



Quality of life prior and in the course of the COVID-19 pandemic: a nationwide cross-sectional study with Brazilian dietitians

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Abstract: This nationwide cross-sectional research aimed to evaluate Brazilian dietitians' quality of life prior and in the course of the COVID-19 pandemic, using a previously validated self-administered instrument WHO-QOL-BREF in Brazilian-Portuguese. Other sociodemographic variables and three questions about the COVID-19 pandemic period were included, and the instrument was applied using GoogleForms[®]. Paired T-test, Chi-squared test, and Analysis of Variance were used for statistical analysis. A total of 1290 Brazilian dietitians replied the instrument. QoL before SARS-COV-2 (3.83 ± 0.59) was statistically different from during the pandemic (3.36 ± 0.66). Comparing prior and in course of the COVID-19 pandemic, all variables and domains presented statistical differences (better before the pandemic period). The second domain (psychological health) was the most affected among Brazilian dietitians. The Sars-Cov-2 pandemic was associated with a negative impact on QoL of Brazilian dietitians, health professionals that faced changes in different areas of their lives.

Keywords: dietitian; quality of life; SARS-COV-2; pandemic; health

1. Introduction

There are many challenges involving the healthcare working environment and personal life[1], mainly in course of the unexpected COVID-19 pandemic[2–4]. The pandemic led governments to take severe mitigation measures, including community-wide lockdowns, home quarantines, home-working, social distancing, and the barring of social meetings to minimize the spread of the virus[5]. The COVID-19 is a new disease with a high transmission rate, presenting a greater risk of infection for healthcare professionals[6]. Estimates suggest that healthcare workers could account for 20% of all diagnoses[7], bringing the fear and risk of death from the viral infection and unbearable psychological pressure[4,8]. Healthcare professionals face the quotidian task of providing thoughtful care to patients experiencing a range of health burden conditions, often on the background of complex medical, social, and psychological issues added by difficulties posed by increasingly limited healthcare resources required to provide a high-quality and evidence-based service, representing a challenge to them[1].

As healthcare professionals, dietitians probably are facing difficulties in their work and life during the pandemic, as fear of Sars-CoV-2, low wages, unemployment, lack of recognition, barrier in geographical mobility and distance, etc [9–11]. The situation of unsure about the Sars-CoV-2, itself and their jobs insecurity may affect the dietitians' quality of life (QoL). Brazilian dietitians present a vast assortment of work options, from working in hospitals with inpatients or leading hospital restaurants or working in clinics, schools,

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and food services[13]. As health professionals, the dietitians works directly with people infected with the Sars-CoV-2 during de pandemic, and frequently their risks are belittled by other health professionals.

There are few studies on dietitians' QoL[1,14] and none during the Sars-CoV-2 pandemic. Therefore, we aimed to compare Brazilian dietitians' QoL prior and in the course of the COVID-19 pandemic, to identify the factors that influence dietitians' QoL in these moments, helping them retrieve after this period.

2. Materials and Methods

2.1. Study Design and Instrument

This nationwide cross-sectional study was carried out by the application of a previously validated self-administered questionnaire WHO-QOL-BREF[15] in Brazilian-Portuguese[16], to investigate the Brazilian dietitians' QoL prior and in the course of the pandemic. The instrument was composed of 26 items to evaluate the QoL in 4 domains (physical – 7 items, psychological – 6 items, social relationship – 3 items, and the environment – 8 items). In addition socioeconomic and demographic characteristics were included (Table 1) and three questions about the pandemic period (do you continue working during the Sars-CoV-2 pandemic?, did you test positive for Sars-CoV-2?, and did anybody in your family test positive for Sars-CoV-2?). The complete instrument was applied using Google-Forms® access link sent by email, apps, and social networks. Participants were invited to participate from May 26 to Jun 7, 2020.

2.2. Participants and Ethics

Dietitians from the five Brazilian regions were invited to participate in our research to trace their QoL before and during the Sars-CoV-2. The study was approved by the University of Brasília Ethics Committee (protocol No.54822316.1.00000030). Data from the Brazilian Federal Dietitians Council was used to calculate the sample size considering an error (e) of 3% and a level of significance (α) of 5% [18]. At the study period, it presents 129,134 registered dietitians[17] And the minimum representative sample size would be 1059 dietitians. The inclusion criteria was to be a dietitian living and working in Brazil.

2.3. Statistical analysis

IBM SPSS Statistics for Windows (Armonk, NY: IBM Corp) were used to analyze data on measures of central tendency and dispersion of the sample; comparisons of samples' means and proportions through paired T-test, Chi-squared test, and Analysis of Variance (ANOVA); and Cronbach's alpha to evaluate the instrument reliability.

3. Results

A total of 1290 dietitians from the five Brazilian regions participated in the study. They were most female (92.5%), Catholic (53.1%), aged from 25 to 39 years old (58.8%), with a partner (64.2%), and without children (58.3%). The majority of them continued working in the course of the pandemic (84.6%) and was not diagnosed with COVID-19 (96%), nor did their relatives (80.2%). Data from the dietitians' QoL prior and in the course of the pandemic period compared by their characteristics are presented in Table 1. In general and for all variables, QoL prior to pandemic was 3.83 ± 0.59 , statistically different ($p < 0.05$) from the period in the course of the pandemic (3.36 ± 0.66).

Before the pandemic period, some variables (gender; having children; area of practice; the number of workplaces; and type of institution where the dietitians finished their undergraduate degree) did not influence their QoL (Table 1). It was similar to the period during the pandemic, except for the area of practice. Dietitians working in the teaching area presented a better QoL than the others. Before the pandemic period, teaching did not differ from other areas of practice.

The dietitians with family income > 5 minimum wages presented better QoL than those with lower family income during the pandemic period (Table 1). Before the pandemic period, the dietitians with a family income >10 minimum wages presented better QoL than those with family income up to 10 minimum wages. In both periods, Ph.D. dietitians have a higher QoL than the others ($p < 0.05$). However, before the pandemic, Master dietitians differed from Graduates but did not differ from those with specialization. During the pandemic period, only the Ph.D. dietitians differed from the others on QoL. Dietitians with more than 15 years from the undergraduate completion presented better QoL than those up to 5 years before the pandemic. People who test positive or not for Sars-CoV-2 did not differ the QoL, as well as people whose relatives test positive or not for Sars-CoV-2. Dietitians who changed their work type because of Sars-CoV-2 presented better QoL than those who are not working or are working in person.

Table 1. Brazilian dietitians ' Quality of life by socioeconomic and demographic variables prior and in the course of the pandemic period (n = 1290).

VARIABLE		Before* pandemic Mean±SD	During* pandemic Mean±SD
Gender	Female	3.82 ^a ±0.59	3.35 ^a ±0.66
	Male	3.89 ^a ±0.61	3.44 ^a ±0.69
Age group	21 to 24 y/o	3.76 ^{ab} ±0.61	3.25 ^{ab} ±0.63
	25 to 29 y/o	3.74 ^a ±0.60	3.22 ^a ±0.67
	30 to 34 y/o	3.83 ^{ab} ±0.64	3.35 ^{abc} ±0.68
	35 to 39 y/o	3.83 ^{ab} ±0.58	3.40 ^{bc} ±0.65
	40 to 44 y/o	3.85 ^{ab} ±0.63	3.36 ^{abc} ±0.73
	45 to 49 y/o	3.90 ^{ab} ±0.43	3.43 ^{abc} ±0.54
	50 to older	3.93 ^b ±0.53	3.53 ^{bc} ±0.60
Brazilian region	North	3.71 ^a ±0.61	3.19 ^a ±0.67
	Northeast	3.82 ^{abc} ±0.62	3.31 ^{abc} ±0.66
	Midwest	3.81 ^{ab} ±0.58	3.36 ^{bc} ±0.66
	Southeast	3.88 ^b ±0.57	3.43 ^{bcd} ±0.64
	South	3.96 ^{bc} ±0.53	3.55 ^d ±0.60
Religion	Catholic	3.85 ^{ac} ±0.60	3.38 ^{ab} ±0.65
	Protestant	3.71 ^{bc} ±0.59	3.26 ^a ±0.64
	Spiritism	3.89 ^{ac} ±0.53	3.40 ^{ab} ±0.64
	Agnostic	3.79 ^{abc} ±0.60	3.27 ^{ab} ±0.70
	Others	3.90 ^{abc} ±0.61	3.50 ^b ±0.74
Marital status	Without partner	3.74 ^a ±0.61	3.23 ^a ±0.67
	With partner	3.88 ^b ±0.57	3.42 ^b ±0.64
Children	Yes	3.84 ^a ±0.58	3.39 ^a ±0.64
	No	3.81 ^a ±0.60	3.33 ^a ±0.67
Family monthly income	≤ 1 MW	3.50 ^a ±0.66	3.15 ^a ±0.71
	> 1 to 2 MW	3.64 ^a ±0.66	3.08 ^a ±0.70
	> 2 to 3 MW	3.66 ^a ±0.64	3.18 ^a ±0.69
	> 3 to 5 MW	3.72 ^a ±0.57	3.24 ^a ±0.64
	> 5 to 10 MW	3.90 ^b ±0.55	3.44 ^b ±0.63
	> 10 to 20 MW	4.05 ^c ±0.50	3.58 ^b ±0.58
	> 20 MW	4.00 ^c ±0.52	3.60 ^b ±0.60
Level of education (highest degree)	Graduate	3.70 ^a ±0.60	3.25 ^a ±0.67
	Specialization/Residency	3.79 ^{ab} ±0.59	3.33 ^a ±0.65
	Master's	3.90 ^b ±0.58	3.37 ^a ±0.67
	PhD	4.13 ^c ±0.46	3.64 ^b ±0.56
Area of Practice	Clinic	3.82 ^a ±0.60	3.35 ^a ±0.64
	Teaching	4.06 ^a ±0.49	3.54 ^b ±0.60
	Foodservice administration	3.79 ^a ±0.58	3.34 ^a ±0.67
	Public health	3.84 ^a ±0.61	3.35 ^a ±0.57
	More than one area of practice	3.80 ^a ±0.60	3.33 ^a ±0.69
	Others	3.81 ^a ±0.61	3.39 ^{ab} ±0.59
Number of workplaces	1	3.81 ^a ±0.59	3.34 ^a ±0.66
	2	3.85 ^a ±0.58	3.34 ^a ±0.64
	3	3.90 ^a ±0.60	3.45 ^a ±0.66

	> 3	3.88 ^a ±0.67	3.52 ^a ±0.71
Type of institution where you finished your undergraduate degree	Public	3.86 ^a ±0.56	3.38 ^a ±0.63
	Private	3.80 ^a ±0.62	3.33 ^a ±0.68
Time from the undergraduate completion	≤ 2 years	3.73 ^a ±0.61	3.22 ^a ±0.67
	>2 to 5 years	3.77 ^a ±0.63	3.33 ^{ab} ±0.68
	>5 to 10 years	3.86 ^{ab} ±0.61	3.32 ^{ab} ±0.66
	>10 to 15 years	3.85 ^{ab} ±0.60	3.42 ^b ±0.68
	>15 years	3.91 ^b ±0.51	3.46 ^b ±0.60
Do you continue working during Sars-CoV-2?	No	3.72 ^a ±0.64	3.20 ^a ±0.69
	yes in person	3.73 ^a ±0.55	3.25 ^a ±0.62
	yes, in person with some adaptations	3.86 ^b ±0.61	3.40 ^b ±0.66
	yes remotely	3.90 ^b ±0.57	3.45 ^b ±0.65
Did you test positive for Sars-CoV-2?	No	3.83 ^a ±0.59	3.36 ^a ±0.66
	Yes	3.74 ^a ±0.54	3.21 ^a ±0.60
Did any family members test positive for Sars-CoV-2?	No	3.83 ^a ±0.61	3.37 ^a ±0.67
	Yes (does not live with me)	3.80 ^a ±0.55	3.25 ^a ±0.64
	Yes (living with me)	3.84 ^a ±0.53	3.31 ^a ±0.61

*All results are statistically different comparing the period before and during the pandemic. Different lowercase letters inside each column and each variable show statistically different results ($p < 0.05$); y/o – years old.; MW – Minimum Wage– U\$ 213.0.

Evaluating the QoL by domains, all of them presented lower means during the pandemic than the period prior to the COVID-19 pandemic ($p < 0.05$). The second domain (psychological health) is the most affected among Brazilian dietitians before and in the course of the pandemic ($p < 0.05$). Before the COVID-19 pandemic, the means of domain 1 (physical health) was higher than the others ($p < 0.05$), but during the pandemic period, it did not differ from domains 3 and 4. The Cronbach alpha of the general instrument was 0.925, and for domain 1, it was 0.719; domain 2, 0.798; domain 3, 0.802; and domain 4, 0.773, showing good reliability for the entire instrument and each domain.

Before the pandemic period, the best means were for questions 13, 6, and 15 (How available to you is the information that you need in your day-to-day life?; To what extent do you feel your life to be meaningful?; How well are you able to get around?, respectively), and during the pandemic, the same questions were the ones with highest scores but in a different order: questions 6, 13, and 15. The worse means were for questions 12, 21, and 5 before the pandemic period (Have you enough money to meet your needs?; How satisfied are you with your sex life?; and How much do you enjoy life?), respectively. During the pandemic period, the worse means were for questions 4, 14, and 5 (How much do you need any medical treatment to function in your daily life?; To what extent do you have the opportunity for leisure activities?; and How much do you enjoy life?). Only question number 5 remains presenting one of the worst means.

4. Discussion

This study is the first on dietitians' QoL comparing prior and in the course of the COVID-19 pandemic period. In general, QoL before Sars-Cov-2 was higher than the pandemic period ($p < 0.05$) (Table 1). Of a total of 1290 Brazilian dietitians, most of the participants were female (92.5%). The high percentage of females among dietitians is typical [13,19–21], but gender did not influence QoL in our study. Table 1 showed that, before and during the pandemic period, Ph.D. dietitians have a higher perception of QoL than the others ($p < 0.05$). During the pandemic period, only the Ph.D. dietitians differed from the others on QoL perception. Most of the Ph.D. dietitians work in the teaching area. During the pandemic period, individuals who work teaching presented better QoL than other practice areas (clinic, foodservice administration, public health, and others). Dietitians with family income > 20 MW, working in the teaching area for more than ten years, presented the best QoL perception before and during the pandemic, but this is a small subsample of the studied dietitians ($n=67$).

In general, and for all variables, QoL before SARS-COV-2 was better than during the pandemic period ($p < 0.05$). It was expected since Sars-Cov-2 brought the dread and hazard of death, psychological pressure, fear of losing family members, social isolation, unemployment, and several other unexpected changes in the normal life[4,8]. Dietitians with partners have higher QoL means before and during the pandemic, probably because matrimony is associated with higher life happiness and welfare, related to better health and life expectancy [22]. Marriage is associated with well-being, QoL[22,23], and highest financial status and education [24]. Evaluating dietitians with and without children, QoL results did not differ before or during the pandemic. Having a partner brought a better QoL, not influenced by having children. Mo et al. [25] discuss that health professionals need to be more time away from their loved ones during the pandemic, and this probably decreased QoL, especially for domain 2 (psychological aspects).

Despite a meta-analytic study[26] suggesting that employed people present better life satisfaction, in the course of the pandemic, people working in-person (dealing with the fear and the risk of COVID-19) are more afraid of becoming infected or transmitting the SARS-CoV-2 to a relative [12], worsening QoL's perception. Also, people facing unemployment tend to suffer from the psychological and economic burden, potentially affecting QoL[4,8].

The dietitians with family income < 5 mean wages presented worse QoL. Income inequality is probably one of many determinants of QoL perception[27]. In the course of the pandemic, many individuals and their relatives are isolated at home, growing their household expenses (e.g., water, energy, food, and other bills). Also, higher education levels are associated with welfare and satisfaction and affect income [29], confirming our results (better QoL scores in dietitians with more education and income).

The 2nd domain(psychological health) was the most affected among Brazilian dietitians during the pandemic ($p < 0.05$), endorsing that stressful situations go along with psychological responses [12]. Before the Sars-Cov-2 pandemic, the QoL means of domain 1 was higher than the others ($p < 0.05$), but during the pandemic period, it did not differ from domains 3 and 4.

The pandemic in Brazil is also associated with a difficult economic period that can affect the perception of dietitians' QoL and other population portions. Unsure about the after-days on work conditions, income, and social protection, lowered QoL's mean scores, mainly the psychological domain.

5. Conclusions

The COVID-19 pandemic was associated with a negative impact on QoL of Brazilian dietitians, health professionals that faced changes in different areas of their lives. Our study revealed a major QoL burden of dietitians working in-person or not working. Before the pandemic, the physical domain presented the best scores for QoL and the psychological domain of the worse results. During the pandemic, the psychological domain continued to be the worst aspect of QoL, and the other domains were impacted equally.

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