



Relationship Between Psychopathological Symptoms, Coping Strategies and Sexual Orientation of Nursing Professionals in Pandemic COVID-19

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Abstract

The aim of this study is to identify the relationship between psychopathological symptoms, coping strategies, and the sexual orientation of Brazilian nursing professionals in the context of the COVID-19 pandemic. A cross-sectional and analytical study with 1737 nurses, midwives, nursing assistants, and technicians, working at different levels of health care, direct assistance and/or administrative/managerial assistance, and linked to teaching and research. These included socio-demographic data, Psychopathological Symptom Assessment Scale, and coping strategies inventory. For data analysis, descriptive statistics and Wilcoxon, Mann–Whitney, and Kruskal Wallis tests were used, with a significance level of 0.05. Statistically significant differences were evidenced between psychoticism; obsessiveness-compulsivity; somatization and anxiety, indicating mental suffering. Bisexual professionals showed greater severity of psychopathological symptoms. As for the coping strategy, there is a statistically significant difference in the mean scores of Withdrawal, Responsibility, Escape from Fear, and Self-Control, according to sexual orientation. The factors Withdrawal, Self-control, and Responsibility had higher means in bisexuals ($p < 0.05$) and lower means in confrontation ($p > 0.05$). In homosexuals, the highest mean scores were for the problem solving and social support factors ($p > 0.05$) and lowest in the Withdrawal factor ($p < 0.05$). Among heterosexuals, the highest mean score was in confrontation ($p > 0.05$) and the lowest in avoidance ($p < 0.05$). This study reinforces the importance of reflecting on the life context and work settings of nursing professionals, especially bisexual women, through the influence of the effects of the Covid-19 pandemic on their mental health. The data can guide actions that minimize the impacts on mental health, in addition to recognizing, based on the findings, a collective complaint from the professional category to the health authorities and competent bodies, as a way of explaining the context experienced in the locus of their work.

Keywords Pandemics · Coronavirus infections · Gender diversity · Mental health · Nursing professionals

Introduction

The pandemic of COVID-19 has imposed significant social impacts. Traditionally stigmatized and discriminated groups, such as lesbian, gay, bisexual, transgender, queer, intersex, asexual (LGBTQIA+) may have been especially affected (United, 2020), considering that when infected they became observed and even more exposed to segregation and violence (Paixão et al., 2021).

As a result of this scenario, the LGBTQIA+ population is one of the most vulnerable in the pandemic context, due to the damage caused to their quality of life, with the possibility of lasting after the pandemic (Sousa et al., 2020b; Caram et al., 2021). In addition, they live with discriminatory policies, both in relation to health services and the work situation (United, 2020).

Regarding the dimension of work and specifically in relation to the nursing category in Brazil, little is known about the profile regarding the sexual orientation of these professionals; however, a 2017 study identified the experience of discrimination for sexual orientation as a hindering factor for seeking and obtaining employment (Machado, 2017).

In the context of facing COVID-19, the nursing class, in general, suffered with the intensification of overload, work precariousness, and even situations of violence and segregationism due to their work activity. Such factors impacted the physical and mental health of these professionals (Nasi et al., 2021; Queiroz et al., 2021). Weaknesses in the adoption of coping strategies resulted in illness, decreased ability to work, increased morbidity/mortality and potential years lost, and the intensification of inequalities and health problems, especially among vulnerable population groups, including LGBTQIA+ (Sousa et al., 2020b; Caram et al., 2021; Sousa et al., 2021).

Facing an epidemic disease of episodic nature, the evident changes in the social behavior and work of nursing professionals need to be investigated in its various aspects. Elucidating whether sexual orientation implies the aggravation of complicating situations in the work context, such as the triggering of psychopathological symptoms, in view of the impacts caused by the LGBTQIA+ binomial and the COVID-10 pandemic (Dal’Bosco et al., 2020) may be useful to promote welcoming and care measures directed to nursing professionals.

Current Study

Given the above, the hypothesis tested in this study was that in the context of the pandemic of COVID-19, there are differences in the profile of psychopathological symptoms and coping strategies by nursing professionals, according to their sexual orientation. Thus, the objective of this study was to identify the relationship between

psychopathological symptoms, coping strategies, and sexual orientation of Brazilian nursing professionals in the context of the COVID-19 pandemic.

Methods

Study Design

Cross-sectional and analytical study, conducted in the 26 states and the Federal District, Brazil, through online data collection (web survey), between April 22 and June 8, 2020, when restrictive public health measures were in effect.

Population, Sample, and Eligibility Criteria

A total of 1737 Brazilian nursing professionals (nurses, midwives, nursing assistants, and technicians) participated in this study. A snowball sampling procedure (Biernacki & Waldorf, 1981) was used and adapted for the virtual environment. Initially, one professional was chosen per geographic region and with distinct characteristics, who behaved as seeds and were encouraged to invite other professionals from their social network until a significant sample was obtained, following a method consolidated in other studies of this nature (Camargo et al., 2021).

The researchers also promoted the survey on the social networks facebook, instagram, twitter, and whatsapp, directing it to the target population, through fixed posts on the official survey page, along with an electronic link to access the google forms and consent form.

Nurses, obstetricians, nursing assistants, and technicians were included, working at any level of health care and work scenarios, in direct care and/or administrative/managerial assistance, and also nurses working in teaching and research (professors, researchers, and graduate students), from the five geographic regions of Brazil. Tourists and non-Portuguese-speaking professionals were excluded.

Data Collection Instruments

The collection instrument was developed by the authors of this study, considering the research variables and the characterization of the participants. Its content was validated by a judging commission specialized in the theme and method. This instrument was divided into three sections with multiple choice questions, and some were mandatory; without answering these questions, the participant could not proceed with the questionnaire. The questions addressed were:

1. Socio-demographic data, mental health and work-related aspects (for example);
2. Symptom Assessment Scale-40-R (SCL-40-R) (Laloni, 2001): adapted and validated for Brazil, it evaluates psychological symptoms, based on the last fourteen days, widely used in practice and in research to evaluate mental health harms. It is self-applicable and divided into four subscales: Psychoticism; Obsessiveness

and Compulsivity; Somatization; and Anxiety, with ten items each. The response pattern is Likert, in three levels of intensity (0 = none; 1 = a little; 2 = a lot). To obtain the overall symptom index, the average of all items on the scale should be calculated. To calculate the symptom index by subscale, the average of the items in each subscale should be taken. The closer to 2, the higher the symptom index in each subscale, thus being able to know in which domain the individual is more symptomatic (Laloni, 2001).

3. Folkman and Lazarus Inventory of Coping Strategies (ICS) (Savóia et al., 1996): validated for Brazil and assesses the strategies used by the person to deal with internal or external demands. It consists of 66 items, answered on a Likert scale, with four possible answers (0: I did not use this strategy; 1: I used it a little; 2: I used it a lot; 3: I used it a lot). The items should be evaluated by means of the mean scores within each of the eight factors: confrontation; withdrawal; self-control; social support; acceptance of responsibility; escape-escape; problem solving; and positive reappraisal (Savóia et al., 1996) and are classified into two categories: (1) Functional strategies, has a focus on the problem, the person modifies the existing problem in the relationship with the environment. An effort is made to try to change the source of the stress. It comprises identifying the problem, defining alternative solutions, evaluating the costs and benefits of actions, adopting attitudes to change what is possible, and learning new skills in relation to the expected result. Composed of self-control, social support, problem solving, positive reappraisal, and acceptance of responsibilities; (2) Dysfunctional strategies, focused on emotion and refers to a response generated by the cognitive to decrease mental suffering. It is used when the individual understands that he/she cannot change the situation and that it is necessary to continue living with it. It corresponds to the strategies that derive from defensive processes in which individuals avoid confronting the threat and thus reduce the unpleasant sensation caused by stress. Composed of confrontation, withdrawal, and escape-escape (Folkman and Lazarus, 1985a, 1985b).

There was elimination of inconclusive or half-completed forms; maintenance of the last form submitted by the participant; data extraction and organization supervised by four researchers. The dependent variable was psychopathological symptoms and coping strategies used by nursing professionals, which emerged in the context of the COVID-19 pandemic. The independent variables were sex, sexual orientation, gender identity, age group, education, race/color and religion, aspects related to mental health, and work.

Statistical Analysis

The descriptive characteristics of the sample were obtained by means of absolute and relative frequencies or mean and standard deviation (SD). Data distribution was verified by the Kolmogorov–Smirnov normality test. For the inferential analysis, we used the Wilcoxon–Mann–Whitney and Kruskal Wallis tests (F test used in the ANOVA) for univariate and bivariate analysis to compare the domains of the

SCL-40-R and the factors of the ICS with the social, clinical profile, and by regions of the country. A significance level of 0.05 was considered. The statistical package IBM SPSS version 26 was used for data analysis.

Ethical Aspects

This study was approved by the Brazilian National Research Ethics Committee (opinion no. 3,954,557 of 2020), following Resolutions 510/2016 of the National Health Council, and in accordance with the 1964 Helsinki Declaration. All participants gave their consent by signing the Free and Informed Consent Term before answering the questionnaire.

Results

Of the 1737 nursing professionals who participated in the study, most were heterosexual ($n=1501$, 86.4%), followed by homosexual ($n=141$, 8.1%) and bisexual ($n=71$, 4.1%). Among heterosexuals, females ($n=1383$, 92.1%), 20 to 59 years old ($n=1462$, 97.4%), married ($n=853$, 56.9%), Catholic ($n=695$, 46.3%), white ($n=769$, 51.2%), and living in the Southeast region ($n=458$, 30.5%) prevailed. Among the homosexuals, males prevailed ($n=85$, 60.3%), aged 20 to 59 years ($n=139$, 98.6%), single or widowed ($n=97$, 68.8%), without religion ($n=44$, 31.0%), and declared themselves white ($n=75$, 53.2%). The majority resided in the Southeast region of the country ($n=56$, 40.0%). Among the bisexual women, females prevailed ($n=61$, 85.9%), aged 20 to 59 years ($n=70$, 98.6%), single or widowed ($n=52$, 73.2%), without religion ($n=30$, 42.0%), and declared themselves white ($n=37$, 52.0%). The majority resided in the Southeast region ($n=32$, 45.0%) (Table 1).

According to the sexual orientation of the participants, all groups presented statistically significant psychic symptoms indicative of mental distress (Psychoticism, Obsessivity-Compulsivity, Somatization, Anxiety). Bisexuals showed higher scores related to Somatization, followed by Obsessivity-Compulsivity and Psychoticism. Heterosexuals showed low means in all domains of psychopathological symptom assessment when compared to professionals who declared themselves as homosexual and bisexual. The group characterized as “Others” (intersexual, asexual, pansexual, and the other sexual orientations found in the study) presented lower mental health-related impairments (Table 2).

The coping strategies Withdrawal, Self-control, Responsibility, and Escape-esque were statistically significant. The factors Withdrawal, Self-control, and Responsibility had higher means ($p<0.05$) and lower mean in Confrontation ($p>0.05$) in bisexuals. In the “Other” category, there were higher means in Self-control and lower in Responsibility ($p<0.05$). For those who declared themselves homosexuals, the highest mean scores were for the factors Problem Solving and Social Support ($p>0.05$) and lowest mean in the factor Withdrawal ($p<0.05$). Among the

Table 1 Distribution of the social profile based on sexual orientation of nursing professionals in Brazil, 2020, $N = 1737$

	Sexual orientation			
	Heterosexual $n = 1501$	Homosexual $n = 141$	Bisexual $n = 71$	Others* $n = 24$
	N (%)	N (%)	N (%)	N (%)
Sex				
Female	1383 (92.1)	56 (39.7)	61 (85.9)	18 (75)
Male	118 (7.9)	85 (60.3)	10 (14.1)	6 (25)
Age group				
≤ 19 years	3 (0.2)	0 (0.0)	1 (1.4)	0 (0.0)
20–159 years	1462 (97.4)	139 (98.6)	70 (98.6)	21 (87.5)
≥ 60 years	36 (2.4)	2 (1.4)	0 (0.0)	3 (12.5)
Marital status				
Married/Stable Union	853 (56.9)	44 (31.2)	19 (26.8)	11 (45.8)
Single/Widow(er)	648 (43.1)	97 (68.8)	52 (73.2)	13 (54.2)
Religion				
Catholic	695 (46.3)	38 (27)	23 (32.4)	11 (46)
Evangelical	345 (23)	20 (14)	4 (5.6)	3 (12.5)
Others	281 (18.7)	39 (28)	14 (20)	6 (25)
Without religion	180 (12)	44 (31)	30 (42)	4 (16.5)
Race				
White	769 (51.2)	75 (53.2)	37 (52)	8 (33)
Brown	562 (37.4)	40 (28.4)	25 (35)	8 (33)
Black	133 (9)	24 (17)	9 (13)	4 (17)
Others	37 (2.4)	2 (1.4)	0(0.0)	4 (17)
Nationality				
Brazilian	1495 (99.6)	140 (99)	71 (100)	24 (100)
Foreigner	6 (0.4)	1 (1)	0 (0.0)	0 (0.0)
Region of residence				
Midwest region	256 (17)	19 (13.5)	4 (5.7)	4 (16.7)
Northeast region	378 (25.2)	26 (18)	11 (15.5)	1 (4.1)
North region	227 (15.1)	19 (13.5)	13 (18.3)	9 (37.5)
Southwest region	458 (30.5)	56 (40)	32 (45)	6 (25)
South region	182 (12.2)	21 (15)	11 (15.5)	4 (16.7)

Source: Author * Other: refers to intersexual, asexual, pansexual and the other sexual orientations found in the study

heterosexuals, the highest mean was in Confrontation ($p > 0.05$) and the lowest in Avoidance ($p < 0.05$) (Table 2).

There was a strong positive correlation between Psychoticism and Obsessiveness-Compulsivity, Somatization and Anxiety; between Obsessiveness-Compulsivity and Somatization and Anxiety; between Somatization and Anxiety; between Anxiety and General Score of the SCL-40-R. There was a very strong positive correlation

Table 2 Multivariate analysis of comparison between the scores of the domains of the Symptom Assessment Scale-40-R (SCL-40-R) and Folkman and Lazarus Coping Strategies Inventory in relation to sexual orientation of nursing professionals in Brazil.N:1737

	Sexual orientation				P value
	Heterosexual	Homosexual	Bisexual	Others	
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	
Symptom Rating Scale-40-R (SCL-40-R)					
Psychotism	0.63 ± 0.48	0.66 ± 0.54	0.90 ± 0.43	0.53 ± 0.40	< 0.001
Obsessive–compulsive disorder	0.69 ± 0.50	0.70 ± 0.52	0.93 ± 0.47	0.58 ± 0.48	< 0.001
Somatization	0.69 ± 0.53	0.73 ± 0.56	0.97 ± 0.52	0.55 ± 0.56	< 0.002
Anxiety	0.43 ± 0.48	0.53 ± 0.57	0.68 ± 0.49	0.37 ± 0.45	< 0.003
General score	0.61 ± 0.46	0.66 ± 0.50	0.87 ± 0.43	0.51 ± 0.43	< 0.004
Folkman and Lazarus Coping Strategies Inventory					
Confrontation	1.57 ± 12.21	0.67 ± 0.51	0.76 ± 0.45	0.78 ± 0.54	0.149
Distancing	1.23 ± 7.61	0.86 ± 0.53	3.72 ± 20.70	0.72 ± 0.52	< 0.001
Self-control	1.05 ± 0.54	0.99 ± 0.57	1.34 ± 0.50	1.03 ± 0.72	< 0.001
Social support	1.45 ± 8.34	2.40 ± 15.32	1.13 ± 0.55	0.97 ± 0.59	0.287
Responsibility	0.85 ± 0.64	0.86 ± 0.72	1.22 ± 0.65	0.68 ± 0.59	< 0.001
Escape-dodge	0.84 ± 0.55	1.77 ± 10.75	1.10 ± 0.50	0.72 ± 0.52	0.001
Troubleshooting	1.38 ± 6.31	3.23 ± 17.20	1.09 ± 0.63	1.01 ± 0.64	0.696
Positive Reassessment	1.27 ± 0.61	1.20 ± 0.71	1.21 ± 0.62	1.16 ± 0.89	0.254
General score	7.06 ± 13.53	10.38 ± 19.2	12.91 ± 15.75	7.24 ± 11.9	< 0.001

Source: Author

between Psychoticism and the SCL-40-R overall score; between Obsessiveness-Compulsivity and the SCL-40-R overall score; between Somatization and the SCL-40-R overall score. This positivity indicates that being symptomatic in one domain influences the others to also be compromised in terms of mental health (Table 3).

When correlating the factors of the Folkman and Lazarus ICS among themselves, one notices that there was a strong and positive correlation between Self-Control and General Score ($p < 0.001$), that is, as the Self-Control factor increases, the General Strategies Score also increases. When correlating the domains of the SCL-40-R with the factors of the Folkman and Lazarus ICS, a very weak, weak, or moderate positive correlation was identified (Table 3).

Discussion

Studies indicate that the Covid-19 pandemic has been interfering with the mental health of Brazilian nursing professionals (Queiroz et al., 2021; Nasi, et al., 2021); however, there are no studies referring to the aforementioned moment that address psychopathological symptoms or coping strategies in this population according to their sexual orientation.

Table 3 Correlation analysis between domains of the Symptom Rating Scale-40-R (SCL-40-R) and Folkman and Lazarus Coping Strategies Inventory answered by nursing professionals in Brazil.N:1737

	A	B	C	D	E	F	G	H	I	J	L	M	N	O	
Psychotism (A)	CC	1.000	.815**	.770**	.722**	.903**	.302**	.226**	.319**	.231**	.380**	.499**	.102**	.103**	.367**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Obsessive-compulsive disorder (B)	CC	-	1.000	.847**	.738**	.935**	.341**	.243**	.354**	.251**	.413**	.522**	.137**	.112**	.387**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Somatization (C)	CC	-	-	1.000	.798**	.937**	.375**	.275**	.388**	.267**	.472**	.558**	.154**	.125**	.419**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Anxiety (D)	CC	-	-	-	1.000	.875**	.371**	.260**	.327**	.236**	.465**	.568**	.087**	.056**	.381**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
General score (SCL-40-R) (E)	CC	-	-	-	-	1.000	.375**	.274**	.381**	.268**	.470**	.583**	.133**	.109**	.423**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Confrontation (F)	CC	-	-	-	-	-	1.000	.497**	.579**	.576**	.615**	.514**	.531**	.471**	.688**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Distancing (G)	CC	-	-	-	-	-	-	1.000	.588**	.404**	.491**	.510**	.422**	.465**	.644**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Self-control (H)	CC	-	-	-	-	-	-	-	1.000	.537**	.620**	.550**	.593**	.514**	.739**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Social support (I)	CC	-	-	-	-	-	-	-	-	1.000	.495**	.379**	.553**	.544**	.628**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Responsibility (J)	CC	-	-	-	-	-	-	-	-	-	1.000	.566**	.467**	.407**	.675**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Escape-dodge (L)	CC	-	-	-	-	-	-	-	-	-	-	1.000	.244**	.268**	.625**
	P-value	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 3 (continued)

	A	B	C	D	E	F	G	H	I	J	L	M	N	O
Troubleshooting (M)	CC	-	-	-	-	-	-	-	-	-	-	1.000	.690**	.626**
	P-value	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001
Positive Reassessment (N)	CC	-	-	-	-	-	-	-	-	-	-	-	1.000	.633**
	P-value	-	-	-	-	-	-	-	-	-	-	-	-	<0.001
General score (Coping Strategies Inventory) (O)	CC	-	-	-	-	-	-	-	-	-	-	-	-	1.000

Source: Author

In this study, in all domains of the psychopathological symptoms scale, significant differences were found for different groups according to sexual orientation. Bisexual women showed a higher level of severity for all investigated psychopathological symptoms, i.e., psychoticism, obsessiveness-compulsiveness, somatization, and anxiety. When correlating the psychopathological symptoms with the coping strategy factors, we identified mainly weak correlations.

A study of LGBTQIA+ college students in the USA during the COVID-19 pandemic identified that approximately 60% were experiencing psychological distress, anxiety, and depression (Gonzales, et al., 2020). In the same country and population, higher levels of depression, worry, grief, and post-traumatic stress disorder symptoms were found in the early stages of the pandemic (Kamal, et al., 2021), evidence that reinforces the findings of this study regarding the mental distress of bisexual women.

The literature points out that in the context of the pandemic, the vulnerabilities of this population, which daily suffers from discrimination due to its sexual orientation, can have direct repercussions on its health conditions, exacerbating mental suffering that has been related to the circumstances demanded by the new demands and working conditions (Godoi & Garrafa, 2014; Krause, 2021).

It is noteworthy, however, that regardless of sexual orientation, nursing professionals in Brazil have presented changes in mental health status as a result of working conditions that are inadequate for the performance of their activities (Kunrath et al., 2021), among which are reports of anxiety crises, anguish, feelings of insecurity, loneliness, abandonment (Nasi, et al., 2021), dissatisfaction, hopelessness, and constant fear (Queiroz et al., 2021).

In this study, the strong positive correlations obtained between the domains of the psychopathological symptoms scale corroborate the scientific literature regarding the increase in mental distress among nursing professionals during the pandemic of COVID-19, in triggering symptoms of anxiety, depression, stress, and psychosis, which impact both professional and social life (Burgos-Berdud et al., 2021; Du et al., 2020). Research that analyzed the psychological impacts on health professionals who worked in outbreaks of other respiratory diseases showed that these are unequally distributed among health professionals due to individual issues, mainly gender (Martins & Ferreira, 2020).

In the context of the pandemic of COVID-19, coping strategies can help nursing professionals adapt to challenging experiences, and can guide the actions of the team and managers to mitigate the stressors, leading to a healthier and less problematic work environment (Ribeiro et al., 2015). In the present study, the bisexual group showed a higher level of mental distress, and despite the weak correlation, used more of the functional coping strategies of Self-Control and Responsibility. Such resources are useful for focusing on problems, favoring the acceptance of reality and the process of coping with stressors (Damião et al., 2009).

On the other hand, the homosexuals who participated in this research used the Escape-Away strategy as a way of coping with the pandemic context, that is, they imagine possible solutions to the problem without, however, taking action to change it (Folkman et al., 1986). This finding was also found in a previous study with male nursing professionals (Ribeiro et al., 2015).

Also among the homosexuals, higher scores were found in the factors Problem Solving and Social Support, suggesting that, in an aligned manner, the professional strives to search for social and emotional support among friends, family members, and coworkers, with the perspective of adapting to stressful situations (Ribeiro et al., 2015).

Studies have identified that the most commonly used coping strategies of nursing professionals working in hospital settings are Problem Solving (Maturana & Valle, 2014; Ribeiro et al., 2015), followed by Social Support, Positive Reappraisal, and Self-Control (Moraes et al., 2016), with Self-Control being the strategy found at lower levels among homosexuals in the present investigation.

A strong and positive correlation between Self-Control and the overall score of the coping strategies was also identified in the current study, that is, as Self-Control increases, the overall score also increases. Nursing professionals in a previous study who used Self-Control as a coping strategy made efforts to regulate their own feelings and actions, besides seeking to control their emotions when faced with stressful stimuli (Damião et al., 2009).

Other evidence points out that the same nursing professionals who used the Self-Control strategy did not engage directly in solving the problem, but allowed the influence of emotions when facing a certain situation (Folkman and Lazarus, 1985a, 1985b). To exercise the Self-Control strategy, the person needs to perceive and understand his/her own emotions, being able to manage his/her behavior. However, on many occasions, emotional impulses dominate reason, and the result may not be satisfactory to the subject and the health team (Ribeiro et al., 2015); this functioning can compromise the mental health of nursing professionals, since their emotions are weakened.

In summary, it is important to emphasize that this study is pioneering in Brazil in proposing to investigate the mental health of nursing professionals, according to their sexual orientation, in the context of the COVID-19 pandemic, and demonstrates that psychopathological symptoms and coping strategies are processed according to sexual orientation in the lives of nursing professionals.

Moreover, broadening the investigation of the pandemic phenomenon from the markers of difference related to sexuality/gender is essential to observe the individual aspects of the subjects in the social relationship in which they live, namely cognition, affection, behavior, and consequently, the repercussions that derive from this context and that can be explained from a generified lens, transposing the anatomical, biological-genetic dimension.

On the other hand, it is fundamental to invest in psychological support and programs that aim to develop skills that help nursing professionals deal with internal and external demands in face of their psycho-emotional realities.

Study Limitations

Although this study represents an important step in the exploration of psychopathological symptoms and coping strategies used in Brazilian nursing professionals, in the sexual identity clipping, its limitations need to be cited: (a) cross-sectional

design does not allow making causal inferences when interpreting the statistical associations between factors; (b) notable differences in sociodemographic status among Internet survey participants, which may have influenced the results, as professionals who did not have Internet access were unable to complete the electronic form; and (c) finally, a probabilistic sampling procedure was not adopted, which prevents the generalization of the results to other contexts or countries, although the results provide a situational diagnosis of mental health associated with sexual orientation of nursing professionals in the pandemic context.

Impacts for Social Policies

The study provided visibility and reflections about the sexual orientation and vulnerability of nursing professionals, with a focus on the mental health effects in the context of the pandemic of COVID-19.

Conclusion

The nursing professionals presented impairment in all domains of the psychic symptoms scale. This shows that they are part of one of the most affected groups, exposed to the risk of contagion and emotional pain that compromises their mental health. Bisexuals show greater severity of psychopathological symptoms. The coping strategies Withdrawal, Self-control, Responsibility, and Escape-esque were statistically significant. Straight and homosexual professionals use less the dysfunctional strategies, which are emotion-focused, showing better coping in the face of internal and external life demands. Bisexuals and others use less the functional strategies, which are focused on problem solving, showing worse coping.

The findings signal the need for health care institutions to place attention and care for mental health of nursing professionals, especially for bisexual women. They reinforce the importance on their life context and work settings, through the influence of the effects of the Covid-19 pandemic.

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References

- Biernacki, P., & Waldorf, D. (1981). Snowball sampling: Problems and techniques of chain referral sampling. *Sociological Methods & Research*, *10*(2), 141–163. <https://doi.org/10.1177/004912418101000205>
- Burgos-Berdud, I., Valdés-Florido, M. J., & López-Díaz, Á. (2021). Are healthcare workers during the COVID-19 pandemic at risk of psychosis? Findings from a scoping review. *General Hospital Psychiatry*, *69*, 111–112. <https://doi.org/10.1016/j.genhosppsych.2020.06.015>
- Camargo, E. L. S., de Oliveira, B. I. A., Siffoni, I. F., de Sousa, A. R., Teixeira, J. R. B., Mendes, I. A. C., & de Sousa, A. F. L. (2021). Low psychological well-being in men who have sex with men (MSM) during the shelter-in-place orders to prevent the COVID-19 spread: Results from a nationwide study. *Sexuality Research and Social Policy*, *2*, 1–10.
- Caram, C. S., Ramos, F. R. S., Almeida, N. G., & Brito, M. J. M. (2021). Moral suffering in health professionals: Portrait of the work environment in times of COVID-19. *Revista Brasileira De Enfermagem*, *74*(Suppl 1), e20200653. <https://doi.org/10.1590/0034-7167-2020-0653>
- Dal’Bosco, E. B., Floriano, L. S. M., Skupien, S. V., Arcaro, G., Martins, A. R., & Anselmo, A. C. C. (2020). Mental health of nursing in coping with COVID-19 at a regional university hospital. *Revista brasileira de enfermagem*, *73*(Suppl 2), e20200434. <https://doi.org/10.1590/0034-7167-2020-0434>
- Damião, E. B. C., Rossato, L. M., Fabri, L. R. D. O., & Dias, V. C. (2009). Inventário de estratégias de enfrentamento: Um referencial teórico. *Revista Da Escola De Enfermagem Da USP*, *43*(spe2), 1199–1203. <https://doi.org/10.1590/S0080-62342009000600009>
- Du, R. H., Liang, L. R., Yang, C. Q., Wang, W., Cao, T. Z., Li, M., ... & Shi, H. Z. (2020). Predictors of mortality for patients with COVID-19 pneumonia caused by SARS-CoV-2: a prospective cohort study. *European Respiratory Journal*, *55*(5). <https://doi.org/10.1183/13993003.00524-2020>
- Folkman, S., & Lazarus, R. S. (1985a). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, *48*(1), 150. <https://doi.org/10.1037/0022-3514.48.1.150>
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, *50*(5), 992.
- Godoi, A. M. M., & Garrafa, V. (2014). Leitura bioética do princípio de não discriminação e não estigmatização. *Saúde e Sociedade*, *23*(1), 157–166. <https://doi.org/10.1590/S0104-12902014000100012>
- Gonzales, G., de Mola, E. L., Gavulic, K. A., McKay, T., & Purcell, C. (2020). Mental health needs among lesbian, gay, bisexual, and transgender college students during the COVID-19 pandemic. *Journal of Adolescent Health*, *67*(5), 645–648. <https://doi.org/10.1016/j.jadohealth.2020.08.006>
- Heckathorn, Douglas D. and Cameron, Christopher, Network sampling: From snowball and multiplicity to respondent-driven sampling (July 2017). Annual Review of Sociology, Vol. 43, pp. 101–119, 2017, Available at SSRN: <https://ssrn.com/abstract=3018117> or <https://doi.org/10.1146/annurev-soc-060116-053556>
- Kamal, K., Li, J. J., Hahm, H. C., & Liu, C. H. (2021). Psychiatric impacts of the COVID-19 global pandemic on US sexual and gender minority young adults. *Psychiatry Research*, *299*, 113855. <https://doi.org/10.1016/j.psychres.2021.113855>
- Krause, K. D. (2021). Implications of the COVID-19 Pandemic on LGBTQ Communities. *Journal of Public Health Management and Practice*, *27*, S69–S71.
- Kunrath, G. M., Santarem, M. D., Oliveira, J. L. C. D., Machado, M. L. P., Camargo, M. P. D., Rosa, N. G. D., & Vieira, L. B. (2021). Preditores associados ao absenteísmo-doença entre profissionais de enfermagem de um serviço hospitalar de emergência. *Revista Gaúcha De Enfermagem*, *42*, e20190433. <https://doi.org/10.1590/1983-1447.2021.20190433>
- Laloni, D. T. (2001). Escala de Avaliação de Sintomas-90-R-SCL-90-R: adaptação, precisão e validade. [Tese]. Pontifícia Universidade Católica de Campinas; 2001.
- Machado, M. H. (2017). Perfil da enfermagem no Brasil: relatório final: Brasil. In *Perfil da enfermagem no Brasil: relatório final: Brasil* (pp. 750P-750P). <http://www.cofen.gov.br/perfilenfermagem/pdfs/relatoriofinal.pdf>
- Martins, H., & Ferreira, B. (2020). Evidências científicas sobre os impactos psicológicos de epidemias/pandemias em profissionais de saúde. *Psicol Saúde Doenças*, *21*(3), 647-660.21.
- Maturana, A. P. P. M., & Valle, T. G. M. D. (2014). Estratégias de enfrentamento e situações estressoras de profissionais no ambiente hospitalar. *Psicologia Hospitalar*, *12*(2), 02–23.

- Moraes, F. D., Benetti, E. R. R., Herr, G. E. G., Stube, M., Stumm, E. M. F., & Guido, L. D. A. (2016). Estratégias de coping utilizadas por trabalhadores de enfermagem em terapia intensiva neonatal. *Revista Mineira De Enfermagem*, 20, e966. <https://doi.org/10.5935/1415-2762.20160036>
- Nasi, C., et al. (2021). Meanings of nursing professionals' experiences in the context of the pandemic of COVID-19. *Rev Rene* 2021, 22, 67933. <https://doi.org/10.15253/2175-6783.20212267933>
- Paixão, G. P. D. N., Silva, R. S. D., Carneiro, F. N. N., & Lisbôa, L. N. T. (2021). The pandemic of the new coronavirus (SARS-CoV-2) and its repercussions on stigmatization and prejudice. *Rev. baiana enferm*, e36986-e36986. <https://doi.org/10.18471/rbe.v35.36986>
- Queiroz, A. M., Sousa, A. R. D., Moreira, W. C., de Sousa Nóbrega, M. D. P. S., Santos, M. B., Barbosa, L. J. H., ... & Oliveira, E. D. (2021). O 'NOVO' da COVID-19: impactos na saúde mental de profissionais de enfermagem?. *Acta Paulista de Enfermagem*, 34. <https://doi.org/10.37689/acta-ape/2021bAO02523>
- Ribeiro, R. M., Pompeo, D. A., Pinto, M. H., & Ribeiro, R. D. C. H. M. (2015). Estratégias de enfrentamento dos enfermeiros em serviço hospitalar de emergência. *Acta Paulista De Enfermagem*, 28(3), 216–223. <https://doi.org/10.1590/1982-0194201500037>
- Savóia, M. G., Santana, P. R., & Mejias, N. P. (1996). Adaptação do inventário de Estratégias de Coping¹ de Folkman e Lazarus para o português. *Psicologia USP*, 7(1–2), 183–201. <https://doi.org/10.1590/S1678-51771996000100009>
- Sousa, A. R., Cerqueira, C. F. C., Porcino, C., & Simões, K. J. F. (2020). Pessoas LGBTI+ e a COVID-19: para pensarmos questões sobre saúde. *Revista Baiana De Enfermagem*, 35, e36952. <https://doi.org/10.18471/rbe.v35.36952>
- Sousa, A. R., Olímpio, A., & Cunha, C. L. F. (2020). Enfermagem em contexto de pandemia no Brasil: docilidades dos corpos em questão. *Enfermagem em Foco*, 11(1 ESP), 95–100. <https://doi.org/10.21675/2357-707X.2020.v11.n1.ESP.3499>
- United Nations Human Rights, Office of the High Commissioner. COVID-19 and the human rights of LGBTI people. 2020 [acesso em 10 ago 2020]. Disponível em: Disponível em: <https://www.ohchr.org/Documents/Issues/LGBT/LGBTIpeople.pdf>

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