



Health-related quality of life of nursing professionals in Bahia, Brazil, in the COVID-19 pandemic^a

Qualidade de vida relacionada à saúde de profissionais de enfermagem na Bahia na pandemia da COVID-19

Calidad de vida de los profesionales de enfermería en Bahía, Brasil, en la pandemia COVID-19

Maria Adriana Mota Rocha¹

Fernando Martins Carvalho¹

Liliane Elze Falcão Lins-Kusterer¹

1. Universidade Federal da Bahia, Programa de Pós-Graduação em Saúde, Ambiente e Trabalho. Salvador, BA, Brasil.

ABSTRACT

Objective: To identify factors associated with the health-related quality of life of nursing professionals in Bahia, Brazil, during the COVID-19 pandemic. **Method:** Cross-sectional study with snowball sampling including 113 nurses and nursing technicians. From September 2020 to May 2021, sociodemographic, occupational, epidemiological, and quality of life information was collected in an electronic form and evaluated with the WHOQOL-BREF questionnaire, according to its Physical, Psychological, Social relations, and Environmental domains. Multiple linear regression was used to identify factors associated with variation in the four quality of life domains of the WHOQOL-BREF. **Results:** Low mean quality of life scores were significantly associated with being a suspected case of COVID-19 (in the Physical domain), withdrawing from professional practice due to COVID-19 (Physical and Psychological domains), working exclusively in private institutions (Social relations), older age (Social relations), and lack of social support (in the Physical, Psychological, Social Relations, and Environmental domains). **Conclusion and implications for the practice:** Older age, exclusive work in private institutions, being a suspected case of COVID-19, withdrawing from professional practice due to COVID-19, and lack of social support were associated with lower quality of life of nursing professionals during the pandemic.

Keywords: Social support; COVID-19; pandemics; nursing professionals; quality of life.

RESUMO

Objetivo: Identificar fatores associados à qualidade de vida relacionada à saúde de profissionais de enfermagem da Bahia durante a pandemia da COVID-19. **Método:** Estudo transversal, amostragem tipo *snowball* com 113 enfermeiras(os) e técnicas(os) de enfermagem. De setembro/2020 a maio/2021, num formulário eletrônico, coletaram-se informações sociodemográficas, ocupacionais, epidemiológicas e de qualidade de vida, avaliada pelo questionário WHOQOL-BREF nos seus domínios Físico, Psicológico, Relações sociais e Meio ambiente. Utilizou-se regressão linear múltipla para identificar fatores associados à variação dos domínios do WHOQOL-BREF. **Resultados:** Baixos escores de qualidade de vida associaram-se significativamente a várias características dos profissionais: ser caso suspeito de COVID-19, no domínio Físico; ficar sem exercer a profissão por causa da COVID-19, nos domínios Físico e Psicológico; trabalhar exclusivamente em instituições privadas, no domínio Relações sociais; ter mais idade, no domínio Relações sociais; e não receber apoio social de outras pessoas, nos domínios Físico, Psicológico, Relações sociais e Meio Ambiente. **Conclusão e implicações para a prática:** Ter mais idade, vínculo exclusivo com instituição privada, ser caso suspeito de COVID-19, ficar sem exercer a profissão por causa da COVID-19 e não receber apoio social associaram-se à baixa qualidade de vida de profissionais de enfermagem durante a pandemia.

Palavras-chave: Apoio social; COVID-19; pandemias; profissionais de enfermagem; qualidade de vida.

RESUMEN

Objetivo: Identificar factores asociados a la calidad de vida relacionada con la salud de los profesionales de enfermería de Bahía, Brasil, durante la pandemia de COVID-19. **Método:** Estudio transversal, muestreo bola de nieve, con 113 enfermeros y técnicos de enfermería. De septiembre 2020 a mayo 2021, en formulario electrónico, fueron recolectadas informaciones sociodemográficas, ocupacionales, epidemiológicas y de calidad de vida, evaluadas por el cuestionario WHOQOL-BREF en sus dominios Físico, Psicológico, Relaciones Sociales y Medio Ambiente. Se utilizó la regresión lineal múltiple para identificar factores asociados con los dominios del WHOQOL-BREF. **Resultados:** Los puntajes bajos de calidad de vida se asociaron significativamente con ser un caso sospechoso de COVID-19 (en el dominio Físico); no ejercer la profesión a causa del COVID-19 (dominios Físico y Psicológico); trabajar exclusivamente en instituciones privadas (Relaciones Sociales); mayor edad (Relaciones Sociales); y no recibir apoyo social (en los dominios Físico, Psicológico, Relaciones Sociales y Medio Ambiente). **Conclusión e implicaciones para la práctica:** Mayor edad, tener vinculación exclusiva con una institución privada, ser caso sospechoso de COVID-19, no ejercer la profesión a causa del COVID-19 y no recibir apoyo social se asociaron con la baja calidad de vida de los profesionales de enfermería durante la pandemia.

Palabras clave: Apoyo social; COVID-19; pandemias; profesionales de enfermería; calidad de vida.

Corresponding author

Fernando Martins Carvalho.
Email: fmc.ufba@gmail.com

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INTRODUCTION

On December 31, 2019, the World Health Organization was informed of several cases of pneumonia in the city of Wuhan, Hubei province, in the People's Republic of China. This was due to a new strain (type) of coronavirus, previously unidentified in human beings.¹ On January 30, 2020, the WHO's Director-General stated that the current outbreak constituted a Health Emergency of International Concern. The current available evidence is that the SARS-CoV-2 virus, the cause of COVID-19, is transmitted among people through contact and droplets. There is a higher risk of infection for those in contact with and/or providing care to a COVID-19 patient, which unavoidably puts health professionals at a high risk of infection.²

The essence of nursing is the care process, which is not restricted to the development of technical activities; it also involves scientific knowledge, feelings, and emotions. In a pandemic situation, physical and mental strain are common among these workers, hindering ethic and responsible actions amid work overload.³ The work conditions of nursing professionals usually involve extensive journeys, intense pace, professional devaluation, interpersonal conflict, and other factors leading to physical and psychic strain.⁴ These factors may slightly impact these professionals' health-related quality of life in the pandemic setting.

Quality of life is defined by the World Health Organization Quality of Life Group^{5,9} as "individuals' perceptions of their position in life in the context of the culture and the value systems in which they live and in relation to their goals, expectations, standards, and concerns". Studies show negative impacts on the quality of life of nurses due to depression during the COVID-19 pandemic.^{6,7} In addition to impacts on professionals themselves, poor quality of life in one or more dimensions in the health team may compromise care dynamics, leading to inadequate care, with damage to the institution and, mainly, to patient care.⁸

There are few studies on health-related quality of life of Brazilian nursing professionals during the COVID-19 pandemic. This is a pioneer study on this theme in the Brazilian state of Bahia and may contribute to the production of knowledge and interventions aimed at improving or maintaining quality of life of nurses and nursing technicians who are on the frontline in fighting this pandemic.

This study had the objective of identifying factors associated to health-related quality of life in nursing professionals of the Brazilian state of Bahia during the COVID-19 pandemic.

METHOD

A cross-sectional study was conducted and convenience virtual snowball sampling was employed.⁹ The study's hyperlink was shared on WhatsApp, email, and nursing Facebook groups. The data were collected from September 2020 to May 2021. The data collection was conducted with a Google Forms questionnaire, collecting sociodemographic data (race, sex, age, family income,

place of residence, employment bond, education, and marital status), with questions about COVID-19 and about health-related quality of life, using the WHOQOL-BREF questionnaire. Only the 124 nurses and nursing technicians of the state of Bahia were included.

Two professionals were excluded due to duplicated questionnaire; four due to not answering more than one question of WHOQOL-BREF; three due to providing no answer to more than one question about COVID, and two for not providing their sex and age. The final sample comprised thus N=113 individuals.

The questions about COVID-19 had the following response options, in a Likert-type scale: Frequently; Sometimes; Neutral; Rarely; and Never. These answers were subsequently codified as: Frequently and Sometimes = Yes; Neutral, Rarely, and Never = No.

The WHOQOL-BREF questionnaire contains 26 questions: two general questions on quality of life and the other 24 divided into four domains, which evaluate physical (seven questions), psychological (six questions), social relations (three questions), and environmental (eight questions) quality of life. The responses follow a five-point Likert-type scale which enables calculating a score for each dimension and which, after mathematical transformation, varies from 0 to 100; higher scores indicate a better quality of life. This shortened instrument emerged from the need for the World Health Organization Quality of Life Group to employ shorter, quick application instruments while maintaining satisfactory psychometric characteristics.⁵ The WHOQOL-BREF was translated and validated in Brazil with a sample of 300 individuals, 125 outpatients and 125 inpatients at a clinics hospital, in addition to 50 control volunteers.¹⁰ A study with 3,574 workers in a university in Rio de Janeiro evaluated the psychometric properties of WHOQOL-BREF. The internal consistency levels, assessed with Cronbach's alpha, ranged from 0.69 to 0.79. Test-retest reliability, assessed with intraclass correlation coefficient, ranged from 0.76 to 0.91 in the different domains.¹¹

The statistical analysis was conducted with version 20.0 of software Statistical Package for the Social Sciences™ - SPSS (IBM Corp, Armonk, NY, USA). The discrete variables were expressed in relative and absolute frequencies and the continuous variables were expressed in measures of central tendencies and dispersion. The individual scores for each of the four domains of quality of life were computed according to the manual of WHOQOL-BREF.⁵ The reliability of the instrument was evaluated according to the internal consistency of its domains by using Cronbach's Alpha, which ranges from 0 to 1: 0 to 0.21 indicates little consistency; 0.21 to 0.40, average; 0.41 to 0.60, moderate; 0.61 to 0.80, substantial; and 0.81 to 1.0, nearly perfect.¹² The correlation between age and the values of each domain of WHOQOL-BREF was evaluated by using Pearson correlation coefficient. Differences in the means for each domain of WHOQOL-BREF according to several predictive variables were evaluated through t-tests for independent samples. Variables achieving $p < 0.20$ were selected to compose four multiple linear regression models which had

as the dependent variable the Physical, Psychological, Social relations, and Environmental domains. The predictive variables of each model were inserted in blocks, using the Enter method. In the final adjusted models, only independent variables achieving $p < 0.05$ were maintained. In the analysis of studentized residuals, cases presenting a variation of ± 3.000 standard deviations were considered as outliers.

Since this study employed non-probabilistic sampling, there was no statistical inference from the results. The p-values obtained from t-tests for comparing means among subgroups were used to select the variables composing each multiple logistic regression model. In turn, the multiple linear regression technique was used only to adjust raw and standardized regression coefficients (also known as BETA coefficients) obtained for predictive variables in each model, with no statistical inference.

The standardized regression coefficients enable direct comparisons among the model's variables since they are independent of the scales used to measure the several variables. The BETA coefficients are obtained through a transformation of data into Z-scores before regression.¹³

This study was approved by the Research Ethics Committee of the Faculdade de Medicina da Bahia (CEP) and by the National Research Ethics Committee (CONEP) in opinion number 3.961.917. Anonymity and confidentiality were guaranteed with the informed consent form, signed when the answers were sent, since this was an online instrument.

RESULTS

Eleven (9.7%) out of 113 interviewees evaluated their health-related quality of life as Bad or Very bad and 15 (13.3%) were dissatisfied or very dissatisfied with their health. The mean age of the study population was 38.0 ± 8.3 years, ranging from 21 to 60 years, with a median of 37 years. Age was negatively correlated with the Physical (-0.29 ; $p=0.002$), Psychological (-0.29 ; $p=0.002$), Social Relations (-0.38 ; $p < 0.001$), and Environmental (-0.16 ; $p=0.087$) domains.

The mean quality of life score was higher in the Physical domain (69.7 ± 16.5) and lower in the Environmental domain (53.7 ± 15.0). All domains had a satisfactory internal consistency (Table 1).

In bivariate analysis, nursing technicians had a substantially lower mean quality of life score for the Environmental domain than nurses: 47.8 ± 13.8 versus 56.2 ± 14.7 , respectively. Low-income professionals (earning up to R\$ 3,900.00), compared to those who reported an income of R\$ 4,000.00 or higher, presented lower mean scores in the following quality of life domains: Psychological (63.0 ± 14.8 versus 69.5 ± 14.6), Social Relations (55.9 ± 18.2 versus 64.1 ± 19.8), and Environmental (49.0 ± 13.6 versus 59.3 ± 14.8), respectively. For professionals working at private institutions, the mean Quality of life score of the Social relations domain was lower than that of professionals working simultaneously at public and private institutions (53.6 ± 19.2 versus 65.4 ± 17.8) (Table 2).

The mean score of the Physical quality of life domain was markedly lower for nursing professionals who reported a current or past COVID-19 diagnosis, those who reported having a suspected case of COVID, and those who reported withdrawing from the profession due to COVID-19. In the Psychological domain, markedly lower mean scores were reported by those who withdrew from the profession due to COVID-19 and those who reported being qualified to provide care in cases of this disease. In the Environmental domain, a markedly lower mean score was found for professionals who reported having withdrawn from the profession due to COVID-19 (Table 3).

Nursing professionals who reported complying with all their work tasks presented a lower mean quality of life score in the Psychological and, mainly, in the Environmental domains. Professionals who reported receiving support from other people (other than co-workers), compared to those who reported not receiving such help, presented a substantially higher mean score in the four domains of quality of life: Physical (18.2 percentage points higher = $83.1 - 64.9$), Psychological (16.5 points higher), Social relations (22.4 points higher), and Environmental (13.3 points higher) (Table 4).

The multivariate model estimated that the mean score of the Physical domain of nursing professionals who had suspected cases of COVID-19 was 10.510 units (%) lower than those with no suspicion; 9.578 units lower in individuals who withdrew from the profession due to COVID-19 than in those who did not withdraw; and 16.510 units higher in professionals who received support from other people (other than co-workers) in comparison with

Table 1. Quality of life domains of 113 nursing professionals, State of Bahia, Brazil, 2021.

| Statistics | Domain (WHOQOL-BREF) | | | |
|-------------------------------|----------------------|-----------------|------------------|-----------------|
| | Physical | Psychological | Social relations | Environmental |
| Mean \pm Standard deviation | 69.7 \pm 16.5 | 66.0 \pm 15.0 | 59.7 \pm 19.3 | 53.7 \pm 15.0 |
| Median | 71.4 | 66.7 | 58.3 | 56.3 |
| Minimum-maximum | 28.6-100.0 | 25.0-95.8 | 8.3-100.0 | 15.6-90.6 |
| Cronbach's Alpha | 0.84 | 0.82 | 0.74 | 0.83 |

Source: Elaborated by the authors.

Table 2. Scores of quality of life domains (mean \pm standard deviation) based on sociodemographic and work characteristics of nursing professionals, Bahia, 2021.

| Characteristics | n (%) | Physical | | Psychological | | Social relations | | Environmental | |
|-----------------------------------|-----------|-----------------|-------|-----------------|-------|------------------|-------|-----------------|--------|
| | | x \pm sd | p | x \pm sd | p | x \pm sd | P | x \pm sd | P |
| Sex | | | 0.642 | | 0.871 | | 0.245 | | 0.549 |
| Female | 87 (77.0) | 62.3 \pm 16.7 | | 66.1 \pm 15.2 | | 61.7 \pm 17.8 | | 53.3 \pm 14.7 | |
| Male | 26 (23.0) | 71.0 \pm 16.0 | | 65.6 \pm 14.7 | | 55.1 \pm 23.5 | | 55.3 \pm 16.1 | |
| Skin Color | | | 0.203 | | 0.738 | | 0.513 | | 0.759 |
| White/Asian | 18 (16.1) | 74.4 \pm 13.2 | | 66.9 \pm 10.9 | | 62.5 \pm 15.7 | | 54.7 \pm 11.4 | |
| Black/Brown/Indigenous | 94 (83.9) | 69.0 \pm 16.9 | | 65.6 \pm 15.7 | | 59.2 \pm 20.0 | | 53.5 \pm 15.7 | |
| Marital status | | | 0.921 | | 0.889 | | 0.677 | | 0.865 |
| With partner | 74 (66.1) | 69.7 \pm 16.2 | | 66.1 \pm 15.2 | | 59.1 \pm 19.5 | | 53.9 \pm 16.2 | |
| No partner | 38 (33.9) | 70.0 \pm 17.4 | | 65.7 \pm 15.0 | | 60.7 \pm 19.4 | | 53.4 \pm 12.6 | |
| Professional qualification | | | 0.104 | | 0.259 | | 0.288 | | 0.001 |
| Nursing technician | 42 (37.2) | 66.4 \pm 17.7 | | 63.9 \pm 14.7 | | 57.1 \pm 18.5 | | 47.8 \pm 13.8 | |
| Nurse | 71 (62.8) | 71.6 \pm 15.5 | | 67.2 \pm 15.1 | | 61.1 \pm 19.8 | | 56.2 \pm 14.7 | |
| Family income (R\$) | | | 0.202 | | 0.021 | | 0.023 | | <0.001 |
| Up to 3.999,00 | 61 (54.0) | 67.9 \pm 16.1 | | 63.0 \pm 14.8 | | 55.9 \pm 18.2 | | 49.0 \pm 13.6 | |
| 4.000,00 or more | 52 (46.0) | 71.8 \pm 16.8 | | 69.5 \pm 14.6 | | 64.1 \pm 19.8 | | 59.3 \pm 14.8 | |
| Work institution | | | 0.96 | | 0.148 | | 0.001 | | 0.318 |
| Private, exclusive | 55 (48.7) | 69.6 \pm 16.3 | | 63.9 \pm 15.2 | | 53.6 \pm 19.2 | | 52.3 \pm 16.4 | |
| Public/Public and private | 58 (51.3) | 69.7 \pm 16.8 | | 68.0 \pm 14.7 | | 65.4 \pm 17.8 | | 55.1 \pm 13.5 | |

Source: Elaborated by the authors.

professionals who received no support. The estimated mean score for the Psychological domain was 5.793 percentage points lower in individuals who withdrew from the profession due to COVID-19 and 15.146% higher for professionals who were supported by other people. The estimated mean score of the Social relations domain had a reduction of 0.855 percentage units for each year of the nursing professionals' age; this was 12.358% higher for professionals who worked in a public or a public and a private institution than in those working exclusively at private institutions; and 16.769% higher in professionals who were supported by other people. The estimated mean score for the Environmental domain was 9.592% higher than in professionals who received support from other people (other than co-workers) compared to professionals who received no support. The standardized coefficients (BETA) for the variable "received support from other people" were the highest among all variables contained in each model, in the four quality of life domains. The BETA for the following variables were also remarkable: Age (-0.371) and Work institution (0.324) in the Social relations domain, whose BETA was 0.389 (Table 5).

Residual analysis revealed an outlier in the model of the Psychological domain and a different one in the model of the Social relations domain, with studentized residuals of -4.273 and

3.208, respectively. These individuals were excluded from their respective models. The multiple linear model was well-adjusted to data of the four domains, as revealed by ANOVA values <0.001. Collinearity among predictors was irrelevant. The collinearity statistics of Tolerance was high for the four models, ranging from 0.605 to 0.919. Tolerance Values close to zero indicate that the variable's linear performance is similar to that of the combination of one or more of the model's variables (Table 5).

DISCUSSION

Out of the four quality of life domains investigated in this study, the Environmental domain was the one to present the lowest mean score, corroborating results of many studies on quality of life of nursing professionals in Brazil using WHOQOL-BREF.^{9,14-23}

Comparing the results of nursing professionals of Bahia to normative quality of life data from a general population in Southern Brazil,²⁴ this study's highest mean score was that of the Physical domain (69.7 versus 58.9), with similar results for Psychological (66.0 versus 65.9), a lower score for Environmental (53.7 versus 59.9), and much lower for Social relations (59.7 versus 76.2).

After the COVID-19 pandemic started, two articles^{14,25} evaluated the quality of life of nursing professionals in Brazil using

Table 3. Scores of quality of life domains (mean \pm standard deviation) according to aspects related to the COVID-19 pandemic among nursing professionals, Bahia, 2021.

| | Aspects related to the COVID-19 pandemic | | n (%) | Physical | | Psychological | | Social relations | | Environmental | |
|---|--|-----------------|-------|-----------------|---|-----------------|---|------------------|---|---------------|--|
| | x \pm sd | p | | x \pm sd | p | x \pm sd | p | x \pm sd | p | | |
| In contact with COVID-19 patients | | 0.198 | | 0.131 | | 0.182 | | 0.05 | | | |
| Yes | 87 (77.0) | 68.6 \pm 16.2 | | 64.8 \pm 15.1 | | 58.3 \pm 18.6 | | 52.2 \pm 14.7 | | | |
| No | 26 (23.0) | 73.4 \pm 17.2 | | 69.9 \pm 14.1 | | 64.1 \pm 21.2 | | 58.8 \pm 15.1 | | | |
| Had/has a COVID-19 diagnosis | | 0.012 | | 0.186 | | 0.141 | | 0.292 | | | |
| Yes | 40 (35.4) | 64.5 \pm 15.4 | | 63.4 \pm 13.9 | | 56.0 \pm 20.6 | | 51.7 \pm 15.1 | | | |
| No | 73 (64.6) | 72.6 \pm 16.5 | | 67.4 \pm 15.5 | | 61.6 \pm 18.1 | | 54.8 \pm 14.9 | | | |
| Has a suspected case of COVID-19 | | 0.01 | | 0.259 | | 0.842 | | 0.217 | | | |
| Yes | 10 (8.9) | 60.7 \pm 9.2 | | 60.8 \pm 17.3 | | 60.8 \pm 21.2 | | 48.1 \pm 19.4 | | | |
| No | 103 (91.2) | 70.6 \pm 16.8 | | 66.5 \pm 14.8 | | 59.6 \pm 19.2 | | 54.3 \pm 14.5 | | | |
| Withdrew from work due to COVID-19 | | 0.006 | | 0.028 | | 0.144 | | 0.033 | | | |
| Yes | 25 (22.1) | 61.7 \pm 17.1 | | 60.2 \pm 14.1 | | 54.7 \pm 17.2 | | 48.1 \pm 11.6 | | | |
| No | 88 (77.9) | 72.0 \pm 15.7 | | 67.6 \pm 14.9 | | 61.1 \pm 19.7 | | 55.3 \pm 15.5 | | | |
| Had a recent increase in alcohol consumption | | 0.635 | | 0.433 | | 0.974 | | 0.249 | | | |
| No | 59 (52.2) | 70.4 \pm 15.9 | | 64.9 \pm 14.6 | | 59.6 \pm 19.0 | | 52.2 \pm 14.4 | | | |
| Yes | 54 (47.8) | 68.9 \pm 17.2 | | 67.1 \pm 15.5 | | 59.7 \pm 19.8 | | 55.4 \pm 15.6 | | | |
| Started using stimulants due to COVID-19 | | 0.523 | | 0.166 | | 0.723 | | 0.402 | | | |
| No | 106 (93.81) | 69.9 \pm 16.6 | | 66.5 \pm 14.7 | | 59.8 \pm 19.2 | | 54.0 \pm 14.7 | | | |
| Yes | 7 (6.2) | 65.8 \pm 15.3 | | 58.3 \pm 18.5 | | 57.1 \pm 22.3 | | 49.1 \pm 19.3 | | | |
| Works under a high risk of contamination | | 0.897 | | 0.304 | | 0.738 | | 0.765 | | | |
| No | 37 (32.7) | 70.0 \pm 16.0 | | 67.9 \pm 12.4 | | 57.8 \pm 19.7 | | 53.1 \pm 14.5 | | | |
| Yes | 76 (67.3) | 69.6 \pm 16.8 | | 65.0 \pm 16.1 | | 60.1 \pm 19.2 | | 54.0 \pm 15.3 | | | |
| Feels qualified to provide care to COVID-19 cases | | 0.169 | | 0.009 | | 0.005 | | 0.191 | | | |
| No | 18 (15.9) | 74.6 \pm 18.7 | | 74.3 \pm 13.8 | | 71.3 \pm 16.2 | | 58.0 \pm 13.7 | | | |
| Yes | 95 (84.07) | 68.8 \pm 16.0 | | 64.3 \pm 14.8 | | 57.5 \pm 19.1 | | 52.9 \pm 15.2 | | | |
| Avoids providing care to patients with a suspicion of COVID-19 | | 0.650 | | 0.871 | | 0.563 | | 0.903 | | | |
| No | 102 (90.3) | 69.9 \pm 16.3 | | 65.9 \pm 14.8 | | 59.3 \pm 19.2 | | 53.7 \pm 15.2 | | | |
| Yes | 11 (9.73) | 67.5 \pm 18.9 | | 66.7 \pm 17.3 | | 62.9 \pm 20.9 | | 54.3 \pm 13.9 | | | |
| Sweat, shortness of breath, and increased heart rate at work | | 0.635 | | 0.064 | | 0.069 | | 0.106 | | | |
| No | 52 (46.0) | 70.4 \pm 16.8 | | 68.4 \pm 15.3 | | 62.7 \pm 18.2 | | 55.8 \pm 13.2 | | | |
| Yes | 61 (54.0) | 68.9 \pm 16.2 | | 63.1 \pm 14.2 | | 56.1 \pm 20.1 | | 51.3 \pm 16.4 | | | |

Source: Elaborated by the authors.

Table 4. Scores of the quality of life domains (mean ± standard deviation) according to work aspects related to the COVID-19 pandemic among nursing professionals, Bahia, 2021.

| Work aspects related to COVID-19 | n | Physical | | Psychological | | Social relations | | Environmental | |
|--|------------|-----------|--------|---------------|--------|------------------|--------|---------------|--------|
| | | x ± sd | p | x ± sd | p | x ± sd | p | x ± sd | p |
| Work demands much more from me due to COVID-19 | | | 0.263 | | 0.516 | | 0.215 | | 0.569 |
| No | 15 (13.3) | 65.2±13.7 | | 63.6±11.6 | | 53.9±16.0 | | 59.7±11.4 | |
| Yes | 98 (86.7) | 70.4±16.8 | | 66.3±15.5 | | 60.5±19.7 | | 54.1±15.5 | |
| Has been fulfilling all work tasks | | | 0.316 | | 0.047 | | 0.258 | | 0.008 |
| No | 9 (8.0) | 75.0±20.2 | | 75.5±19.3 | | 66.7±23.6 | | 66.3±13.3 | |
| Yes | 104 (92.0) | 69.2±16.2 | | 65.1±14.4 | | 59.1±18.9 | | 52.6±14.7 | |
| Feels safe with protection measures and IPO at work | | | 0.916 | | 0.516 | | 0.515 | | 0.936 |
| No | 23 (20.5) | 69.3±19.8 | | 67.8±16.2 | | 62.0±21.3 | | 54.1±16.7 | |
| Yes | 89 (79.5) | 69.7±15.7 | | 65.5±14.8 | | 59.0±18.9 | | 53.8±14.6 | |
| Is supported by nursing co-workers | | | 0.26 | | 0.969 | | 0.588 | | 0.576 |
| No | 26 (23.0) | 66.5±16.5 | | 65.9±12.0 | | 58.0±16.8 | | 52.3±13.0 | |
| Yes | 87 (77.0) | 70.7±16.5 | | 66.0±15.9 | | 60.2±20.1 | | 54.2±15.6 | |
| Is supported by other people | | | <0.001 | | <0.001 | | <0.001 | | <0.001 |
| No | 83 (73.5) | 64.9±14.6 | | 61.6±13.0 | | 53.7±17.9 | | 50.2±14.3 | |
| Yes | 30 (26.6) | 83.1±14.0 | | 78.1±13.7 | | 76.1±12.3 | | 63.5±12.5 | |
| Reduced quality of social interactions | | | 0.926 | | 0.712 | | 0.562 | | 0.639 |
| No | 18 (16.1) | 69.2±15.1 | | 67.1±13.2 | | 62.0±17.4 | | 55.4±11.9 | |
| Yes | 94 (83.9) | 69.5±16.9 | | 65.7±15.4 | | 59.1±19.8 | | 53.6±15.6 | |

Source: Elaborated by the authors.

Table 5. Standardized and non-standardized regression coefficients of multiple linear regression equations, with the four Quality of life domains of WHOQOL-BREF as the dependent variable, according to predictive variables among nursing professionals of the state of Bahia, Brazil, 2020/2021.

| Predictor (referent) | Physical (n=113) | | | Psychological (n=112) | | | Social relations (n=112) | | | Environmental (n=113) | | | | | | |
|---|------------------|-------------------|--------|-----------------------|--------|-------------------|--------------------------|--------|-------------|-----------------------|--------|--------|--------|-------|--------|-------------|
| | b | b _(EP) | BETA | p | b | b _(EP) | BETA | p | b | b _(EP) | BETA | p | | | | |
| Age in years | -0.175 | 0.166 | -0.088 | 0.293 | -0.249 | 0.145 | -0.142 | 0.089 | -0.855 | 0.175 | -0.371 | <0,001 | -0,192 | 0,158 | -0,106 | 0,227 |
| Professional qualification (Technician) | 2.059 | 2.772 | 0.061 | 0.459 | | | | | | | | | 4,488 | 2,983 | 0,145 | 0,136 |
| Family Income (Up to R\$3,900.00) | | | | | 4.237 | 2.753 | 0.146 | 0.127 | 1.293 | 3,238 | 0,034 | 0,691 | 5,037 | 3,057 | 0,168 | 0,102 |
| Work institution (Private, exclusive) | | | | | 1.224 | 2.623 | 0.042 | 0.642 | 12.358 | 3,175 | 0,324 | <0,001 | | | | |
| Has/had a COVID-19 diagnosis (No) | -5.504 | 2.858 | -0.160 | 0.057 | -3.748 | 2.514 | -0.124 | 0.139 | -0.811 | 3,052 | -0,020 | 0,791 | | | | |
| Suspected case of COVID-19 (No) | -10.510 | 4.637 | -0.182 | 0.025 | | | | | | | | | | | | |
| Had contact with a COVID-19 patient (No) | 0.500 | 3.353 | 0.013 | 0.882 | 0.838 | 3.001 | | 0.781 | -1.875 | 3,624 | -0,042 | | -2,643 | 3,114 | -0,075 | 0,398 |
| Withdrew from work due to COVID-19 (No) | -9.578 | 3.209 | -0.242 | 0.004 | -5.793 | 2.73 | -0.166 | 0.036 | -2.526 | 3,254 | -0,055 | 0,439 | -4,77 | 3,082 | -0,133 | 0,124 |
| Started using stimulants due to COVID-19 (No) | | | | | 3.361 | 4.712 | -0.056 | 0.477 | | | | | | | | |
| Feels qualified to provide care to COVID-19 cases (No) | -3.997 | 3.609 | -0.089 | 0.271 | 4.476 | 3.374 | -0.113 | 0.188 | -7.384 | 3,898 | -0,142 | 0,061 | 0,729 | 3,777 | 0,018 | 0,847 |
| Sweat, shortness of breath, and increased heart rate at work (No) | | | | | -3.707 | 2.367 | -0.128 | 0.120 | -1.005 | 2,822 | -0,026 | 0,722 | -3,752 | 2,573 | -0,125 | 0,148 |
| Has been fulfilling all work tasks (No) | | | | | -1.796 | 4.339 | -0.034 | 0.680 | | | | | -7,651 | 4,876 | -0,139 | 0,12 |
| Supported by other people (No) | 16.510 | 2.974 | 0.444 | <0.001 | 15.146 | 2.632 | 0.458 | <0.001 | 16.769 | 3,166 | 0,389 | <0,001 | 9,592 | 2,956 | 0,284 | 0,002 |
| Constant | 78.646 | 7.217 | | <0.001 | 78.641 | 7.029 | | <0.001 | 89.3 | 7,414 | | <0,001 | 64,598 | 7,837 | | <0,001 |
| ANOVA | | | | <0.001 | | | | <0.001 | | | | <0.001 | | | | <0.001 |
| Tolerance (1-R ²) | | | | 0.788-0.909 | | | 0.605-0.879 | | 0.647-0.919 | | | | | | | 0.613-0.894 |
| Adjusted R ² | | | | 0.348 | | | 0.399 | | 0.485 | | | | | | | 0.264 |

b – Unstandardized linear regression coefficient; b_(EP) – Standard error of b; BETA – Standardized regression coefficient. Source: Elaborated by the authors

WHOQOL-BREF. A study²⁴ assessed health-related quality of life of 16,640 nurses and 3,152 nursing auxiliaries throughout Brazil using the SurveyMonkey@ platform from March to May 2020, thus, during the pandemic's onset. Overall, the results found in this study were similar to those found among nursing professionals in Bahia for the Physical and Psychological domains. However, the mean score of nurses in Bahia was lower for the Environmental domain (53.7 versus 57.4), and that of nursing auxiliaries was lower in the Social relations domain (59.7 versus 62.9). Another study²⁵ conducted online from June to July 2020 investigated 572 nurses, auxiliaries, and nursing technicians throughout Brazil. The mean scores reported in that study, compared to those observed in professionals of Bahia, were at least 10 percentage points lower in the Physical and Psychological domains; 4.8 percentage points lower in the Social relations domain, and similar in the Environmental domain. The results of those studies, conducted after the pandemic's onset, must be compared with caution, considering that this study's data were collected at a later stage of the pandemic (September 2020 to May 2021).

Comparing mean quality of life scores of nursing professionals obtained in studies conducted before^{8,16-24} and after the pandemic started,^{14,25} including this study, the values are observed to have reduced in the Social relations domain while remaining comparable in the Physical, Psychological, and Environmental domains.

Having a "suspected case of COVID-19" was strongly associated with the Physical domain of quality of life. The variable "has/had a COVID-19 diagnosis", closely related to the previously mentioned variable, had a slightly weaker association. A possible justification for this difference might be the fact that the pandemic was caused by a new virus, with unknown symptomatology and progression and mortality within a short latency period, factors which lead to insecurity and fear. This work context may lead to somatization and, consequently, to a presentation of physical symptomatology. The COVID-19 diagnosis may have impacted physical factors such as sleep, medical treatment, and work capacity; however, the disease was defeated. Differently, suspected cases of COVID-19 experienced the stress of having or not having the disease and fear of reduction of productive capacities to perform their daily activities.

"Withdrawing from the profession due to COVID-19" might have led nursing professionals to foster negative feelings and low self-esteem and to the interruption of the daily routine, reducing productivity and, consequently, family income, impacting the Psychological domain of quality of life.

The higher the age, the lower was quality of life in the Social Relations domain, which may be related to lower sexual activity, lower physical vigor, and a higher presence of disease as years go by.

The mean quality of life score for professionals who worked in a "public or public and private" institution was 12.358 percentage points higher in the Social Relations domain than for those who worked exclusively at private institutions. This difference may be explained by the often hostile environment of private institutions, which may affect personal relations, and lack of support in the

work environment. Professionals who work at tertiary hospitals (with higher complexity) have lower quality of life and a higher risk of depression.²⁶

Receiving support from other people was strongly and positively associated to the Physical domain's quality of life score. Professionals who feel emotionally supported have higher energy, a good sleep pattern, and present higher capacity for work and daily activities. Despite their long and extenuating routine, which might affect physical performance, there is an emotional balance which overcomes these factors.

Receiving support from other people was also associated to better scores in the Psychological domain. In the social isolation caused by the pandemic, many professionals were separated from their families, and having support at that moment might have been a relevant differential.

Receiving support from other people was the variable which contributed the most to score variation in the Social Relations domain. In times of pandemic, when social isolation was necessary, the interpersonal relations of health professionals became more restricted. In this context, support from other people might have positively contributed to confrontation and to maintain mental health, favoring a healthy interaction environment.

Professionals who were supported by people other than their co-workers also presented a higher mean score in the Environmental domain than those who reported no support.

Therefore, receiving support from other people was strongly associated with the four domains of health-related quality of life: Physical, Psychological, Social Relations, and Environmental, as revealed by the higher standardized BETA regression coefficients. This finding corroborates the results of a study with 1,757 nurses in China who worked on the frontline of COVID-19, working more shifts, under a rigid quarantine. This intense work pace affected their social relations and reduced the necessary support, impacting thus their quality of life.⁷

A study with nursing professionals reported low social support of burnout syndrome. Social support was considered to be very important, since it has the potential to reduce stress and tension, improving thus quality of life.¹⁹ A different study²⁰ reports that receiving social support directly influenced the quality of life of nursing professionals, given that social relations directly influence workers' mental health, serving as a support for fighting complex daily situations.

CONCLUSION AND IMPLICATIONS FOR THE PRACTICE

The results suggest that some factors negatively influence the quality of life of nursing professionals who are on the frontline of the COVID-19 pandemic, namely having a suspected case of COVID-19, withdrawing from the profession due to COVID-19, older age, not receiving social support from people other than co-workers, and working exclusively at private institutions. The latter three are usually associated to variation in quality of life levels and played a fundamental role in their relation with quality

of life in the context of the pandemic. Having a suspected case of COVID-19 and having stopped working due to COVID-19, factors which are directly related to the context of the pandemic, directly contributed to a change in the quality of life of nursing professionals who were on the frontline.

The strong point of this study was the use of a standardized and high-reliability instrument to assess quality of life. However, some limitations must be mentioned. First, since this is a cross-sectional study, causality cannot be properly verified due to the temporal sequence being unknown. In addition to that, the fact that the data was collected online might have reduced participant adherence and led to a selection bias, given that not everyone has quality internet access. Finally, the small sample size of the study's population resulted in a small number of individuals to form the strata of some variables, hindering more consistent analyses.

Given the relevance of this theme, the results are believed to possibly contribute to scientific production on the quality of life of nursing professionals and might be used to plan actions targeted at promoting an improved quality of life of nursing professionals.

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AUTHOR'S CONTRIBUTIONS

Study design. Maria Adriana Mota Rocha. Fernando Martins Carvalho. Liliane Elze Falcão Lins-Kusterer.

Data collection. Maria Adriana Mota Rocha. Fernando Martins Carvalho. Liliane Elze Falcão Lins-Kusterer.

Data analysis. Maria Adriana Mota Rocha. Fernando Martins Carvalho. Liliane Elze Falcão Lins-Kusterer.

Interpretation of the results. Maria Adriana Mota Rocha. Fernando Martins Carvalho. Liliane Elze Falcão Lins-Kusterer.

Writing and critical review of the manuscript. Maria Adriana Mota Rocha. Fernando Martins Carvalho. Liliane Elze Falcão Lins-Kusterer.

Approval of the final version of the article. Maria Adriana Mota Rocha. Fernando Martins Carvalho. Liliane Elze Falcão Lins-Kusterer.

Responsibility for all aspects of content and integrity of the published article. Maria Adriana Mota Rocha. Fernando Martins Carvalho. Liliane Elze Falcão Lins-Kusterer.

ASSOCIATED EDITOR

Antonio José de Almeida Filho 

SCIENTIFIC EDITOR

Ivone Evangelista Cabral 

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