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Hansen's disease: life quality analysis according to clinical characteristics

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Abstract. Hansen's disease is an infectious and contagious disease with high morbidity indexes. It is a public health issue with patients' negative life quality (LQ). Current study determines the life quality-based clinical factors of patients with Hansen's Disease. Sixty-three patients with Hansen's Disease participated in the research. They were attended to in a Reference Service Centre. World Health Organization Quality of Life Bref (WHOQOL- BREF) was applied to evaluate their LQ and linear regression was employed to assess the association between clinical variables and WHOQOL-BREF domains. Statistical analysis of mean LQ scores showed a significant difference in the physical domains for variables comorbidity ($p=0.043$) and intake of medicines ($p=0.007$). After multiple linear regression, no other clinical variables under analysis proved to be associated with LQ. Patients with self-reported comorbidity and those who continually use medicine have lower LQ averages within the physical domain. Activities that contribute towards the promotion of integral health assistance and for the improvement of LQ for patients with Hansen's Disease should be enhanced.

Keywords: Leprosy, quality of life, public Health.

Introduction

Hansen's Disease is a chronic, infectious and contagious morbidity featuring bacillus *Mycobacterium leprae* as its etiological agent. The microorganism prefers epithelial cells and peripheral nerves causing sensibility disorders in sensitive, motor and autonomic fibers and, therefore a highly

incapacitating factor (BRASIL, 2016; 2017). Hansen's Disease is highly relevant in Brazil's public health, with exclusive activities for its elimination through the Program for the Control of Hansen's Disease in Primary Health care, especially within the Family Health Strategies (FHS) (SOUSA, et al., 2017).

Approximately 210,671 new cases of Hansen's Disease were reported worldwide in 2017, with 12.76% in Brazil. General detection in the country amounted to 12.94/100,000 inhabitants (BRASIL, 2018). Data retrieved from the database of the Brazilian National Health Service (DATASUS) revealed that 3431 new cases of Hansen's Disease were reported in the state of Mato Grosso in 2017, with a prevalence of 102.58/100.000. During the same year, 84 new cases of the disease were reported in the municipality of Rondonópolis which became the municipality with the highest occurrence rate (37.78/100.000) (DATASUS, 2018; MATO GROSSO, 2018).

According to WHO, Life Quality (LQ) is the person's perception of one's position in life, aims, expectations, standards and concerns. Consequently, LQ is influenced by physical health, psychological state, personal beliefs, social and environmental relationships (WHO, 1998). There are several strategies to evaluate LQ, varying according to approach and aims analyzed. The *Medical Outcomes Study Questionnaire 36-Item Short Form Health Survey* (SF-36) for the assessment of life quality related to health and the *World Health Organization Quality of Life* (WHOQOL) for the general evaluation of life quality are widely used standard methods which compare studies and cultures (RÔLA et al., 2018).

Late detection and treatment of Hansen's Disease cause physical incapacities with various degrees of impairments. Complications of the disease affect the lives of people since they cause social and psychic harm directly interfering with infected people's LQ (RIBEIRO & LANA, 2015; SILVA et al., 2019). Further, Hansen's Disease may cause great impairment in daily LQ and in interpersonal relationships, exceeding pain and malaise bonded to the physical damage, producing great social and psychological impact (ARAÚJO et al., 2016).

Since Hansen's Disease is a serious public health issue with a great impact in the LQ of patients, it is necessary to analyze factors associated with the population's LQ. Current analysis investigates the association between LQ and the clinical characteristics of patients with Hansen's Disease.

Materials and Methods

Current analytic, transversal and quantitative study comprises all patients diagnosed with Hansen's Disease, aged 18 years old or more, who were attended at the Specialized Health Service in Rondonópolis MT Brazil, in September 2019. It is a reference service in Hansen's Disease in the southern region of the state of Mato Grosso. Only those who refused to participate in the research were excluded. During the period, 66 individuals went to the center. There were three refusals, with a total of 63 participating people.

Patients' clinical data were retrieved from the clinical charts at the health service center. LQ

was evaluated by the questionnaire *World Health Organization Quality of Life* (WHOQOL-BREF), Portuguese version available at <https://www.ufrgs.br/qualidep/qualidade-de-vida/projeto-whoqol-bref/50-whoqol-bref>.

The questionnaire, validated by WHO, comprises 26 items within four domains, namely physical, psychological, social relationship and environment domains. They were filled by researchers by an interview with the participant. The questions were read and the form filled according to answers. The method was chosen to avoid incorrect interpretations and not to allow no-replies.

LQ was the dependent variable and the independent variables were clinical form, number of contacts, comorbidities, continual use of medicines, the family's history with regard to Hansen's Disease and the period in which the first symptoms appeared.

Clinical information were fed on *Excel* (2010) and data with regard to questionnaire WHOQOL-BREF were first analyzed by *Excel* (2010), following Pedrosa et al. (2010), at: <http://www.brunopedroso.com.br/whoqol-bref.html>.

Scores of each domain of WHOQOL-BREF were transformed within a 0 - 100 scale and a descriptive statistic form with means and standard deviation was provided according to the studied variables. Highest means in WHOQOL - BREF suggest better LQ perception.

Variables with $p < 0.20$ in the univariate analysis were inserted in the multiple linear regression model for each WHOQOL- BREF domain. Significance level was $p \leq 0,05$. *Excel*® Office 365 and *IBM Statistical Package for Social Sciences* (SPSS) 26.0 for Windows® were employed for statistical analysis

Research complied with ethical mores following Resolution 466 of the 12th December 2012 of the National Health Council of the Ministry of Health in research with humans. Study was a section of the research called "Hansen's Disease: Analysis of Cases and Administration of the Program in a Hyperendemic Municipality" and approved by the Committee for Ethics in Research of the Universidade Federal de Rondonópolis, CAEE, n. 97441618.2.0000.8088, approval n. 3.036.673. All participants of current study signed the Free Consent term.

Results and discussion

Forty (63.50%) out of the 63 participants in current research were males and 23 (36.50%) were females, aged between 30 and 77 years old, average 51.74 years old. Data analysis by WHOQOL-BREF revealed a general average life quality of 14.80 (SD=1.89), in the physical domain 14.08 (SD=2.83), psychological domain 16.28 (SD=2.30), social relationships domain 15.64 (SD=2.55), and environmental domain 13.86 (SD=2.21).

Table 1 shows means and standard deviations rates for general LQ, within the physical,

psychological, social relationships and environment domains according to the clinical characteristics of patients with Hansen's Disease.

Univariate analysis of LQ average scores revealed a significant difference in the physical domain for variables comorbidity ($p=0.043$) and consumption of medicines ($p=0.007$), patients with self-reported comorbidity and those who use medicines continually, with lower LQ averages in this domain (Table 1).

No variable was associated with LQ, after adjustment, as Table 2 shows. Twenty-seven (42.9%) patients reported that they suffered from some comorbidity and 25 (39.7%) reported intake of continuous usage medicine. The most frequent comorbidities were systemic arterial hypertension (58.3%; $n=07$), diabetes mellitus (41.6%; $n=05$) and arthrosis (16.6%; $n=02$). Medicines most consumed comprised atenolol (20%; $n=04$), losartan (20%; $n=04$) and hydrochlorothiazide (20%; $n=04$).

Table 1. Distribution of mean scores of general life quality and in each WHOQOL- BREF domain according to clinical characteristics of patients with Hansen's Disease. Rondonópolis MT Brazil, 2019. N=63.

Variables	Mean (SD) of WHOQOL-Bref Scores				
	Physical	Psychological	Social relation	Environment	General LQ
<i>Clinical type</i>					
Dimorphal	14.00 (3.28)	16.30 (2.54)	15.47 (2.53)	13.93 (2.43)	14.79 (2.18)
Other	14.11 (2.07)	16.14 (1.97)	16.06 (2.65)	13.84 (1.85)	14.81 (1.44)
P value	0.884	0.806	0.394	0.871	0.968
<i>N. of contacts</i>					
Up to 4	14.27 (2.89)	16.32 (2.50)	15.63 (2.42)	13.87 (2.24)	14.86 (2.07)
More than 4	13.19 (3.13)	16.06 (1.82)	16.12 (2.34)	13.41 (2.16)	14.40 (1.67)
P value	0.283	0.744	0.547	0.545	0.506
<i>Comorbidities</i>					
No	14.70 (2.73)	16.20 (2.22)	15.37 (2.45)	13.98 (2.06)	14.98 (1.85)
Yes	13.25 (2.79)	16.37 (2.44)	16.00 (2.66)	13.70 (2.42)	14.81 (3.10)
P value	0.043	0.779	0.336	0.627	0.367
<i>Medicine usage</i>					
No	14.84 (2.39)	16.56 (2.08)	15.54 (2.37)	14.03 (1.95)	15.13 (1.69)
Yes	12.91 (3.08)	15.84 (2.58)	15.79 (2.85)	13.60 (2.56)	14.29 (2.10)
P value	0.007	0.227	0.715	0.450	0.084
<i>Family history with Hansen's Disease</i>					
No	14.27 (2.82)	16.26 (2.07)	16.15 (2.33)	13.80 (2.27)	14.92 (1.81)
Yes	13.82 (2.87)	16.30 (2.62)	14.96 (2.70)	13.94 (2.17)	14.63 (2.01)
P value	0.537	0.950	0.067	0.799	0.553
<i>First symptoms</i>					
Less than 6 months	14.79 (2.65)	16.55 (2.53)	16.15 (2.58)	15.11 (1.91)	15.57 (1.81)
Six months \geq	14.70 (2.53)	16.59 (2.01)	15.95 (2.65)	13.86 (2.27)	15.09 (1.61)
P value	0.904	0.964	0.805	0.064	0.362

Table 2. Multivariate analysis of general LQ mean scores and in each WHOQOL- BREF domain according to clinical characteristics of patients with Hansen's Disease (N=63).

Variables	Coefficient of association WHOQOL-bref				
	Physical (IC95%)	Psychological (IC95%)	Social relations (IC95%)	Environment (IC95%)	General (IC95%)
Clinical type	---	---	---	---	---
N. of contacts	---	---	---	---	---
Comorbidities	-1.32 (-3.91;1.26)	---	---	---	---
Medicine usage	1.33 (-1.34;4.00)	---	---	---	-0.07 (-1.21;1.06)
Family member with Hansen's Disease	---	---	-0.57 (-1.97;0.82)	---	---
First signs and symptoms	---	---	---	0.33 (-0.98;1.64)	---

--- p>0.20 in univariate analysis were not included in logistic regression. Multivariate analysis IC95%: Interval of confidence.

WHOQOL-BREF is the abridged version of WHOQOL-100, with psychometric features and excellent reliability for its four domains, namely, physical, psychological, social and environmental. Questionnaire provides a multidimensional evaluation of the agents. Data are essential for researchers and may be useful for epidemiological studies and the promotion of health policies (EL-REFAEI et al., 2018). Through WHOQOL-BREF, current analysis verified that patients with Hansen's Disease had low LQ scores, with individual perception of LQ and general LQ at 14.80. LQ was impaired in all patients with Egyptian Hansen's Disease. WHOQOL-BREF's mean scores in general LQ reached 3.02. Patients had low mean scores in all domains (EL-REFAEI et al., 2018). A study undertaken in Brazil showed that general mean LQ scores in patients with Hansen's Disease undergoing neurolysis reached 11.3 scores (REIS et al., 2013). Patients with Hansen's Disease in Uberaba MG Brazil had general LQ scores of 58.2, according to the general analysis of response scale, and they considered it a fair LQ (SIMÕES et al., 2016). Analysis of LQ of people with Hansen's Disease within the support group to self-care in Recife PE Brazil, revealed a total LQ score of 56.4 (D'AZEVEDO et al., 2019).

The disease process in Hansen's Disease favors the development of motor, psychological and social incapacities which may impair the subjects and directly affect their LQ (SILVA et al. 2014). According to Costa e Mendes (2020), LQ domains affected by Hansen's Disease may be mitigated or avoided through diagnosis and early treatment since many patients discover the disease late, with already set deformities and incapacities and, consequently, with limitations in their daily tasks.

Among patients with Hansen's Disease at the Reference Service Centre in Rondonópolis MT Brazil, those with self-reported comorbidity using continuous medicines had the lowest mean LQ rate

within the physical domain. It should be enhanced that systemic arterial hypertension and diabetes mellitus were the most frequent comorbidities whilst the most consumed medicines were anti-hypertensive ones. Interfaces within the WHOQOL-BREF's physical domain comprised pain and discomfort, energy and weariness, sleep and rest, mobility, daily tasks, dependence on medicines or treatments and capacity for work (WHO, 1998). Consequently, comorbidities perceived by patients analyzed and the need for medicine intake significantly have great impact on these parameters.

Azevedo et al. (2013) verified that people with chronic disease had lower mean scores in all WHOQOL-BREF domains. Nobre et al. (2017) reported that the group of hypertensive patients and that with hypertension and diabetes insisted that hypertension and pharmacological treatment affected their LQ. Borges et al. (2019) verified that non-communicable chronic diseases negatively influenced the LQ of the elderly. Elderly people without chronic diseases had a better LQ when compared with elderly people with diabetes mellitus, arterial hypertension or both. It is highly relevant that health professionals should be aware of these factors and try to assist integral health. They will thus contribute towards the LQ of the individuals, their families and community.

Clinical variables analyzed in current research did not present any association with LQ of patients with Hansen's Disease. Likewise, Araújo et al. (2016) did not detect any association between LQ and the clinical characteristics of people with Hansen's Disease. Tsutsumi et al. (2007) insisted that clinical factors associated with a lower LQ rate were perceived stigma and physical deformities. Santos et al. (2015) informed that functional limitations were associated with low LQ in patients with Hansen's Disease, with low scores for the physical and environmental domains in the assessment of the WHOQOL-BREF questionnaire. It

should be underscored that, besides the clinical characteristics, other social and demographic factors also interfere in the patients' LQ (TSUTSUMI et al. 2007, LEITE et al., 2015; SIMÕES et al., 2016). Consequently, it is relevant that not only the disease's stage should be investigated but also the upgrading of patients' care. Understanding LQ through a focus that takes into account the biopsychological-social factors of human nature may contribute towards the insertion of a health assistance program which will not be limited to interventions at the epidemiological or sanitary levels only. Planning and defining health strategies should take into account personal, social, economic and other factors (SOUZA & CARVALHO, 2003).

Current study was limited by the sampling method which merely included people attended by the Reference Health Center within a very short time period. Transversal design impaired possible visualizations on cause and effect of the variables under analysis and the WHOQOL-BREF's domain scores. Further studies with a more representative sampling and the analysis of other clinical variables should be undertaken.

Conclusion

The patients analyzed revealed low LQ indexes for the WHOQOL-BREF domains. People with comorbidities, using continuous medicines evidenced lowest LQ mean rates within the physical domain. Clinical variables studied did not have any association with LQ and results show the need of strategies that would contribute towards LQ improvement of people with Hansen's Disease.

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