Correlation between quality of life and socioeconomic factors and post-Covid-19 syndrome

Correlação entre qualidade de vida e fatores socioeconômicos e a síndrome pós-Covid-19

Correlación entre calidad de vida y factores socioeconómicos y el síndrome post-Covid-19

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ABSTRACT
Objective: to identify the correlation between quality of life and sociodemographic factors among people post-COVID-19. **Method**: cross-sectional study, conducted with individuals infected with COVID-19 in the city of Caxias, Maranhão, Brazil between December 2021 and March 2022. Sociodemographic variables and data from the Short Form Health Survey 36 were analyzed. Analysis was performed by independent Student's t-test and Mann-Whitney test (95% CI). All current ethical precepts were complied with. **Results**: most of the 230 participants were women (68.26%), with an individual income of 1–2 times the minimum wage (55.22%). The mean obtained in the vitality domain was 59.5. Statistically significant correlations were identified between: sex and vitality (p=0.004), social functioning (p=0.02), role-emotional (p=0.04), and mental health (p=0.001). **Conclusion**: the losses in quality of life provided evidence of a correlation between quality-of-life domains and sex, with the most significant impacts occurring in areas related to subjective aspects, particularly emotional well-being.
Descriptors: Primary Health Care; COVID-19; Post-Acute COVID-19 Syndrome; Quality of Life.

RESUMO
Objetivo: identificar a correlação entre qualidade de vida e fatores sociodemográficos de pessoas pós-Covid-19. **Método:** estudo transversal, realizado com indivíduos que adoeceram por Covid-19 na cidade de Caxias, Maranhão, entre dezembro de 2021 e março de 2022, considerando variáveis sociodemográficas e dados do *Short Form Health Survey* 36. Análise realizada pelos testes t-*student* independente e de Mann Whitney (IC95%). Foram seguidos todos os preceitos éticos vigentes. **Resultados:** entre 230 participantes, predominaram pessoas do sexo feminino (68,26%), com renda individual de 1-2 salários-mínimos (55,22%). A média no domínio vitalidade foi 59,5. Foram identificadas correlações estatisticamente significativas entre: sexo e vitalidade (p=0,004), aspectos sociais (p=0,02), aspectos emocionais (p=0,04) e saúde mental (p=0,001). **Conclusão:** os prejuízos na qualidade de vida apontaram para evidências que estabelecem uma correlação entre os domínios da qualidade de vida, considerando o sexo feminino. Os segmentos com impactos mais significativos foram, sob os domínios ligados a questões mais subjetivas como o lado emocional.
Descritores: Atenção Primária à Saúde; COVID-19; Síndrome de Pós-COVID-19 Aguda; Qualidade de Vida.

RESUMEN
Objetivo: identificar la correlación entre calidad de vida y factores sociodemográficos de personas post-Covid-19. **Método:** estudio transversal, realizado con individuos que se enfermaron con Covid-19 en la ciudad de Caxias- Maranhao, entre diciembre de 2021 y marzo de 2022, considerando variables sociodemográficas y datos del *Short Form Health Survey* 36. Análisis realizado con las pruebas t-*student* independiente y Mann Whitney (IC95%). Fueron seguidos todos los preceptos éticos vigentes. **Resultados:** entre 230 participantes, predominaron personas del sexo femenino (68,26%), con renta individual de 1-2 salarios-mínimos (55,22%). La media en el dominio vitalidad fue 59,5. Fueron identificadas correlaciones estadísticamente significativas entre: sexo y vitalidad (p=0,004), aspectos sociales (p=0,02), aspectos emocionales (p=0,04) y salud mental (p=0,001). **Conclusión:** los perjuicios en la calidad de vida apuntaron para evidencias que establecen una correlación entre los dominios de la calidad de vida, considerando el sexo femenino. Los segmentos con impactos más significativos fueron los bajo dominios vinculados a cuestiones más subjetivas como el lado emocional.
Descriptores: Atención Primaria de Salud; COVID-19; Síndrome Post Agudo de COVID-19; Cualidad de Vida.

INTRODUCTION

The World Health Organization (WHO) defines Quality of Life (QoL) as an individual's perception of their position in life within the cultural context and value system in which they live, and in relation to their goals, expectations, standards, and concerns. It encompasses meanings that go beyond the mere absence of health problems, including, among other factors, education, basic sanitation, housing, working conditions, leisure, and access to health services[1,2].

Demographic, socioeconomic, and cultural factors influence QoL and health conditions. In the context of the consequences of COVID-19, post-COVID-19 syndrome—also known as long COVID—has emerged. The WHO defines it as a new clinical entity affecting individuals who have recovered from SARS-CoV-2 infection, characterized by the persistence of symptoms. This syndrome is marked by symptoms lasting more than three months, which cannot be explained by pre-existing conditions or other diagnoses unrelated to the viral infection[3.]

Based on this definition, a meta-analysis including 76 studies found that the syndrome develops in up to 30% of cases, with a wide variety of symptoms, making it difficult to characterize. Furthermore, the subjective nature of these symptoms makes it challenging to rule out their presence prior to the disease. The most frequently reported symptoms include fatigue (37.8%), post-exertional malaise (35.5%), sleep disorders (25.2%), dyspnea (23.4%), anxiety (21.7%), and cognitive impairment (13.4%)[4].

The greatest tendency appears to be linked to changes in the circulatory system resulting from cardiac or vascular consequences after infection, which lead to the previously mentioned symptoms—such as post-exertional malaise, muscle fatigue, and dyspnea—as well as sleep disorders, depression, and anxiety, forming a set of changes associated with the nervous system. More diffuse secondary signs may also be present due to the prolonged intensity of the acute phase over the long term[5].

In this sense, recognizing these manifestations has been useful in guiding specific actions to promote health and ensure comprehensive care for users of the Unified Health System (SUS). Considering that QoL is determined by multiple factors, this represents a complex scenario in the context of healthcare services. Health actions were significantly compromised at the end of 2019 and beginning of 2020 with the arrival of the COVID-19 pandemic, a highly transmissible and lethal infectious disease caused by the novel coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)[6].

Rapidly adapting health systems and services to address the advance of the pandemic became an urgent need, aiming for immediate and coordinated responses across the various levels of the Health Care Networks. The goal was to universalize prevention and initial treatment measures, with the understanding that the more standardized the practices, the more effective and responsive they would be[7].

Health responses in Brazil focused on actions aimed at specialized care for the most severe cases, including the expansion of hospital beds and, in particular, Intensive Care Unit (ICU) capacity. At the same time, in light of the multidimensional consequences caused by the disease, Primary Health Care (PHC) was reorganized to maintain the regular provision of care and to take responsibility for the ongoing management of patients infected with SARS-CoV-2[8].

The consequences include fatigue, reduced muscle strength and exercise tolerance, as well as respiratory, psychological, mobility, balance, flexibility, and functional impairments. In addition, individuals often face difficulties in physical recovery and maintaining functional independence. These factors contribute to a decrease in Health-Related Quality of Life (HRQoL)[9].

In this context, the needs of patients who have had COVID-19 go beyond medication prescriptions or referrals to specialists. Assessing QoL has become an important tool to guide the continuity of care for these patients, given the high incidence of disabilities such as dependence in activities of daily living, cognitive dysfunction, anxiety, depression, and post-traumatic stress disorder (PTSD), as well as lower QoL and reduced long-term survival when compared to the general population of post-COVID-19 patients[10].

Therefore, the following guiding question was adopted: what is the correlation between sociodemographic factors and the Quality of Life of people post-COVID-19? In addition, there is a lack of data and information specifically focused on this population and topic in the city of Caxias, MA, Brazil.

This study aimed to identify the correlation between Quality of Life and sociodemographic factors among individuals post-COVID-19.

METHOD

This cross-sectional study was conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines, in Caxias, Maranhão, Brazil, between December 2021 and March 2022. The city has 36 Primary Health Care (PHC) Units and 57 Family Health Teams, with PHC, through the Family Health Strategy (FHS), covering 98% of the population. Caxias occupies an area of 5,196.769 km² and is the third largest city in Maranhão in terms of territorial extension. Located in the eastern region of the state, 374 km from the capital São Luís

and 70 km from the capital of Piauí, Teresina, the city had an estimated population of 165,525 inhabitants in 2020, the majority of whom were women (51.6%).

The participants were SUS users aged 18 and over who had a laboratory-confirmed diagnosis of COVID-19 in 2020 or 2021 and were registered in the FHS. The sample size was determined using the StatCalc tool in the Epi Info software, a public domain program developed by the Centers for Disease Control and Prevention (CDC). The calculation was based on a prevalence rate of 7.9% in the city and the number of individuals who tested positive for COVID-19 in Caxias—13,181 people as of June 20, 2021—according to data from the municipality's Epidemiological Surveillance. The sample calculation used a 5% significance level (α), 95% test power, and 5% standard error. As a result, the minimum required sample was 190 participants, with an additional 10% added for potential losses, totaling 209 participants.

Participants were recruited using the nominal list provided by the Epidemiological Surveillance of six PHC units. Each unit was then visited to confirm the reported cases of COVID-19. Subsequently, a meeting was held with the Community Health Agents (CHAs) to explain the objectives of the study and their role in scheduling home visits with the patients associated with the reported cases in their respective micro-areas.

The questionnaires were administered through interviews conducted by the researcher with participants on the times scheduled by the CHAs. Appointments were arranged based on the participants' availability, including weekdays and after work hours to accommodate the working population. The sample was intentionally distributed evenly among six PHC units in the urban area. There were no refusals to participate in the study.

Two questionnaires were used: the first addressed sociodemographic data, and the second was the "Short Form Health Survey 36" (SF-36), consisting of 36 items and focused on assessing quality of life. One item referred to self-perceived change in health over the past year and was not included in the scoring. The remaining items were grouped into eight domains: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health. Higher scores indicate better health[11].

The SF-36 domains—Physical Functioning, Role-Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role-Emotional, and Mental Health—were considered dependent variables in the statistical analysis. The independent variables were sex, religion, occupation, and individual income. Data were entered into a database using the statistical software IBM SPSS (Statistical Package for the Social Sciences) for Statistics 20 (2017).

Initially, descriptive statistics were performed. Qualitative variables were presented as absolute and relative frequencies, while numerical variables were summarized using minimum, maximum, mean, and standard deviation. The normality of numerical variables was assessed using the Shapiro-Wilk test[12]. Variables with a normal distribution were analyzed using parametric tests, while those not normally distributed were analyzed using nonparametric tests[13]. The evaluation of the SF-36 domain scores in relation to sex was conducted using the independent Student's t-test or the nonparametric Mann-Whitney test. A significance level of 5% ($p < 0.05$) was adopted, indicating the acceptable probability of a type I error in the comparisons. It is important to note that the statistical tests used in this study identify associations between variables and do not imply causal relationships.

Ethical precepts were followed as required by law, and the research project was approved by the Institutional Review Board of the proposing institution. Data were collected with the consent of the participants, obtained through the signing of a free and informed consent form.

RESULTS

A total of 230 participants were selected from the list and assigned a number for a drawing conducted in each FHS unit, taking into account the number of Community Health Agents in each team to ensure that all participants had an equal chance of being selected. All those invited agreed to participate. The participants' sociodemographic characteristics are presented in Table 1.

Table 1: Sociodemographic characteristics of participants (n=230). Caxias, MA, Brazil, 2022.

Variables		Absolute frequency (n)	Relative frequency (%)
Sex	Female	157	68.26
	Male	73	31.74
Ethnicity (Self-reported)	Mixed race (*Pardo*)	154	66.96
	White	45	19.57
	Black	26	11.30
	Asian	5	2.17
Religion	Catholic	148	64.35
	Evangelical	53	23.04
	No religion	25	10.87
	Spiritism	3	1.30
	Afro-Brazilian religions, *Umbanda* or *Candomblé*	1	0.43
Individual income	No income	17	7.39
	< once the minimum wage	53	23.05
	once to twice the minimum wage	127	55.22
	3 to 4 times the minimum wage	23	10.00
	More than 5 times the minimum wage	10	4.34
Degree of financial responsibility in the household	Primary provider	34	14.78
	Primary provider with support from others	24	10.43
	Shared equally with others	98	42.61
	Contributes a small portion	45	19.57
	No financial responsibility	29	12.61
Housing situation	Homeowner	203	88.26
	Rented	14	6.09
	Staying in housing provided by others	9	3.91
	Financed	4	1.74

The study sample ranged in age from 19 to 86 years, with a mean of 43.7 (± 15.1) years. The majority of participants were female (n = 157; 68.26%). Most identified as Catholic (n = 148; 64.35%), self-declared as mixed race (n = 154; 66.96%), and reported a family income of one to two times the minimum wage (n = 127; 55.22%). Regarding housing, 203 participants were homeowners, and most shared financial responsibility equally with other household members (n = 98; 42.61%). Table 2 presents the results from the application of the SF-36.

Table 2: Values obtained for each domain of the SF-36 questionnaire (n=230). Caxias, MA, Brazil, 2022.

Domains	Mean	Standard Deviation
Physical Functioning	77.8	23.7
Role-Physical	64.2	40.1
Bodily Pain	63.9	22.9
General Health	65.8	20.5
Vitality	59.5	20.1
Social Functioning	75.5	24.4
Role-Emotional	67.0	39.5
Mental Health	69.6	19.4

Among the QoL domains assessed by the SF-36, the highest average score was observed in physical functioning (77.8 ± 23.7), followed by social functioning (75.5 ± 24.4), while the lowest was in vitality (59.5 ± 20.1). Tables 3 and 4 present the results of the correlation analyses between self-reported QoL, as measured by the SF-36 domains, and the sociodemographic profile of the sample.
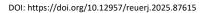
Table 3: Correlation analysis between the domains of physical functioning, role-physical, bodily pain, and general health of the SF-36 and the socioeconomic profile (n=230). Caxias, MA, Brazil, 2022.

Sociodemographic characteristics	Physical Functioning	Role-Physical	Pain	General Health
Sex	p=0.07	p=0.09	p=0.13	p=0.08
Female	76.3 ± 23.6	61.4 ± 39.9	62.4 ±23.0	64.3 ±20.8
Male	80.9 ± 23.4	70.2 ± 39.3	67.0 ± 22.0	68.9 ± 19.3
Religion*	p=0.88	p=0.91	p=0.62	p=0.47
No	73 ± 31.2	61 43.6	61.4 22.4	69.4 21.4
Yes	77.5 ± 23.8	64.1 ± 39.8	64.0 ± 22.8	66.4 ± 19.9
Employed*	p=0.15	**p=0.01**	p=0.54	**p=0.04**
No	73.2 ± 27.8	54.0 ± 44.0	61.7 ± 25.3	62 ± 21.5
Yes	80. 5± 20.2	70.4 ± 35.9	65.18 ± 21.0	68.0 ± 19.4
Individual income (Minimum wage)**	p=0.08	**p=0.03**	**p=0.004**	p=0.15
No income	85.0 ± 20.5	60.2 ± 40.2	72.9 ± 22.6	63.8 ± 21.9
< 1 times the minimum wage	75.1 ± 25.8	53.3 ± 40.0	60.2 ± 22.9	63.0 ± 21.1
1 to 2 times the minimum wage	75.9 ± 23.7	65.5 ± 40.0	61.1 ± 23.3	65.3 ± 20.2
More than 3 times the minimum wage	85.1 ± 18.3	78.7 ± 33.7	75.3 ± 14.4	72.6 ± 17.8

Legend: *Mann-Whitney and **Kruskal – Wallis tests.

Table 4: Analysis of correlation between the vitality, social functioning, role-emotional, and mental health domains of the SF-36 and the socioeconomic profile (n=230). Caxias, MA, Brazil, 2022.

Sociodemographic characteristics	Vitality	Social Functioning	Role-Emotional	Mental Health
Sex*	**p=0.004**	**p=0.02**	**p=0.04**	**p=0.001**
Female	57.2 ±19.6	73.0 ±24.9	63.2 ±40.2	66.8 ±18.9
Male	64.5 ± 19.8	80.9 ± 21.9	74.8 ± 36.5	75.5 ± 18.8
Religion*	p=0.62	p=0.58	p=0.42	p=0.96
No	59 24.0	74 22.0	74.6 35.6	68.9 23.7
Yes	60.5 ± 19.4	75.8 ± 23.4	67.1 ± 39.1	70.0 ± 19.0
Employed*	p=0.58	p=0.26	p=0.08	p=0.77
No	58.3 ± 21.9	72.7 ± 26.2	60.5 ± 41.2	68.9 ± 20.5
Yes	60.2 ± 18.7	77.2 ± 22.8	70.8 ± 37.7	69.9 ± 18.5
Individual income (Minimum wage) **	p=0.14	p=0.48	p=0.12	p=0.39
No income	57.0 ± 23.8	69.8 ± 24.2	60.7 ± 39.9	67.7 ± 20.3
< 1 times the minimum wage	55.3 ± 18.5	72.6 ± 26.8	59.1 ± 41.7	65.5 ± 21.5
1 to 2 times the minimum wage	59.9 ± 19.9	75.9 ± 24.5	67.4 ± 38.6	70.3 ± 18.9
More than 3 times the minimum wage	66.0 ± 18.6	81.4 ± 16.6	80.8 ± 33.8	73.9 ± 14.9

Legend: *Mann-Whitney and **Kruskal – Wallis tests.

Statistically significant correlations were found between sex and vitality (p = 0.004), sex and social functioning (p = 0.02), sex and role-emotional (p = 0.04), and sex and mental health (p = 0.001). Significant associations were also observed between occupation and physical functioning (p = 0.01), as well as occupation and general health (p = 0.04), suggesting that occupation may influence both physical functioning and general health. In addition, income was significantly associated with physical functioning (p = 0.03) and pain (p = 0.004).

DISCUSSION

This study sought to identify the correlation between Quality of Life (QoL) and sociodemographic factors among individuals post-COVID-19. Notably, women outnumbered men among those affected during the pandemic. This reveals an apparently contradictory scenario: although women accounted for the majority of COVID-19 cases, men exhibited higher mortality rates. This discrepancy may be attributed to the higher proportion of women in the local population, as well as to biological and social factors that influence disease severity[14].

According to data from the Brazilian Ministry of Health, among deaths from Acute Respiratory Syndrome (ARS), 55% were male, and the age group with the highest number of reported deaths was 60 to 69 years, accounting for 24.3% of cases. In relation to deaths from ARS caused by COVID-19, 55.2% were male, and the most affected age group was also 60 to 69 years, representing 24.7% of cases[15].

Despite extensive research and efforts to understand the virus, it remains unclear why advanced age is a key risk factor and mortality among older men is twice as high as that of women in the same age group. This pattern is also observed in many other diseases and is partly attributed to behavioral and lifestyle-related external factors[16].

At the beginning of April 2022, the state of Maranhão had a total of 426,430 confirmed cases of COVID-19. Of these, just over half were women, with the 30 to 39 age group accounting for 91,174 confirmed cases (21.3%). The total number of deaths due to COVID-19 in the state was 10,875. Women were more frequently infected but had lower mortality rates than men, who were less frequently infected but presented higher death rates—likely due to genetic factors and differences in quality of life[17].

Factors related to sex and lifestyle were decisive in many COVID-19 cases during and after infection. Routine activities were abruptly disrupted, and changes in working conditions and income generation significantly affected patients' psychological well-being both during and after the illness. Having an income that ensured financial stability during the pandemic helped prevent a decline in their quality of life[17].

Evidence suggests that quality of life (QoL) may or may not be associated with clinical measures. This is due to the multidimensional nature of COVID-19, which involves biological, psychological, and social factors, including stigma and discrimination among different groups[16]. Identifying factors associated with QoL in post-COVID patients is essential for patient stratification and to guide clinical management[6].

This study also showed that the Vitality domain was negatively affected during the pandemic, and individuals who had COVID-19 were left to cope with its aftereffects[18]. This evidence supports the planning of PHC management for these patients, addressing the population's needs related to these domains. The population experienced changes in quality of life due to the pandemic, both directly and indirectly[19].

During the pandemic, women were the most affected, facing a higher risk of low quality of life. Although the male gender is associated with greater disease severity and lethality—due to genetic and quality of life factors—it was women who suffered most from long-term symptoms during the recovery process[6]. In this context, women were more impacted, showing an increased risk of low QoL in the Mental Health and Vitality domains, as well as lower scores in Physical Functioning and General Health, although the differences between genders in the latter two were minimal[20].

Although not statistically significant, the correlations identified between the SF-36 domains and the sociodemographic factors analyzed remain interpretatively relevant. International studies have shown that variables such as gender, education, and socioeconomic status often influence quality of life scores across different contexts[21,22]. However, other studies have not found consistent associations, suggesting that the experience of COVID-19 and its health impacts may affect different groups in a relatively homogeneous way, particularly during periods of intense social and healthcare pressure[23].

The lack of association between sociodemographic variables and quality of life domains in this study suggests that the effects of the pandemic had a transversal impact, affecting individuals of different profiles with similar intensity. This finding underscores the importance of local health planning that moves beyond segmented approaches, emphasizing comprehensive strategies in primary care that address psychosocial distress and post-COVID-19 effects as multidimensional phenomena[24].

These results point to the need for strategies that include care focused on addressing emotional health issues within PHC services. In addition to the extended time required for physical recovery, there is also a need to expand therapeutic approaches aimed at restoring the emotional and mental health of post-COVID-19 patients receiving care through PHC services[18].

PHC services must be strengthened in their capacity to adapt, monitor, and reach individuals, given the context of abrupt changes in the quality of life of those they serve[25]. The pandemic-related changes that have impacted the QoL of post-COVID-19 patients stem from a global crisis—health, political, economic, and social in nature—, which has demanded adaptation across all levels of operation and the implementation of community-based approaches in health services[26].

Although there has been a progressive increase in scientific publications on quality of life (QoL), there remains a considerable lack of Brazilian and international studies specifically analyzing QoL in the post-COVID-19 context. This gap is explained not only by the fact that it is a relatively new clinical condition, emerging at the end of 2019, but also by the social restrictions imposed during the pandemic.

Study Limitations

It is important to note that this study was conducted in a single city in the interior of Maranhão, Brazil, and therefore, the results cannot be considered representative of other regions. Additionally, as a cross-sectional study, it does not allow for inferences about temporal or evolutionary relationships between the variables. It should also be emphasized that the type of statistical analysis used identifies associations but does not establish causality. To better understand trends and potential causal effects, longitudinal studies—preferably with a prospective cohort design—are recommended.

Finally, although the sample size was calculated based on acceptable margins of error and statistical power, limitations regarding population representativeness are acknowledged, as the sample—while adequate in number—was obtained by convenience. Additionally, potential biases such as recall bias, selection bias, and outcome variability over time are inherent to the cross-sectional design and prevalence analysis. These aspects highlight the importance of conducting studies with probabilistic sampling and a longitudinal approach to deepen and expand the findings.

CONCLUSION

The quality of life (QoL) of the individuals surveyed in this study was directly and indirectly affected by the COVID-19 pandemic. These findings point to the need for Primary Health Care (PHC) to reorganize its approach to managing these individuals, considering that demands unrelated to COVID-19 and post-COVID-19 recovery have continued and must also be addressed.

The statistical correlations identified between the quality of life (QoL) of post-COVID-19 individuals and the SF-36 domains indicated decreases in several areas, including sex and vitality ($p = 0.004$), sex and social functioning ($p = 0.02$), sex and role-emotional ($p = 0.04$), and sex and mental health ($p = 0.001$).

The declines in quality of life (QoL) among the individuals who participated in this study provide evidence of correlations between QoL and specific domains, particularly those related to gender. The most significantly affected areas were linked to more subjective aspects, such as emotional well-being. A better self-perception of health was significantly associated with higher QoL scores.

The evidence gathered in this study should inform local PHC strategies for post-COVID-19 care, with special attention to women, who have been more significantly affected in terms of quality of life. Interventions focused on mental and functional health should be prioritized, in line with the guidelines of the World Health Organization and the Brazilian Ministry of Health. Given the predominance of women in the sample and their increased vulnerability to long-term symptoms, targeted care for this group is essential. This approach reinforces the commitment to equitable and comprehensive health care.

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Research Article
Artículo de Investigación

10. Rosa RG, Robinson CC, Veiga VC, Cavalcanti AB, Azevedo LCP, Machado FR, et al. Qualidade de vida e desfechos em longo prazo após hospitalização por COVID-19: Protocolo para um estudo de coorte prospectivo (Coalizão VII). Rev. Bras Ter Intensiva. 2021 [cited 2022 Nov 6]; 33(1):31-7. DOI: https://doi.org/10.5935/0103-507X.20210003.

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Use of artificial intelligence tools

Authors declare that no artificial intelligence tools were used in the composition of the manuscript "*Correlation between quality of life and socioeconomic factors and post-Covid-19 syndrome*".