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ORIGINAL ARTICLE

## Physical performance, quality of life and sexual satisfaction evaluation in adults with cystic fibrosis: An unexplored correlation

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### KEYWORDS

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### Abstract

**Objective:** Quality of life (QOL), sexual satisfaction (SS) and physical performance have been assessed in the management of numerous chronic diseases.

**Methods:** In this study, the following tests and surveys were applied: (i) QOL questionnaire [Cystic Fibrosis Questionnaire (CFQ)]; (ii) SS questionnaire (SSQ) [female sexual quotient (FSQ) and male sexual quotient (MSQ)]; (iii) 6-minute walk test (6MWT). Spearman's correlation was used for comparison between the data; the Mann-Whitney test was applied to analyze the difference between genders. A total of 52 adult patients with CF were included in this study.

**Results:** There was a positive correlation between CFQ domains and SSQ questions. The CFQ showed a positive correlation with peripheral oxygen saturation of hemoglobin (SpO<sub>2</sub>) and the distance walked in the 6MWT, and a negative correlation with the Borg scale. The SSQ showed positive correlation with the distance walked and a negative correlation with the Borg scale. For some markers evaluated in the 6MWT, there was sometimes association with the evaluated domains and questions. Male patients showed better scores in the emotional CFQ domain, better performance in SSQ and physical performance.

**Conclusions:** There was a correlation between CFQ, SSQ and 6MWT in CF. Finally; we believe that QOL surveys should assess the domain "sexuality" as well as physical performance tests.

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## Introduction

Continuous improvements in the management of cystic fibrosis (CF) allow increasing life expectancy of CF patients, who currently live well into adulthood. Even with aggressive treatment, CF patients develop malnutrition, reduced lung function and various comorbidities, which affect physical performance and quality of life (QOL). The analysis of physical performance and QOL are important tools for clinical evaluations and individual monitoring. It measures the extent to which individuals are satisfied with their lives, assessing their cultural and social contexts, goals, expectations, standards and concerns.<sup>1</sup>

Both physical performance and QOL influence sexuality. In chronic diseases, such influences may be intensified. Studies of CF patients show that the progression of the disease leads to reduced physical performance and QOL, followed by lower sexual satisfaction.<sup>2-4</sup>

Although there are many tests to assess QOL, the Cystic Fibrosis Questionnaire, mostly used in CF, does not include the evaluation of sexuality. So, sexuality should be evaluated as part of human development, due to its relation to physical and mental health. Sexual satisfaction (SS) includes the act itself and its elements, i.e., satisfaction and desire for both sexes.

Sexual dysfunctions may occur due to lack or excess of sexual desire, discomfort and/or pain during sexual relations, which will have a negative impact on desire, arousal and/or orgasm. At times, sexual relations will be either interrupted or avoided. Therefore, sexuality also affects QOL. In chronic diseases, mutual deterioration in QOL and sexuality has proved to be associated with physical and emotional changes.<sup>3,4</sup>

Physical performance and QOL of CF patients can affect their SS. Physical performance can be evaluated by several methods. The most commonly used test is the 6-minute walk test (6MWT), which evaluates the patient's submaximal walking performance.<sup>5</sup>

In this context, the aim of this study was to evaluate the correlation between 6MWT, QOL and SS and the differences of data between both sexes in CF adult's patients.

## Methods

This is an observational and analytical cross-sectional study, which was carried out at the Referral Center for Cystic Fibrosis.

The diagnosis of CF was made based on the clinical history compatible with CF, two sweat tests with chloride levels  $\geq 60$  mEq/L and/or two identified mutations in the *CFTR* gene (Cystic Fibrosis Transmembrane Regulator). Patients older than 18 years and patients without pulmonary exacerbation during the study were included in order to avoid bias in the 6MWT.

Informed consent was obtained from all individual participants included in the study. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study

was approved by the Research Ethics Committee of the Unicamp (#756453).

CFQ and SSQ were completed and the 6MWTs were performed at the Unicamp University Hospital.

## Quality of life questionnaire (QOL)

The CFQ includes a total of 12 items (domains): physical role, social role, vitality, emotional state, social limitations, body image, eating disturbances, treatment constraints, health perceptions, weight, respiratory symptoms and digestive symptoms. The score of each domain ranges from zero to one hundred. The highest values are associated with better QOL scores. The score was validated for use in Brazil by Rozov et al.<sup>6</sup> In total, 50 questions were answered by the patients and the data was entered into the software program developed by Quittner et al.,<sup>1</sup> which generates a numerical profile for each domain.

## Sexual satisfaction questionnaire

The SSQ is different for each gender [male sexual quotient (MSQ) and female sexual quotient (FSQ)] (Online Resource 1). A total of 10 questions were evaluated for each SSQ. The MSQ was validated by Abdo (2007) and includes the following domains: desire and drive; self-confidence and ejaculation; foreplay and ejaculation; desire, ejaculation and erection; desire and erection (time); desire and erection (satisfaction); desire and erection (sequence); ejaculation (control); ability to reach orgasm; and performance and SS.<sup>7</sup> The FSQ was validated by Abdo<sup>8</sup> and includes all questions about desire and sexual interest (questions 1, 2 and 8), foreplay (question 3); arousing of the woman and sexual interaction with partner (questions 4 and 5), comfort in sexual intercourse (question 6 and 7); orgasm and SS (questions 9 and 10). In SSQ, each question ranges from zero to five points. The SSQ score is obtained by the sum of 10 questions multiplied by two to obtain the weight average of 100. In the question seven for the FSQ, the score was already fixed, i.e., five. The score was calculated as follows: five minus the value given by the patient. In the SSQ, the following reference ranges and respective interpretative comments were observed: (i) 0-20 points - null to poor; (ii) 22-40 points - poor to unfavorable; (iii) 42-60 - unfavorable to regular; (iv) 62-80 - regular to good; (v) 82-100 - good to excellent.<sup>7,8</sup>

## Six-minute walk test

The 6MWT was performed following the guidelines of the American Thoracic Society.<sup>9,10</sup>

The 6MWT is a simple, inexpensive and easily applicable method. It is a submaximal clinical exercise tolerance test, and therefore it can be performed by patients with restrictions for maximal exercise tests. 6MWTs are safer than the maximal exercise tests because patients are able to define their own limits during the exercise. The ability to walk a certain distance has a direct impact on the QOL as well as on the ability to perform daily tasks.<sup>9</sup>

This study assessed three time periods: (i) rest (period before the beginning of the test: the patient's physical condition is evaluated at rest); (ii) 6 min after the beginning

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