor ( $68,0 \pm 27,7$ ) apresentaram bons resultados. **Conclusão:** A avaliação do SF-36 apontou uma redução da qualidade de vida em pacientes com bronquiectasia nos seguintes domínios: aspectos emocionais, aspectos físicos, estado geral de saúde e capacidade funcional.

**Descritores:** Pneumopatias; Bronquiectasia; Qualidade de Vida.



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## RESUMEN

**Objetivo:** Evaluar la calidad de vida de los pacientes con Bronquiectasia en seguimiento en el ambulatorio. **Métodos:** Estudio transversal, cuantitativo y descriptivo realizado con 31 pacientes con diagnóstico de bronquiectasia desarrollado en el sector de fisioterapia respiratoria de la Clínica-escuela Santa Edwiges – APAE y en el Ambulatorio de Neumología del Programa de Asistencia al Paciente Asmático del Hospital Universitario (PAPA) de São Luís, Maranhão, entre julio y agosto de 2015 en el cual se aplicó un cuestionario socioeconómico y demográfico y el cuestionario Short-Form-36 (SF-36) para la evaluación de la calidad de vida. Se realizó un análisis descriptivo de los datos en el software Epi Info versión 7.0 que fueron presentados en tablas a través de los valores absolutos (n), los relativos (%), la media, la mediana, el valor mínimo y máximo y la desviación típica. **Resultados:** Se observó la media de edad de 46,96±15,52 años, predominio del sexo femenino (54,8%; n= 17), el color pardo (58,0%; n=18), estado civil casado(a) (35,4%; n=11) y con educación primaria completa (51,6%; n=16). Respecto la calidad de vida, los dominios aspectos emocionales (16,1±30,9), aspectos físicos (19,3±30,7), estado general de salud (35,8±19,5) y capacidad funcional (50,3±25,0) se presentaron comprometidos mientras los dominios vitalidad (55,0±27,4), aspectos sociales (60,2±24,9), salud mental (66,7±23,6) y dolor (68,0±27,7) presentaron buenos resultados. **Conclusión:** La evaluación del SF-36 apuntó una reducción de la calidad de vida de pacientes con bronquiectasia para los siguientes dominios: aspectos emocionales, aspectos físicos, estado general de salud y capacidad funcional.

**Descriptor:** Enfermedades Pulmonares; Bronquiectasia; Calidad de Vida.

## INTRODUCTION

Bronchiectasis is characterized by the abnormal and irreversible dilation of the bronchial tubes with destruction of the airway walls, which occurs through recurrent infections and inflammation caused by severe or repeated respiratory infections, resulting in impairment of clearance, accumulation of secretion in the affected areas and bacterial colonization. It is more prevalent in middle-aged women, and its main clinical manifestations are: chronic cough, commonly associated with expectoration of purulent and foul-smelling sputum, predominantly in the morning; dyspnea; hemoptysis; fever; fatigue and weight loss<sup>(1)</sup>.

In developed countries, in particular, advances in antibiotic treatment in recent years have led to a decrease in infectious bronchiectasis. However, in developing countries, post-infectious bronchiectasis is still an important public health problem and its high morbidity significantly interferes with patients' quality of life<sup>(2)</sup>.

The increase in life expectancy due to the technological and scientific development that occurred in the last decades had a broad impact on the prevalence of chronic diseases such as bronchiectasis. Therefore, the interest in the concept of health-related quality of life has become very important for society as it is an indicator of public health that has been increasingly used to control the impact of the disease on a population<sup>(3)</sup>.

Quality of life is related to an individual's wide range of internal and external conditions. External conditions predispose a quality life, without, however, being the determining factors. Quality of life is determined by the individual and it includes an inner experience of satisfaction and well-being with the process of living. Thus, even with all favorable external conditions, there can be a decrease in quality of life. However, it is unlikely that an individual presents a good quality of life without any of these conditions<sup>(4)</sup>.

There are several studies on chronic lung diseases, but there is still a shortage of studies on bronchiectasis and quality of life. Lung diseases, including bronchiectasis, represent a public health problem not only in underdeveloped and emerging countries, but also in industrialized countries, due to their prevalence rates and economic impact, with high costs for the State and patients due to hospital admissions and medications<sup>(5)</sup>. With this in mind, the present study aimed to assess the quality of life of patients with bronchiectasis following outpatient treatment.

## METHODS

This is a quantitative descriptive cross-sectional study carried out from July to August 2015 in the Department of Respiratory Physical Therapy of the Santa Edwiges Teaching Clinic (*Clínica-escola Santa Edwiges – APAE*) and in the Outpatient Pulmonology Clinic of the Asthma Patient Care Program of the University Hospital (*Programa de Assistência ao Paciente Asmático do Hospital Universitário*) in São Luís, Maranhão, Brazil.

These places are reference outpatient clinics with patients with various respiratory diseases, including bronchiectasis. In all, thirty-one patients were selected for this study through non-probability and convenience sampling. Inclusion criteria were: patients of both sexes aged 18 years or older with a confirmed diagnosis of bronchiectasis. Exclusion criteria were: patients with exacerbation who could not be present during the assessment and those who did not have cognitive ability to understand and answer the questionnaires.

Data were collected in a private room of the outpatient clinics before or after physiotherapeutic care. The patients were individually invited by the researchers and received information about the objectives of the study and how they should complete the questionnaire. After that, those who agreed to participate in the study signed the Free and Informed Consent Form.

Data were collected using two instruments: a socioeconomic and demographic questionnaire and a quality of life questionnaire. The first questionnaire was developed by the researchers and contained questions on gender, age, self-reported skin color, education, place of residence, monthly income, among others.

The next questionnaire used was the Short-Form-36, a version of the Medical Outcomes Study (SF-36) validated for Brazil, which has been widely used to assess Quality of Life (QoL). It has 36 items subdivided into 8 domains that address functional capacity, physical aspects, pain, general health, vitality, social aspects, emotional aspects and mental health<sup>(6)</sup>. The participant receives a score in each domain, which ranges from 0 to 100, with 0 being the worst and 100 being the best<sup>(7)</sup>.

Data were analyzed using descriptive statistics in Epi info version 7.0 and were presented in tables using absolute (n) and relative (%) values, mean, median, minimum value, maximum value and standard deviation (SD).

The research was approved by the Research Ethics Committee (Approval No. 1.053.250) and complied with Resolution No. 466/2012 of the National Health Council.

## RESULTS

Participants were thirty-one patients with bronchiectasis. There was a predominance of women (54.8%; n=17) and age between 18 and 74 years, with a mean of  $46.96 \pm 15.52$  years. Most patients were aged  $\geq 54$  years (35.4%; n=11).

With regard to self-reported skin color, there was a higher frequency of *pardos* (mixed-race Brazilians) (58.0%; n=18). The participants were mostly from the state of Maranhão (65.4%; n=20), married (35.4%; n=11), and had completed primary education (51.6%, n=16). The majority had a monthly income of 1 (one) minimum wage (61.3%, n=19), lived in their own house (86.6%, n=26), and used public transportation (70.9%; n=22) as the main means of transportation. The sample does not have a private health insurance (100%; n=31) (Table I).

Table I - Socioeconomic and demographic profile of patients with bronchiectasis following outpatient treatment. São Luís, Maranhão, Brazil, 2015.

Variable	n	%
<b>Sex</b>		
Men	14	45.1
Women	17	54.9
<b>Age group</b>		
18-29	6	19.3
30-42	4	12.9
43-54	10	32.3
>54	11	35.5
<b>Self-reported skin color</b>		
White	5	16.1
Black	8	25.9
Pardo	18	58.0
<b>Place of origin</b>		
São Luís	11	35
Countryside of the state	20	65
<b>Education</b>		
Illiterate	1	3.3
Complete primary education	16	51.6
Complete secondary education	13	41.9
Higher education	1	3.2
<b>Marital status</b>		
Married	11	35.5
Common-law marriage	6	19.4
Divorced	5	16.2
Single	7	22.5
Widowed	2	6.4

<b>Monthly income</b>		
None	6	19.3
1 minimum wage	19	61.4
2 minimum wages	0	0
3 minimum wages	6	19.3
> 3 minimum wages	0	0
<b>House</b>		
Owned	26	86.6
Rented	3	9.6
Borrowed	2	4
<b>Means of transportation</b>		
Own car	0	00
Public transportation	22	70.9
Other	9	29.1
<b>Private health insurance</b>		
Yes	0	0
No	31	100

Legend: n: absolute number of participants; %: relative number.

The analysis of the SF-36 revealed lower scores, i.e., poor QoL, in the domains related to emotional aspects (16.1±30.9), physical aspects (19.3±30.7), general health (35.8±19.5) and functional capacity (50.3±25.0). There were higher scores, i.e., good QoL, in the domains related to vitality (55.0±27.4), social aspects (60.2±24.9), mental health (66.7±23.6) and pain (68.0±27.7).

Table II - SF-36 overall score in a sample of patients with bronchiectasis following outpatient treatment. São Luís, Maranhão, Brazil, 2015.

Domains	n	Mean	SD	Median	Min - Max
<b>Functional capacity</b>	31	50.3	25.0	50	0 - 100
<b>Physical aspects</b>	31	19.3	30.7	0	0 - 100
<b>Pain</b>	31	68.0	27.7	62	22 - 100
<b>General health status</b>	31	35.8	19.5	32	5 - 75
<b>Vitality</b>	31	55.0	27.4	60	15 - 100
<b>Social aspects</b>	31	60.2	24.9	63.0	10-100
<b>Emotional aspects</b>	31	16.1	30.9	0	0-100
<b>Mental health</b>	31	66.7	23.6	64.0	0-100

Legend: SD: Standard Deviation; n: absolute number of participants; Min: minimum; Max: maximum

## DISCUSSION

The assessment of the quality of life in the group of patients with bronchiectasis demonstrated that the domains related to emotional aspects, physical aspects, general health status and functional capacity had the worst results, i.e., they demonstrated a greater degree of impairment of the QoL. On the other hand, vitality, social aspects, mental health and pain exhibited better results, thus demonstrating that QoL, based on these aspects, was not compromised.

In agreement with the results of the present research, the literature points out that bronchiectasis is a chronic infectious lung disease that affects women<sup>(8-10)</sup>. There is evidence that hypoestrogenism, observed in postmenopausal women, attenuates immune response and predisposes the organism to microbial invasion and infection which – when affecting the respiratory system repeatedly – may cause or even worsen the patient's condition<sup>(11)</sup>.

Similar to what was observed in the present study, the mean age of people with bronchiectasis in other studies ranged from 28.7 to 48.0 years to 55 years – the most productive period of their lives<sup>(9,12)</sup>. A recent study carried out in South Korea found a prevalence of bronchiectasis in 9.1% of people aged 23-86 years. The prevalence was higher in women compared with men (11.5% versus 7.9%) and increased proportionally with age<sup>(10)</sup>.

Different results were found in a study conducted in the state of São Paulo, Brazil, with patients with tuberculosis bronchiectasis and non-tuberculosis bronchiectasis. The study found that the highest number of cases of bronchiectasis occurred in white and black individuals (41% and 39%, respectively) and only 20% of the cases occurred in *pardos*<sup>(13)</sup>. These findings can be

explained by the large amount of miscegenation in Brazil. According to IBGE<sup>(14)</sup>, more than half (53.6%) of the Brazilians were self-reported black or *pardos* in 2014.

The association between race and health is well known and it has been confirmed by national research that revealed health inequalities experienced by black individuals. The prevalence of self-reported chronic diseases was significantly higher in black people compared with white people<sup>(15)</sup>.

In the present study there were many patients with low levels of education and who lived in places with poor infrastructure, which may suggest poor socioeconomic status. Patients with bronchiectasis exhibited low levels of education in other studies<sup>(4,16)</sup>, which is a characteristic of developing countries<sup>(17)</sup>. Inadequate education, poor housing conditions, poor access to health care and malnutrition increase the prevalence and morbidity of bronchiectasis<sup>(18)</sup>. The management of the disease has long been neglected. The disease, which occurs in nearly epidemic proportions in some ethnic groups and has high morbidity and mortality rates, requires a comprehensive and multidisciplinary approach<sup>(18)</sup>.

The assessment of the quality of life in our study revealed low scores in the following domains: emotional aspects, physical aspects, general health status and functional capacity. Similar results were found in a study that assessed the quality of life of older adults – mostly smokers or ex-smokers – using the SF-36, with the worst scores observed in the domain related to physical aspects (49.2±40.9), pain (54.8±22.9) and general health status (59.0±20)<sup>(7)</sup>.

In another study carried out with pneumopathic patients using the same instrument, the domains of quality of life with greater impairment were functional capacity, physical aspects, general health status and vitality<sup>(19)</sup>. The loss of physical capacity and quality of life may also be related to the patient's psychic alterations. The physiological and functional limitations of physical ability are accompanied by psychological factors, thus resulting in social isolation and impairment of the quality of life<sup>(20)</sup>.

The highest scores found in the present research were related to vitality, social aspects, mental health and pain. Similar results were found in a study that assessed the quality of life of patients with Chronic Obstructive Pulmonary Disease (COPD) using the SF-36, in which some of the best scores were related to emotional aspects (70.42±30.16), social aspects (70.00±20.44) and pain (64.85±25.33)<sup>(21)</sup>.

In this research, the emotional aspects domain exhibited the lowest score among all the domains analyzed. This finding is justified in the analysis of the data related to the quality of life of people with chronic respiratory problems who were part of the analyzed group. Quality of life involves the overcoming and control of conflicting feelings that are brought about by the chronic respiratory disease. Fear of respiratory distress, embarrassment, difficulty in accepting the disease and loss of pleasures were reported by the study participants as interfering in their quality of life, showing insecurity regarding the possibility of controlling the disease, which may threaten their future, especially when they perceive that the treatment is not effective and when they cannot control the situation<sup>(22)</sup>.

These patients exhibit high rates of anxiety and depression and decreased cognitive performance. It has been suggested that mood changes result from negative self-perception and functional impairment, which are directly related to decreased physical capacity<sup>(23)</sup>, which is also one of the domains with the worst scores in our sample. This shows that bronchiectasis is a disease that compromises several domains of the person's life, affecting people of various ages – most economically active. Therefore, its treatment should be multidisciplinary and individualized, including respiratory kinesiotherapy and the use of bronchodilators and corticosteroids when indicated, in order to improve the quality of life of these individuals and prevent the progression of the disease<sup>(24)</sup>.

Although it was not analyzed in the present research, it is necessary to mention that the number of exacerbations of the disease can influence the quality of the treatment as its decrease has a positive impact on quality of life. Finally, the evaluation of treatment based on quality of life questionnaires seems to be one of the best ways to assess these patients<sup>(25)</sup>.

The main limitation of the present study was related to the shortage of studies that assessed the quality of life of patients with bronchiectasis. Most studies generally assess patients with COPD. Therefore, further research should be carried out with this population and it should include studies with control groups and larger samples to compare the quality of life of these patients with the general population and, therefore, obtain a more reliable analytical parameter.

## CONCLUSION

The findings of the study showed a predominance of bronchiectasis in female and economically active patients. The SF-36 assessment showed an impairment of quality of life in patients with bronchiectasis in the following domains: emotional aspects, physical aspects, general health status and functional capacity.

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