CHAPTER
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Quality of life of stroke patients during the COVID-19 pandemic

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Luana Franklin Mello
Bachelor in Physiotherapy, State University of the North of Paraná - UENP
E-mail: luanaf68@gmail.com
ORCID: https://orcid.org/0000-0002-7212-1288

Mariana Moskado Batista de Almeida
Bachelor in Physiotherapy, State University of the North of Paraná - UENP
E-mail: marianamba00@gmail.com
ORCID: https://orcid.org/0000-0001-8858-3762

Angélica Yumi Sambe
Bachelor in Physiotherapy, State University of the North of Paraná - UENP
E-mail: angelicasambe@gmail.com
ORCID: https://orcid.org/0000-0002-4545-2110

Camila Costa de Araújo Pellizzari
PhD in Oral Biology from Sacred Heart University (2019), State University of the North of Paraná - UENP
E-mail: camilaaraujo@uenp.edu.br
ORCID: https://orcid.org/0000-0002-4382-9375

Paola Janeiro Valenciano
PhD, State University of the North of Paraná - UENP
E-mail: paola_jv3@hotmail.com
ORCID: 0000-0002-8363-0475

Joyce Karla Machado da Silva
PhD in Oral Biology from Sacred Heart University (2019), State University of the North of Paraná - UENP
E-mail: jksilva@uenp.edu.br
ORCID: https://orcid.org/0000-0003-2688-7028

ABSTRACT
Introduction: Stroke sequelae can reduce the activity and participation of these individuals, leading to reduced quality of life (QoL). The COVID-19 pandemic changed the organization of society to contain the contamination, leading to the suspension or changes in the format of outpatient care, which may have negatively influenced the QOL and health care of people with stroke. Objective: To analyze the physical, psychological, social relations and environment aspects of the QoL of individuals with stroke during the pandemic and related factors. Methods: This is a cross-sectional study, using an online form and the WHOQOL-Bref questionnaire. Results: Eleven individuals participated in the study, aged between 18 and 80 years, mostly male. Regarding QoL, the psychological domain presented the best score and the physical domain the worst. Likewise, the personal relationships facet the best score and the work ability facet the worst score. Conclusion: During the pandemic, the QoL of people with stroke was impaired. The factors that most interfered were physical condition, work capacity, dependence on medications or treatments, and sexual activity. It is worth mentioning the importance of Physiotherapy in QOL, as it promotes reintegration into the community and maximum capacity of patients.

Keywords: Stroke, Quality of Life, COVID-19.

1 INTRODUCTION

Cerebrovascular Accident (CVA) is a cerebrovascular disease that presents as a dysfunction of focal and/or global clinical signs that compromises the central part of the nervous system, which develops rapidly and its symptoms persist for 24 hours or more [1]. It is caused by an interruption or reduction of the blood supply of a part of the brain, and can be classified as ischemic or hemorrhagic [2].

About 30% of individuals who have suffered stroke become dependent on performing tasks of daily living (e.g., professional, social, personal, recreational, and sexual) [2, 3]. In this context, physiotherapy makes it possible to restore and maintain functions related to mobility and prevents

functional, motor and cognitive decline, improving quality and performance in activities of daily living (ADLs) [4]. Thus, the physiotherapeutic treatment for patients after stroke is essential, because it helps to reach their maximum capacity, and reintegrate these people into the community, in order to promote improvement in the perception of their QoL [5].

According to the Quality of Life Group of the World Health Organization (WHO) [6], QoL is defined as an individual's perception of their position in life, in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns.

At the beginning of the year 2020 the pandemic was declared by the novel coronavirus (COVID-19), and one of the main ways to prevent contamination was social isolation. Governments have included measures to close schools, colleges and universities, restaurants, shops and all so-called "non-essential" services to prevent crowding and the spread of the virus [7, 8]. Consequently, some outpatient care has been suspended, there have been organizational changes implemented in response to the pandemic, affecting stroke care, leaving them in the background [9]. Thus, in a literature review, Chaves [10] pointed out that during the period of the COVID-19 pandemic, people who suffered stroke had fewer consultations and fewer treatment/rehabilitation sessions, which is a worrying factor, since it could result in the worsening of the clinical picture and significant impact on their activities, participation and QoL.

The pandemic may have generated a series of personal impacts, such as stress, anxiety, depression, social isolation, worsening of chronic diseases, and these factors have great interference in QoL [11]. In addition, in this period there was a large drop in leisure activities, a factor that is directly related to QoL and well-being [12].

Thus, social isolation, added to the decreases in admission rates, consultations and treatments, can have repercussions in delayed rehabilitation and thus, greater probability of long-term disability, with damages that may be irreversible for the QoL and social integration of these individuals [11]. Therefore, the main objective of the present study was to analyze the physical, psychological, social relationships and environment aspects of QoL of individuals with stroke during the COVID-19 pandemic and related factors, such as stroke time, age and schooling.

2 METHODS

This is a cross-sectional study, through the analysis of responses of stroke patients from a form created with the Google® Forms platform, collected between October 2021 and February 2022. The research was approved by the Ethics and Research Committee of the Universidade Estadual do Norte do Paraná (CAAE 46608021.5.0000.8123).

2.1 POPULATION

Participated in the study 11 individuals, recruited to answer the form through dissemination on social networks, such as Instagram, Facebook and Whatsapp, and through post and messages requesting the invitation.

The study included individuals who suffered a stroke at any time of life, with a minimum age of 18 years, who have the means to answer the questionnaire online, such as a computer, tablet or mobile phone with internet access. Forms answered in duplicate were excluded from the research, that is, the same person performing more than once, in this case only the first evaluation was considered. Individuals who failed to finalize the questions on the form were automatically excluded, since the answers were not saved.

2.2 FORM

The form was conducted through the Google® platform, first containing the Term of Free and Informed Consent (ICF), after that, questions related to personal data, physical therapy care during the pandemic, performance of activities other than physiotherapy, difficulties encountered and the WHOQOL-Bref questionnaire to investigate the QoL of patients during this period.

The WHOQOL-Bref questionnaire consists of an instrument with the objective of assessing QoL and consists of an abbreviated version of the WHOQOL-100, to be an instrument of rapid application and with satisfactory psychometric characteristics, created by the WHO Quality of Life Group [13]. It has 26 questions, two of which deal with the general aspects of QoL and the other 24 are divided into 4 domains: physical, psychological, social relationships and environment; and each of them represents one of the 24 facets of the WHOQOL-100 questionnaire [14]. The transformed total score can vary from 0 to 100, with zero being the worst level and 100 being the best possible QoL level [13,15].

2.3 DATA ANALYSIS

Data analysis was performed using a descriptive quantitative analysis, through absolute values and percentages. The scores of the WHOQOL-Bref, a questionnaire used to assess QoL, were tabulated and analyzed in the WHOQOL-Bref / Microsoft Excel program, developed by Pedroso et al. [16].

3 FINDINGS

The total number of participants eligible for the study who answered the form was 11, there was no loss in the course of the research. Of these, the majority (54.5%, n=6) were male, and all were

aged between 18 and 80 years. Most of them (45.5%, n=5) lived in the city of Ourinhos-SP. Regarding occupation, only one participant (9.1%, n=1) reported that he worked.

The characterization of the individuals who were victims of stroke and participated in the study is described in Table I.

Table I- *Characterization of the study participants*

Variables	Values, n (%)
Sex	
Female	5 (45,5%)
Male	6 (54,5%)
Age	
18 to 40 years	2 (18,2%)
40 to 60 years	4 (36,4%)
60 to 80 years	5 (45,5%)
City	
Ourinhos-SP - Brazil	5 (45,5%)
Fartura-SP - Brazil	1 (9,1%)
Jacarezinho-PR - Brazil	1 (9,1%)
Bandeirantes-PR - Brazil	1 (9,1%)
Santo Antônio da Platina-PR	1 (9,1%)
Arapoti-PR - Brazil	1 (9,1%)
Matinhos-PR - Brazil	1 (9,1%)
Schooling	
Incomplete elementary school	4 (36,4%)
Completed elementary school	2 (18,2%)
Incomplete high school	1 (9,1%)
Completed high school	2 (18,2%)
Incomplete higher education	1 (9,1%)
Complete higher education	1 (9,1%)
Works	
Yes	1 (9,1%)
No	10 (90,9%)
Monthly income	
Up to a minimum wage	2 (18,2%)
From one to two minimum wages	4 (36,4%)
Above 5 minimum wages	2 (18,2%)
Has no income	2 (18,2%)
Don't know	1 (9,1%)
Marital status	
Married	7 (63,6%)
Desquitado/Divorced	1 (9,1%)
Single	2 (18,2%)
Widower	1 (9,1%)
Time since stroke	
More than 6 months	7 (63,6%)
From 3 to 6 months	3 (27,3%)
From 7 days to 3 months	1 (9,1%)

Source: Own authorship

Table II illustrates the characterization of the disease caused by the COVID-19 virus and the performance of physical therapy during the pandemic.

Table II- *Characterization of COVID-19 disease and physiotherapeutic treatment in study participants*

Variables	Values, n (%)
Diagnosis of COVID-19	
Yes	4 (36,4%)
No	7 (63,6%)
Hospitalized for COVID-19	
Yes	0 (0%)
No	11 (100%)
Interned for another reason	
Yes	8 (72,7%)
No	3 (27,3%)
Underwent physical therapy during the pandemic	
Yes	7 (63,6%)
No	4 (36,4%)

Source: Own authorship

Regarding QoL, it is possible to observe that the psychological domain presented the highest score, while the physical domain has the lowest, as shown in Figure I. Figure II shows the evaluation achieved in each of the facets of the WHOQOL-Bref questionnaire, with the highest scores obtained in relation to personal relationships, spirituality/religion/personal beliefs and home environment. And the lowest scores obtained were in relation to work ability, dependence on medications or treatments, and sexual activity.

Figure I- *Scores of the WHOQOL-Bref domains of quality of life of the participants*

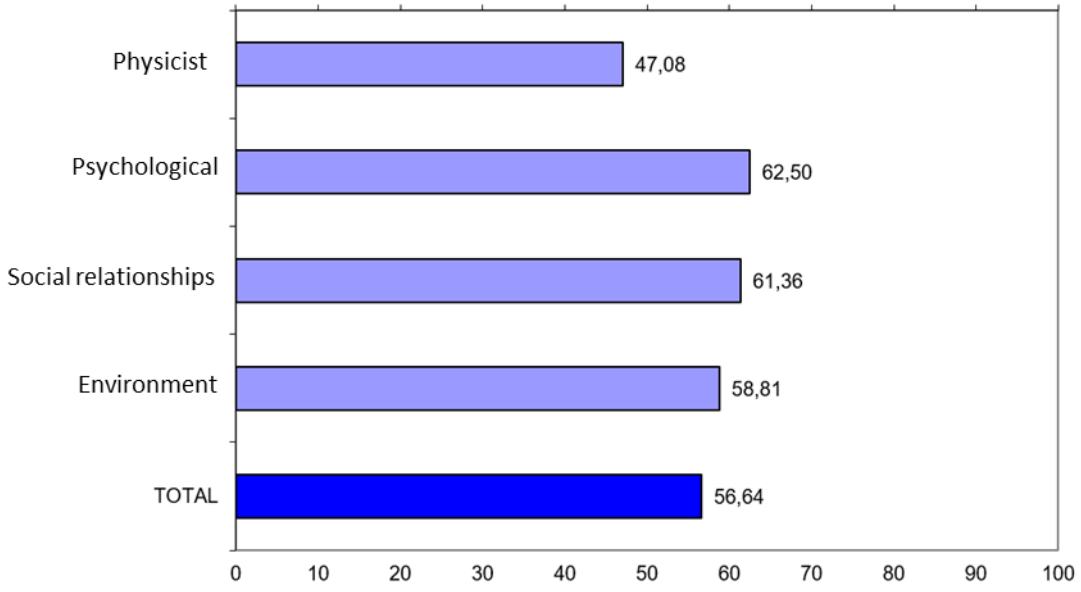
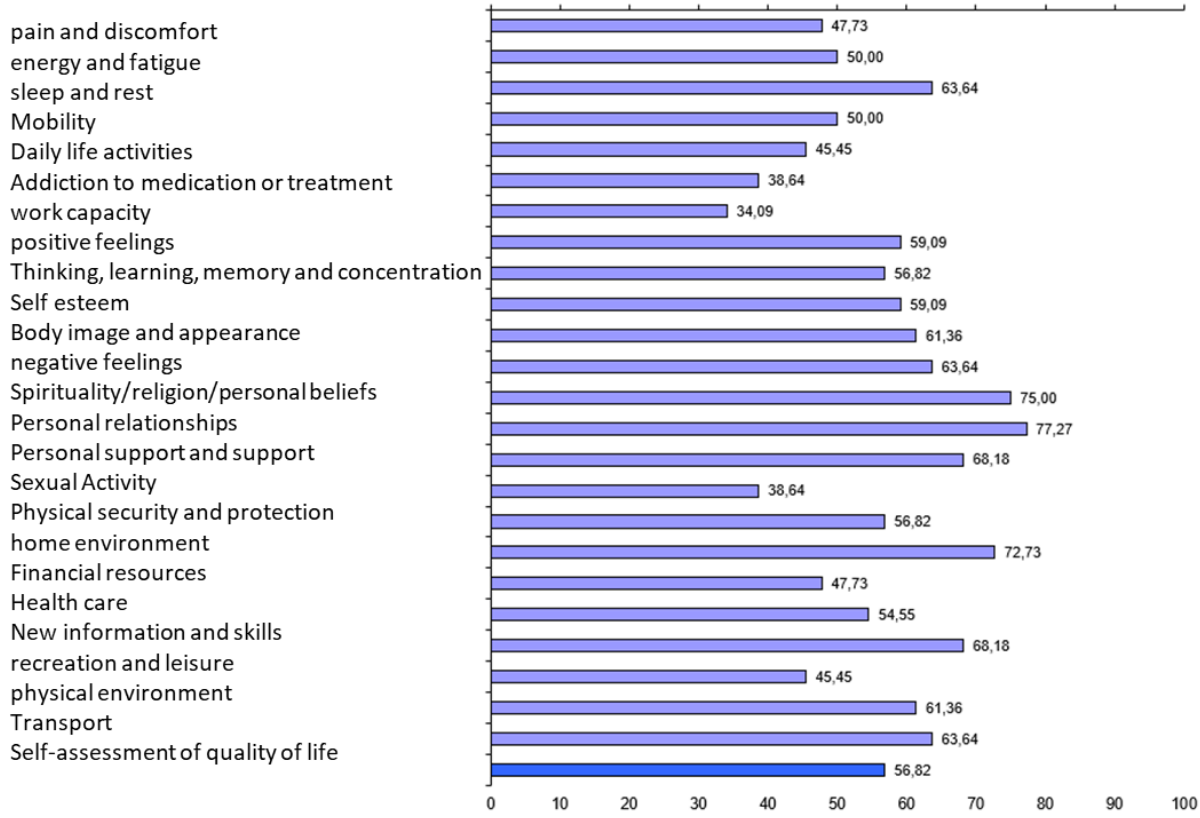


Figure II- *Scores of the facets of the WHOQOL-Bref questionnaire of quality of life of the participants*



4 DISCUSSION

QoL can be defined as the individual's conception of their position in life, considering their culture, values, goals and expectations [12]. With this it is possible to observe the heterogeneity of the factors that impact the QoL of people with stroke. Regarding the multidimensionality of these factors, the WHO recommends the use of the International Classification of Functioning, Disability and Health (ICF), when presenting a look directed to the functionality of the individual, instead of the disease, allowing a biopsychosocial view of the patient [17]. This is similar with the facets and domains observed by the WHOQOL-Bref, since it analyzes the physical, psychological, social relationships and environment domains, and the facets of mobility, activities of daily living, work capacity, self-esteem, health care, transportation, sexual activity, among others.

Regarding the psychological domain of the WHOQOL-Bref, post-stroke depression is the most frequent psychiatric sequelae in this population, being associated with increased mortality, worse physical and language functioning, prolonged hospitalization and decreased QoL [18,19,20]. Still, most of the articles selected in the 2019 review by Reis and Faro [21] addressed the occurrence of post-stroke depression, and as a form of prevention the search for information, obtaining positive social support and psychological monitoring. The impacts of stroke on QoL are multifaceted and may also affect survivors with mild sequelae who have achieved total independence in ADLs. The study by Oni et al. [22] found that post-stroke depression was associated with a reduction in scores for all

WHOQOL-Bref domains. These results differ from ours, since the psychological aspect obtained a higher score.

Regarding the physical domain, the present study was in agreement with that observed by Kauhanen et al. [23], which despite using the SF-36 questionnaire to assess QoL, resulted in physical functioning as one of the most frequently affected in this population, probably because of neurological impairment. In addition, the same result was found in the study by Scalzo et al. [24], who attributed the low score in the domain of physical aspects possibly to the presence of hemiplegia, which was not observed in our study. In the study by Takashi et al. [25], which used the WHOQOL-Bref, it was noted that the patient's perception of his own disability was negatively correlated with physical and psychological QoL, corroborating the present study in relation to the physical domain.

Regarding the facet of work capacity, according to Goh et al. [26], the ability to return to work or social activities after stroke positively influences QoL, which may explain the finding in the present study. Work is not only a form of financial and routine development, it plays an essential role in social relationships and personal involvement, enriching feelings of personal and professional fulfillment. It contains a purpose, meaning and usefulness for the individual, occupying a central position in the life of the adult [27,28]. In addition to the condition of the stroke, the pandemic also influenced the return to work, as there were closures of schools, colleges and universities, restaurants, shops and all non-essential services, causing families not to have the possibility to continue their work in the way they were accustomed, or even being doomed to unemployment [7, 8, 27].

Another facet analyzed was dependence on medication or treatments. Sebastião et al. [29], discuss in their study, conducted with the elderly population, that the use of medications can indicate the presence of diseases, which leads to a lower perception of health, interfering in the perception of QoL, and this can be applied to the present study, since most of the sample consists of elderly people. As for diseases, systemic arterial hypertension has a high incidence in this population, followed by Diabetes Mellitus, facilitating the occurrence of stroke and often requiring medication and treatment [30, 31].

The study by Braga et al. [32] reports that there are several studies in which functional capacity is an impact factor on the QoL of the elderly, resulting in a greater influence of the physical domain, however, this domain did not contribute in a statistically significant way and presented a good average and level of satisfaction. The ability to perform ADLs are basic points to prolong independence and functional capacity. The maintenance and preservation of functional capacity may have important implications on QoL, being directly related to the development of daily activities and pleasurable activities, intervening in the level of satisfaction [33].

Regarding sexual activity, the study by Monteiro et al. [34] found that stroke patients present sexual dysfunctions and decreased sexuality as sequelae, associated with decreased QoL. In addition, age has interference in sexuality, since the older the age, the lower the sexual desire, and there is impairment in erectile and ejaculatory functions [35]. Still, most of these individuals are afraid to have an active sex life after stroke, either due to sexual dysfunctions or physical and emotional problems [36, 37]. In the study by Pereira et al. [38], participants who did not have an active sex life reported reasons such as loss of interest, absence of partner, fear, indisposition and even the fact of being refused by their spouses. In addition, it was verified that the physical domain was the most compromised, which corroborates with the research of Pereira et al. [38], which suggest that a better physical capacity contributes to the individual to have a more active sexual life, and conclude that the practice of sexual activity is associated with motor and cognitive functional independence, in addition to the physical capacity of the individual [38].

In relation to the related factors, duration of stroke, age and education, the chronicity of stroke is a factor that should be considered when analyzing QoL, since the greatest recovery occurs in the first weeks after the injury for most of those affected, that is, still in the acute phase [39]. Age can also influence the QoL of these patients, according to Sultan and Elkind the prognosis and short-term mortality are better in younger patients. This is due to the fact that most of the risk factors for stroke are alterable by changes in lifestyle and medical therapy, thus not aggravating or providing sequelae after stroke or recurrence [40]. Another important aspect to be highlighted is the educational situation. Jingwen et al. [41] state that higher education is related to greater self-care capacity, which positively interferes in the performance of social roles, consequently in QoL.

The physiotherapeutic treatment has a great influence on QoL, because it promotes reintegration into the community and the maximum capacity of patients [5]. Although most of the participants in our study had undergone physical therapy during the pandemic, 36.4% of them did not, probably due to the suspension of care during the pandemic, a measure adopted to prevent the spread of the virus [7]. Thus, the time of physical therapy performed during the pandemic is a variable that was not asked in a form, however, when questioning whether the physical therapy care was satisfactory, most answered no, possibly because of the closure of the clinics. In addition, the fear of exposure to the virus may have influenced the performance of physical therapy treatment in this period, since contamination is a risk factor for stroke, and may lead to recurrence [42].

The present research brings essential knowledge for the post-pandemic physical therapy practice, given the need to investigate QoL and related factors in this period in patients who had stroke, helping professionals and academics to implement more effective strategies, according to the needs of each patient, in the care of this population, for example, directing them to physical capacity and return

to work, since they had a great influence on the QoL of this population, and occupation plays an essential role in social relations and personal involvement. In addition, it is necessary to look at the dependence on medications or treatments and sexual activity, since they were also facets impaired in QoL. Finally, it is worth mentioning the importance of physical therapy in the improvement of these domains, since the physiotherapeutic treatment has a great influence on QoL [5].

As limitations of the study, it is worth highlighting, in addition to the sample size, the lack of specificity of the questions addressed in the form regarding the performance of physiotherapeutic treatment during the pandemic, and the fact that potential participants received the link to the form and did not answer, which left the sample small.

It is recommended that future studies do this investigation with a larger number of participants, controlling for the heterogeneity of personal, sociodemographic, cultural and economic-educational factors. In addition, it is recommended the analysis of functionality, with a global view of neurological patients, as recommended by the WHO with the use of the ICF, since it allows a global view of the individual, ranging from the affected body structure to personal and environmental factors, in addition, functional capacity becomes a health item and not just a consequence of the disease [43]. Still, there is a need to analyze the relationship of the time of physical therapy treatment due to the pandemic, and how much this impacted QoL, focusing on the functional factors of individuals.

5 CONCLUSIONS

It is possible to conclude that during the pandemic, the QoL of the study participants, people diagnosed with stroke, was impaired. According to the findings in the WHOQOL-Bref, physical condition, work capacity, dependence on medications or treatments, and sexual activity were the factors that most interfered in the QoL of this population. Finally, it is worth mentioning the importance of physical therapy treatment in QoL, as it helps to restore and maintain the functions of the individual, promoting reintegration into the community and the maximum capacity of patients and improving the quality and performance in ADLs.

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