DOI: 10.1590/1413-81232023281.09272022EN

Burnout syndrome in higher education health professionals working in indigenous health in Brazil

Joselly Aparecida da Cruz Ferraz (https://orcid.org/0000-0003-4513-4355) [1]
Luciane Zanin (https://orcid.org/0000-0003-0218-9313) [1]
Arlete Maria Gomes Oliveira (https://orcid.org/0000-0003-3247-2486) [1]
Flávia Martão Flório (https://orcid.org/0000-0001-7742-0255) [1]

Abstract *The aim of this study was to investigate the prevalence of burnout syndrome in higher education health professionals working in indigenous health in Brazil, and to identify associated factors. This is an observational, analytical, and cross-sectional study. Data collection was based on the application of a questionnaire (personal profile and MBI-HSS) and included 513 professionals. The prevalence of burnout was 65%. Greater likelihood of emotional exhaustion was observed among younger professionals, who had worked in indigenous health for longer time, in the care function and with lower level of tranquility when working during the pandemic. Lower likelihood of having low personal accomplishment at work was observed among older professionals, professionals who had worked in indigenous health for shorter time, who worked in clinical care during the pandemic and those with lower level of tranquility when working during the pandemic. Greater likelihood of depersonalization was found among married professionals, who worked in clinical care during the pandemic and those with lower level of tranquility when working during the pandemic. This study contributes with an important assessment of the existence of BS predictors in health professionals working in indigenous health.*
Key words *Burnout, Psychological, Occupational health, Health of indigenous peoples*

[1] Departamento de Saúde Coletiva, Faculdade São Leopoldo Mandic. R. José Rocha Junqueira 13. 13045-755 Campinas SP Brasil. flaviaflorio@yahoo.com

Introduction

Indigenous health in Brazil is regulated by the Indigenous Health Care Subsystem (SasiSUS) incorporated into the SUS through Law No. 9.836/1999 and described in the National Health Care Policy for Indigenous Peoples (PNASPI)[1], which includes among its guidelines the insertion of primary care in indigenous territories, in intercultural contexts with guarantee of autonomy of care by respecting the specificities of each people, including their knowledge and medical practices, in addition to their autonomy through social control and training of their human resources[2].

The implementation of PNASPI in Brazil, since its creation in 2000 and its approval in 2002[1], has presented challenges and seems to be precarious in its implementation[3], requiring different skills and resources from professionals who work in it to face reality. The precariousness of health structures, the scarcity of supplies and equipment, the logistical complexity and the high turnover of professionals are factors that negatively impact the quality of health services provided within indigenous territories[3].

In this context, the COVID-19 pandemic led to the worsening of the indigenous health condition[4], not only due to the number of cases and deaths and their biomedical and epidemiological repercussions, but also due to the multiple and devastating impacts and social, economic, political and cultural transformations, representing a harmful combination that acts, together with the virus, in the constitution of risk and vulnerability environments[5].

The analysis of the impacts of this scenario must be carried out from different perspectives, and it is opportune and necessary to also look at health professionals working with these populations, since the work process may have become even more challenging and stressful. The worsening of chronic exposure to stressors combined with the adapting and coping inability[6] may have caused experiences and required different skills and resources from these professionals to face the unique reality in indigenous health, so aggravated by the pandemic.

Burnout syndrome (BS) is described as a process of psychophysical disease resulting from intense exposure to chronic stress in the work environment [7]. BS consists of three dimensions: *emotional exhaustion* is related to the report of lack of energy and feeling of depletion of resources in relation to work, with personal conflict in relationships and work overload as the main cause; d*epersonalization* corresponds to affective dissimulation, distancing and impersonal treatment with patients, and may present symptoms such as lack of commitment to results, self-centered conduct, alienation, anxiety, irritability and demotivation, and finally; *low professional achievement* is characterized by negative self-evaluation, dissatisfaction and decline in the feeling of competence and success.

BS is usually associated with high workload, low control over the work process and little support from management and colleagues[8]. In addition to these aspects, the negative effects of the COVID-19 pandemic have brought new factors that can increase the risk of burnout in health professionals[9,10]. Considering that this issue has been little discussed among indigenous health workers, this study sought to investigate the prevalence of burnout syndrome in higher education professionals working in indigenous health in Brazil and associated factors.

Methods

This is an observational, cross-sectional, quantitative and analytical study developed with higher education professionals working in Brazilian indigenous health. Data collection was carried out between June and December 2020, a period concomitant with a critical phase of the COVID-19 pandemic in the indigenous population, both in terms of number of new cases and deaths, which many times exceeded the rates observed in the non-indigenous population of the country[11].

Considering the estimate that there were approximately 7,000 higher education professionals in Brazil in 2019 linked to indigenous health and the frequency of 25% of respondents in studies that used the same methodology[12], it was estimated that the minimum sample required for the study was 438 professionals located in Basic Indigenous Health Units (UBSI), in Support Facilities for Indigenous Health (CASAIs), in Health centers and headquarters of the 34 Special Indigenous Health Districts (DSEIs) in Brazil.

The Indigenous Health Care Subsystem (SasiSUS) in Brazil is composed of the 34 DSEIs coordinated by the Special Secretariat for Indigenous Health (SESAI) under the Ministry of Health (MS). DSEIs represent the decentralized management units of SasiSUS, strategically defined by territorial criteria based on the geographical occupation of indigenous communities

and have administrative, budgetary and financial autonomy, in addition to health responsibility. DSEIs are responsible for Primary Health Care in their territories, having as service structure the basic indigenous health units, health centers and Support Facilities for Indigenous Health (CASAI). Health centers represent the first reference for Indigenous Health Agents who work in villages and count on the work of a Multidisciplinary Indigenous Health Team. CASAIs are places of reception and support for the Indian, who comes from the village/ Health centers, with the function of facilitating the access of the indigenous population to secondary and/or tertiary care, serving as support between the village and the SUS service network.

The recruitment of professionals who participated in the study was carried out based on different strategies, including dissemination through social networks linked to Indigenous Health, by national groups of indigenous health workers and through the coordination of the Special Secretariat for Indigenous Health (SESAI) by Email and instant communicator application (WhatsApp).

Upon being invited to participate, higher education professionals received, in addition to the explanation about the survey, a link to access the Google Forms form, providing opportunities for interested parties to participate immediately upon receiving the invitation. The link allowed access to the Free and Informed Consent Form, and once accepted, the research instrument was released for completion.

In order to have individual control in the sending of responses, the individual email of each participant was collected in one of the responses to the instrument, providing the opportunity for individual results to be sent to participants.

From the initial disclosure of the research to indigenous health professionals, reminders were sent in the various previously mentioned channels, numerous times, until acceptance of participation ceased.

Data were collected through a standardized self-administered questionnaire, with mandatory answers to all questions and divided into two sections. The first section, aimed at collecting information on factors associated with BS (independent variables), addressed sociodemographic and occupational characteristics that included: age, sex, marital status, number of children, area and level of education, place of work [Village ; CASAI; Health center; DSEI (headquarters); SESAI (headquarters)], federative unit of link with indigenous health, time of link with indigenous health [less than 12 months; from 1 to 5 years; from 6 to 10 years and over 10 years], function in indigenous health [Care; Administrative], monthly family income [R$ 2.000,00 to R$ 6.000,00; R$ 7.000,00 to R$ 9.000,00; R$ 10.000,00 to R$ 15.000,00 and above R$ 15.000,00] in addition to the work situation in the pandemic [Are you in clinical care during the pandemic? Yea; No/How do you rate the level of tranquility you feel when working during the pandemic: 0 – none, and 10 – full tranquility].

The second section consisted of the validated Malasch Burnout Inventory (MBI) psychological assessment questionnaire, Maslach Burnout Inventory-Human Service Survey – HSS version[13,14], used to characterize BS in professionals in the area of human and health services, adapted by Tamayo (1997)[15]. MBI-HSS is a self-administered inventory consisting of 22 items, which are evaluated using a reduced Likert-type scale (1-never, 2-rarely, 3-sometimes, 4-often, 5-always), the three dimensions established by the Maslach's theoretical model on how individuals perceive their work: emotional exhaustion – EE (feelings of fatigue and exhaustion at work with 9 items - questions 1, 2, 3, 6, 8, 13, 14, 16 and 20), personal achievement at work – RP (feelings of incompetence with 8 items – questions 4, 7, 9, 12, 17, 18, 19 and 21) and depersonalization – DE (feelings of insensitivity and distance from patients or service with five items – questions 5, 10, 11, 15 and 22). The scores obtained for each of the dimensions in addition to the total MBI-HSS score constituted the dependent variables of the study.

For the analysis of the prevalence of BS, already established criteria were used as the main basis[16-18] and the individuals who presented, in the EE and DE dimensions, the average of response options equal to or greater than "often" indicate the presence of BS. In the RP dimension, this occurs with values equal to or less than 4 on the likert scale. Thus, in the EE and DE dimensions, high scores and in the RP dimension, low scores are related to predisposition to BS[14]. The presence of alteration in at least one of the dimensions, characterized in this study, indicates presence of BS.

As guided by the creators of the inventory, each dimension was individually evaluated[13]. Initially, descriptive analyses of the characteristics of respondents and responses to the research instrument were carried out. The associations of independent variables with dimension scores and

total score were analyzed using simple and multiple logistic regression models. For this, the scores of each dimension and total scores were classified as high and low, by the median, taking as reference the response pattern of the sample itself[19]. Variables with $p < 0.20$ in the simple models were tested in multiple models, remaining in the final models those with $p \leq 0.05$ after adjustments for the other variables of the model. Crude and adjusted odds ratios were estimated with 95% confidence intervals. The adjustment of models was evaluated by the AIC (Akaike information criterion). All analyses were performed using the R20 software, with 5% significance level.

This study has approval certification from the Research Ethics Committee (CEP) under protocol No. 3.981.718. All ethical standards were considered in compliance with Resolutions No. 466/2012 of the National Health Council.

Results

The final sample consisted of 513 professionals and Table 1 presents the sociodemographic and occupational characterization of respondents. It was observed that 63.0% of respondents were female, 47.6% aged 29-39 years, 40.7% were married, 56.1% had children, 63.7% were nurses, 46.4% had been working in indigenous health for 1-5 years, 60.8% had care function and 76.6% were in clinical care during the pandemic. A minority of respondents (2.1%) reported full tranquility when working during the pandemic.

With regard to results of the evaluation of the MBI-HSS dimensions, it was found that 4.9% of professionals had Depersonalization, 13.8% had emotional exhaustion and 61% had low personal achievement at work, which resulted in prevalence of 65 % of professionals with at least one of the dimensions altered, characterizing presence of BS.

Regarding the dimensions of the instrument, the minimum, maximum and median values were respectively: emotional exhaustion (min = 1.0; max = 4.9 and med = 2.9); depersonalization (min = 1.0; max = 4.8 and med = 2.6) and professional achievement (min = 1.0; max = 4.5 and med = 2.8). For the complete instrument, values were: min = 1.0; max = 4.6 and med = 2.8. Table 2 presents the MBI-HSS results considering all questions and each dimension.

As can be seen in Table 3, crude analyses showed association between emotional exhaustion and age, area of expertise, function, being in clinical care during the pandemic and level of

Table 1. Sociodemographic and occupational characterization of the sample of higher education health professionals working in indigenous health in Brazil (n = 513).

Variable	Category	Frequency (%)
Sex	Female	323 (63.0%)
	Male	190 (37.0%)
Age group (years)	18 to 28	102 (19.9%)
	29 to 39	244 (47.6%)
	40 to 49	123 (24.0%)
	50 to 59	37 (7.2%)
	60 or older	7 (1.4%)
Marital status	Married	209 (40.7%)
	Divorced	77 (15.0%)
	Other	43 (8.4%)
	Single	173 (33.7%)
	Widower	11 (2.1%)
Have children	No	225 (43.9%)
	Yes	288 (56.1%)
Area of expertise	Nursing	327 (63.7%)
	Dentistry	51 (9.9%)
	Medicine	42 (8.2%)
	Nutrition	40 (7.8%)
	Pharmacy	13 (2.5%)
	Psychology	10 (2.0%)
	Social Service	9 (1.8%)
	Others	21 (4.1%)
Macro-region	Midwestern	176 (34.4%)
	Northeastern	116 (22.6%)
	Northern	114 (22.3%)
	Southeastern	82 (16.1%)
	Southern	22 (4.3%)
Time working in indigenous health	Less than 1 year	46 (9.0%)
	From 1 to 5 years	238 (46.4%)
	From 6 to 10 years	140 (27.3%)
	Over 10 years	89 (17.4%)
Function in the institution	Administrative	201 (39.2%)
	Care	312 (60.8%)
Is in clinical care during the pandemic	No	120 (23.4%)
	Yes	393 (76.6%)
Level of tranquility when working during the pandemic (0: none; 10 full)	0	72 (14.0%)
	1	29 (5.6%)
	2	59 (11.5%)
	3	89 (17.4%)
	4	64 (12.5%)
	5	77 (15.0%)
	6	0 (0.0%)
	7	51 (9.9%)
	8	52 (10.1%)
	9	9 (1.8%)
	10	11 (2.1%)

Source: Aurhors.

tranquility when working during the pandemic ($p < 0.05$). Depersonalization was associated with area of expertise, function in indigenous health, being in clinical care and level of tranquility ($p < 0.05$). On the other hand, low personal achievement at work, in the crude analyses, was associated with sex, area of expertise, time of work with indigenous health, being in clinical care and level of tranquility ($p < 0.05$). The total score was associated with area of expertise, time of work with indigenous health, clinical care during the pandemic and level of tranquility when working during the pandemic ($p < 0.05$).

Also in the crude analyses, it can be observed that associations between Emotional exhaustion with sex and time working in indigenous health showed p-value < 0.20 and then were also included in the multiple model together with variables with significant associations. The same occurred in associations between depersonalization and marital status and time working in indigenous health and association of Total score with age.

Table 2. Distribution of responses from indigenous health professionals in the "Maslach Burnout Inventory" Questionnaire (MBI-HSS) n = 513.

Question	Never	Rarely	Sometimes	Often	Always
Emotional exhaustion					
Q1	40 (7.8%)	142 (27.7%)	243 (47.4%)	74 (14.4%)	14 (2.7%)
Q2	9 (1.8)	114 (22.2)	263 (51.3)	81 (15.8)	46 (9.0)
Q3	60 (11.7)	156 (30.4)	223 (43.5)	56 (10.9)	18 (3.5)
Q6	65 (12.7)	147 (28.6)	229 (44.6)	63 (12.3)	9 (1.8)
Q8	29 (5.6)	115 (22.4)	253 (49.3)	83 (16.2)	33 (6.4)
Q13	49 (9.6)	97 (18.9)	256 (49.9)	90 (17.5)	21 (4.1)
Q14	19 (3.7)	86 (16.8)	254 (49.5)	99 (19.3)	55 (10.7)
Q16	73 (14.2)	109 (21.2)	264 (51.5)	58 (11.3)	9 (1.8)
Q20	42 (8.2)	122 (23.8)	269 (52.4)	59 (11.5)	21 (4.1)
Personal achievement at work					
Q4	2 (0.4)	55 (10.7)	219 (42.7)	143 (27.9)	94 (18.3)
Q7	6 (1.2)	57 (11.1)	214 (41.7)	146 (28.5)	90 (17.5)
Q9	8 (1.6)	56 (10.9)	232 (45.2)	141 (27.5)	76 (14.8)
Q12	9 (1.8)	91 (17.7)	265 (51.7)	96 (18.7)	52 (10.1)
Q17	7 (1.4)	70 (13.6)	240 (46.8)	123 (24.0)	73 (14.2)
Q18	5 (1.0)	78 (15.2)	241 (47.0)	118 (23.0)	71 (13.8)
Q19	7 (1.4)	74 (14.4)	230 (44.8)	138 (26.9)	64 (12.5)
Q21	5 (1.0)	80 (15.6)	250 (48.7)	108 (21.0)	70 (13.6)
Depersonalization					
Q5	172 (33.50)	110 (21.4)	187 (36.4)	40 (7.8)	4 (0.8)
Q10	73 (14.2)	120 (23.4)	239 (46.6)	58 (11.3)	23 (4.5)
Q11	79 (15.4)	103 (20.1)	236 (46.0)	68 (13.3)	27 (5.3)
Q15	193 (37.6)	122 (23.8)	174 (33.9)	21 (4.1)	3 (0.6)
Q22	59 (11.5)	127 (24.8)	225 (43.9)	79 (15.4)	23 (4.5)

Q1 – I feel emotionally disappointed with my work; Q2 – I feel exhausted at the end of a working day; Q3 – I already feel tired when I get up in the morning and have to face another day of work; Q4 – I feel that I can easily understand the people I have to care for; Q5 – I feel like I am treating some people I relate to in my work as if they were objects and not people. Q6 – I feel that working with people every day makes me tired. Q7 – I feel that I deal very efficiently with the problems of people I have to care for. Q8 – I feel that my work is wearing me down. Q9 – I feel that I am exerting a positive influence on people's lives through my work. Q10 – I feel I have become harder on people since I started this job. Q11 – I am worried that this job is hardening me emotionally. Q12 – I feel very powerful in my work. Q13 – I feel frustrated in my work. Q14 – I feel like I am working too much. Q15 – I feel that I really don't care what happens to the people I have to professionally care for. Q16 – I feel that working directly with people exhausts me. Q17– I feel that I can easily create a pleasant atmosphere in my work. Q18 – I feel stimulated after having worked directly with those I have to care for. Q19 – I believe that I get many valuable things in this work. Q20 – I feel like I am at the limit of my possibilities. Q21 – In my work I deal with emotional problems very calmly. Q22 – I feel that the people I care for blame me for some of their problems.

Source: Authors.

Table 3. Crude analysis of associations with Burnout Syndrome scores - Maslach Burnout Inventory-Human Services Survey (MBI - HSS) in indigenous health professionals, n = 513.

Variable	Category	Emotional exhaustion (> 2.9)*		Depersonalization (> 2.6)*		Low personal achievement at work (> 2.8)*		Total score (>2.8)*	
		Frequency (%)	Crude OR (95%CI)	Frequency (%)	Crude OR (95%CI)	Frequency (%)	Crude OR (95%CI)	Frequency (%)	Crude OR (95%CI)
Age group (years)	*Up to [39]	167 (48.3%)	1.62 (1.10-2.37)	160 (46.2%)	1.25 (0.86-1.82)	172 (49.7%)	1.10 (0.76-1.59)	181 (52.3%)	1.38 (0.95-2.00)
	> 39	61 (36.5%)	Ref	68 (40.7%)	Ref	79 (47.3%)	Ref	74 (44.3%)	Ref
p-value			0.0125		0.2384		0.6098		0.0899
Sex	Female	152 (47.1%)	1.33 (0.93-1.92)	137 (42.4%)	0.80 (0.56-1.15)	147 (45.5%)	0.69 (0.48-0.99)	158 (48.9%)	0.92 (0.64-1.31)
	Male	76 (40.0%)	Ref	91 (47.9%)	Ref	104 (54.7%)	Ref	97 (51.0%)	Ref
p-value			0.1206		0.2280		0.0439		0.6403
Marital status	Married	95 (45.4%)	1.13 (0.78-1.64)	103 (49.3%)	1.41 (0.97-2.04)	104 (49.8%)	1.06 (0.73-1.52)	107 (51.2%)	1.12 (0.77-1.62)
	Divorced/ single	106 (42.4%)	Ref	102 (40.8%)	Ref	121 (48.4%)	Ref	121 (48.4%)	Ref
	Outro	27 (50.0%)	1.36 (0.75-2.45)	23 (42.6%)	1.08 (0.59-1.95)	26 (48.2%)	0.99 (0.55-1.78)	27 (50.0%)	1.07 (0.59-1.92)
p-value Married			0.5113		0.0691		0.7715		0.5509
p-value other			0.3084		0.8082		0.9732		0.8311
Have children	No	96 (42.7%)	Ref	96 (42.7%)	Ref	105 (46.7%)	Ref	109 (48.4%)	Ref
	Yes	132 (45.8%)	1.14 (0.80-1.62)	132 (45.8%)	1.14 (0.80-1.62)	146 (50.7%)	1.18 (0.83-1.67)	146 (50.7%)	1.09 (0.77-1.55)
p-value			0.4739		0.4739		0.3657		0.6131
Area of expertise	Nursing	147 (45.0%)	1.89 (1.01-3.53)	156 (47.7%)	2.54 (1.33-4.86)	172 (52.6%)	5.42 (2.56-11.47)	171 (52.3%)	3.05 (1.60-5.84)
	Dentistry	26 (51.0%)	2.40 (1.08-5.37)	23 (45.1%)	2.29 (1.01-5.21)	27 (52.9%)	5.50 (2.23-13.57)	30 (58.8%)	2.53 (1.07-5.98)
	Nutrition	20 (50.0%)	2.31 (0.98-5.43)	13 (32.5%)	1.34 (0.54-3.30)	20 (50.0%)	4.89 (1.90-12.61)	20 (50.0%)	2.79 (1.17-6.65)
	Medicine	19 (45.2%)	1.91 (0.82-4.44)	22 (52.4%)	3.06 (1.30-7.24)	23 (54.8%)	5.92 (2.31-15.15)	20 (47.6%)	3.98 (1.74-9.10)
	Others	16 (30.2%)	Ref	14 (26.4%)	Ref	9 (17.0%)	Ref	14 (26.4%)	Ref
p-value Nursing			0.0465		0.0048		<0.0001		0.0007
p-value Dentistry			0.0323		0.0489		0.0002		0.0342
p-value Nutrition			0.0542		0.5227		0.0010		0.0210

it continues

Tabela 3. Análises brutas das associações com os escores de síndrome de *burnout* – Maslach Burnout Inventory – Human Services Survey (MBI-HSS) em profissionais da saúde indígena, n = 513.

Variable	Category	Emotional exhaustion (> 2.9)*		Depersonalization (> 2.6)*		Low personal achievement at work (> 2.8)*		Total score (>2.8)*	
		Frequency (%)	Crude OR (95%CI)	Frequency (%)	Crude OR (95%CI)	Frequency (%)	Crude OR (95%CI)	Frequency (%)	Crude OR (95%CI)
p-value Medicine			0.1332		0.0107		0.0002		0.0011
Time working in indigenous health (years)	Less than 1	15 (32.6%)	Ref	18 (39.1%)	Ref	22 (47.8%)	Ref	16 (34.8%)	Ref
	From 1 to 5	113 (47.5%)	1.87 (0.96-3.64)	118 (49.6%)	1.53 (0.80-2.91)	133 (55.9%)	1.38 (0.73-2.60)	138 (58.0%)	2.59 (1.34-5.00)
	From 6 to 10	68 (48.6%)	1.95 (0.97-3.93)	71 (50.7%)	1.60 (0.81-3.16)	75 (53.6%)	1.26 (0.65-2.45)	79 (56.4%)	2.43 (1.22-4.85)
	More than 10	32 (36.0%)	1.16 (0.55-2.46)	21 (23.6%)	0.48 (0.22-1.04)	21 (23.6%)	0.34 (0.16-0.72)	22 (24.7%)	0.62 (0.28-1.34)
p-value From 1 to 5 years			0.0663		0.1961		0.3163		0.0423
p-value From 6 to 10 years			0.0611		0.1742		0.4990		0.0121
p-value more than 10 years			0.6991		0.0614		0.0049		0.2197
Function in the institution	Administrative	60 (29.8%)	Ref	63 (31.3%)	Ref	83 (41.3%)	Ref	72 (35.8%)	Ref
	Care	168 (53.8%)	2.74 (1.88-3.99)	165 (52.9%)	2.46 (1.70-3.56)	168 (53.8%)	1.66 (0.16-2.37)	183 (58.6%)	2.54 (1.76-3.66)
p-value			<0.0001		<0.0001		0.0056		<0.0001
Is in clinical care during the pandemic	No	39 (32.5%)	Ref	23 (19.2%)	Ref	34 (28.3%)	Ref	31 (25.8%)	Ref
	Yes	189 (48.1%)	1.92 (1.25-2.96)	205 (52.2%)	4.60 (2.80-7.55)	217 (55.2%)	3.12 (2.00-4.86)	224 (57.0%)	3.80 (2.41-6.00)
p-value			0.0029		<0.0001		<0.0001		<0.0001
Level of tranquility when working during the pandemic (0: none; 10 full)	*Up to [4]	186 (59.4%)	5.51 (3.66-8.29)	194 (62.0%)	7.96 (5.16-12.28)	201 (64.2%)	5.38 (3.63-7.99)	213 (68.0%)	8.01 (5.29-12.13)
	> 4	42 (21.0%)	Ref	34 (17.0%)	Ref	50 (25.0%)	Ref	42 (21.0%)	Ref
p-value			< 0.0001		< 0.0001		< 0.0001		< 0.0001

*Sample median; OR = odds ratio; CI: confidence interval; Ref: reference category of independent variables.

Source: Authors.

Table 4 presents the adjusted analysis of variables that remained in the final model after adjusting for the other variables. Greater likelihood of emotional exhaustion was observed among professionals aged up to 39 years, with longer time working in indigenous health, with care function and with lower level of tranquility when working during the pandemic. In the depersonalization domain, higher scores were observed among married professionals, in clinical care during the pandemic and with lower level of tranquility when working during the pandemic.

Greater likelihood of presenting Low personal achievement at work was observed among professionals over 39 years, nurses, dentists, nutritionists and doctors in relation to other professionals, with less time working in indigenous health, in clinical care during the pandemic and with lower level of tranquility when working during the pandemic.

Nurses, dentists and nutritionists are more likely of presenting BS, professionals who have been working longer in indigenous health, who were in clinical care and who reported lower level of tranquility when working during the pandemic.

All data available at: https://doi.org/10.48331/scielodata.EV93NM.

Discussion

A synthesis of results indicates the presence of BS in most professionals evaluated, with "Low Personal Achievement at Work" being the dimension that most contributed to the characterization of the syndrome and that sociodemographic and occupational factors impacted the MBI-HSS dimensions, justifying the need for action focused on combating the triggering factors of the syndrome, which involves the study of the working conditions to which these professionals are subjected, in addition to the effort to seek mechanisms that help in coping with work-related problems.

It is worth clarifying that the presence of BS may vary according to the definition or methodology adopted[21] and that MBI-HSS is not a questionnaire used for its diagnosis, but an instrument that indicates personal predisposition for the development of this syndrome[22], a context considered to identify the prevalence of BS in the present study.

The frequency of BS identified in indigenous health professionals (65%) is among the highest reported in health workers, whose variation identified in literature was from 5.9%[7] to 68.1%[23]. Attention is drawn to the fact that professionals who participated in the present study are linked to the management and assistance primary care services and the prevalence of BS identified in them is close to that observed in professionals who work in intensive care units, directly linked to the uninterrupted nursing care for patients in serious situations[23]. The moment of data collection in the present study coincided with the serious phase of the COVID-19 pandemic in the indigenous population[11], which may have contributed to this finding and to the fact that professionals who were performing clinical care during the pandemic period, in addition to those who reported lower level of tranquility when working during this period, were those who presented the worst results in the MBI-HSS dimensions and in its total score.

Studies that analyzed the predisposition of health professionals to the development of BS during the pandemic showed that the lack of resources, the high number of deaths and infected people, the fear of being infected and of infecting family and friends[10,24-34] were the factors that most contributed to the onset of this syndrome, which, together with work overload, stress and physical depletion, help to justify the prevalence of BS found. In this sense, there were reports in indigenous health that, due to the lack of resources available to professionals[3], indigenous people made masks and caps for health professionals working in indigenous villages due to the SESAI's delay in supplying PPE[26]. Another stressor to be considered was the weight attributed by communities to indigenous health professionals as they are considered one of the main vectors of COVID-19 transmission to indigenous peoples[27,35], which may have increased insecurity and interpersonal tensions in service routine, resulting in emotional exhaustion.

Burnout levels are directly related to workload and professionals with workloads between 40 and 50 hours are more likely of developing symptoms of the syndrome[33]. In indigenous health, the work schedule has particularities that differentiate it from the schedule of health workers in the non-indigenous population, which can range from 15 to 30 consecutive working days depending on the reference DSEI, the difficulty and type of access to the indigenous territory, travel time, accommodation structure, actions to be developed and supplies to be used. In addition, in the pandemic, the precariousness of working conditions in indigenous health, mainly related

Table 4. Adjusted analyses of associations with Burnout syndrome scores - Maslach Burnout Inventory-human Services Survey (MBI - HSS), adapted by Tamayo (1997), in indigenous health professionals, n = 513.

Variable	Category	Emotional exhaustion (> 2.9)*		Depersonalization (> 2.6)*		Low personal achievement at work (>2.8)*		Total score (> 2.8)*	
		OR adjust (95%CI)	p-value	OR adjust (95%CI)	p-value	OR adjust (95%CI)	p-value	OR adjust (95%CI)	p-value
Age (years)	*Up to 39	1.65 (1.02-2.66)	0.0400	-	-	Ref		-	-
	> 39	Ref				1.96 (1.18-3.33)	0.0092		
Marital status	Married	-	-	1.58 (1.02-2.43)	0.0383	-	-	-	-
	Divorced/ single			Ref					
	Others			1.11 (0.55-2.23)	0.7674			-	-
Area of expertise	Nursing	-	-	-	-	4.90 (2.16-11.13)	0.0001	2.47 (1.15-5.31)	0.0204
	Dentistry					4.25 (1.56-11.60)	0.0047	3.38 (1.25-9.12)	0.0162
	Nutrition					4.99 (1.78-14.02)	0.0023	3.03 (1.10-8.33)	0.0317
	Medicine					5.48 (1.91-15.74)	0.0016	2.32 (0.83-6.43)	0.1094
	Others					Ref		Ref	
Time working in indigenous health (years)	Less than 1	Ref		-	-	Ref		Ref	
	From 1 to 5	1.96 (0.95-4.04)	0.0672			1.17 (0.57-2.39)	0.6643	2.71 (1.29-5.69)	0.0086
	From 6 to 10	3.48 (1.58-7.68)	0.0020			1.17 (0.57-2.39)	0.6950	3.50 (1.59-7.74)	0.0019
	More than 10	3.41 (1.37-8.47)	0.0084			0.32 (0.13-0.82)	0.0169	1.19 (0.49-2.88)	0.6996
Function in the institution	Adminis-trative	Ref		-	-	-	-	-	-
	Care	2.53 (1.65-3.89)	< 0.0001					-	-
Is in clinical care during the pandemic	No	-	-	Ref		Ref		Ref	
	Yes			4.64 (2.71-7.96)	<0.0001	2.05 (1.22-3.44)	0.0069	3.12 (1.81-5.38)	< 0.0001
Level of tranquility when working during the pandemic (0: none; 10 full)	[1]Up to 4	5.02 (3.26-7.72)	< 0.0001	8.09 (5.15-12.71)	<0.0001	5.57 (3.62-8.58)	<0.0001	8.00 (5.12-12.52)	< 0.0001
	> 4	Ref		Ref		Ref		Ref	
AIC (empty model)		706.82		706.82		712.93		713.15	
AIC (final model)		615.60		568.08		597.54		563.83	

*Sample median; OR=Odds ratio; CI: Confidence interval; Ref: Reference category of independent variables; adjust = adjusted.

Source: Authors.

to the already mentioned scarcity of personal protective equipment in health services[3,26,34] and the increase in the number of professional leaves, led to the extension of many work schedules, which may have contributed to the findings of the present study. In this context, the significant finding that married professionals had greater likelihood of depersonalization must be considered. Although there are reports that marriage is associated with greater job satisfaction due to the possibility of talking to loved ones, leading to stress relief and increasing resilience[36,37], the unique context of the present study may have resulted in the need to affective dissimulation as a self-protection and family protection strategy, in addition to the fear of taking the disease to the family and dissatisfaction with the forced extension of work schedules.

There is a consensus among indigenous movements that the federal government has not taken adequate measures in relation to the advancement of the pandemic in indigenous territories, since support measures such as mass testing and the transfer of equipment and professionals were not implemented in time, being, therefore, attributed to health professionals in indigenous territories the leading role and responsibility for the main actions to control the pandemic [29]. For this reason, the indigenous health team assumed the leading role in the fight against the pandemic from the beginning, being responsible both for the care of mild COVID-19 cases and for the management of severe cases and identification of the need for highly complex treatments with evolution to severe acute respiratory syndrome[28].

In the present research, it was found that doctors, nurses, dentists and nutritionists are more likely of having low personal achievement at work than the group classified as other professionals. It is noteworthy that by the logic of health care demanded by such health areas, the demand for work has increased even more in the phase in which the study was carried out, with the need to prevent and treat COVID-19 through the proposition of intercultural care practices that put the advances of western medicine in dialogue with the traditional conceptions of disease and healing of each people, considering social isolation in terms culturally appropriate to each cultural reality. In addition, as already discussed, despite the role played by health professionals directly involved in clinical care during the pandemic, data collection was concomitant with a very critical phase of the pandemic [11], which may have resulted, on the part of these professionals, in negative evaluation of their work and skills, with decrease in self-esteem and the perception that the goals of their work were not being achieved.

It is noteworthy that the deterioration of the working conditions in indigenous health was aggravated by the reduction of investments in the "Mais Médicos" Program, which resulted, in 2019, in the dismissal of thousands of these professionals, mainly impacting health teams working in indigenous communities in more remote areas [30]. This fact, added to the evidence that there was greater effectiveness in controlling the spread of the virus in indigenous communities that were close to a more structured health service, despite being more populated[31], can help to understand why nurses, dentists and nutritionists; professionals in clinical care during the pandemic and those who reported lower tranquility to work at that moment were more likely of presenting BS according to the final model. Unstructured services, incomplete teams and unbalanced work schedules pushed professionals who remained on the front line to the limit.

The time working in indigenous health was the time variable used in this study and it was found that the longer working time in indigenous health increased the likelihood of emotional exhaustion and BS. Regarding this finding, it was observed that despite the pandemic context in which the study was carried out, work in indigenous health itself demands specific tasks and skills from professionals, with emphasis on interculturality, which enable knowledge of the way of life of indigenous communities and respect for their practices and customs. One of the guidelines of the National Health Care Policy for Indigenous Peoples (PNASPI)[1] refers to the "preparation of human resources to work in an intercultural context", which includes adapting the actions of professionals and services to the cultural specificities of indigenous peoples so that health services are permeable to traditional indigenous practices and knowledge. Health education, traditionally based on the prevailing biomedical model, is even more limited in indigenous health, in which more specific and cultural knowledge about peoples with whom one works is required[32]. It is important to consider that these results are in line with the fact that working longer in the Family Health Strategy with non-indigenous populations allowed professionals to develop methods and skills to deal with the adverse circumstances of work, allowing greater resilience to stressful situations[38]. This difference may be related to the temporal and geographic

context in which studies were carried out and to the intrinsic differences in the work processes involving indigenous and non-indigenous populations.

On the other hand, shorter time working in indigenous health was associated with lower professional achievement and in this sense, it is worth considering that expectations may have been frustrated by professionals with shorter time working with indigenous health, either due to lack of experience and adaptation to the reality of working in indigenous territory, or to the fact that professionals with longer careers are those who generally have lower weekly workload, work more on administrative and managerial tasks and dedicate themselves less to direct patient care[38].

It is known that low professional achievement occurs due to personal demands from the worker associated with greater frequency of feelings of displeasure, frustration and incompetence in their professional activities[39], and in indigenous health, the reality experienced by the multidisciplinary team goes beyond the need for organization and execution of primary care actions, since the reality of PHC in most indigenous villages in the Brazilian territory is impacted by the difficulty of access to the territory, lack of structure for the development of activities, lack of fuel for transporting health teams and insufficient supplies. In addition, the lack of human resources and the high turnover of professionals who make up the multidisciplinary team overload professionals linked to indigenous health, increasing both the time and the frequency of feelings related to stress at work.

Over the years, dissatisfaction and low expectations of changes in the possibilities of improving the quality of the service provided can contribute to low professional satisfaction. The hiring of indigenous health professionals takes place through a selection process for a fixed-term employment relationship through agreements with private non-profit entities in the health area[40]. The absence of public selection processes is a deficiency in indigenous health, since in the current hiring model, it is difficult to restrain political interference, and the fragility of the employment relationship can contribute to professional insecurity, as well as to the high turnover of SasiSUS workers. It is also important to emphasize that the particularity of work in indigenous health is in itself exhausting in view of the fact that most health professionals have to work in places that, in most cases, are isolated and far from their place of residence. Furthermore, other factors that make working in indigenous health unique are the wide range of contexts and cultural nuances in which health professionals are exposed to[41].

It is necessary to take into account that the quantitative and qualitative overload only represents a problem and a risk factor for the development of BS in cases in which the individual has little time to recover from a traumatic/stressing event[42]. In this sense, it could be concluded that this is the context faced by the vast majority of health professionals who worked during the pandemic, regardless of workplace. Such unfavorable conditions, combined with the necessary personal conduct in the pandemic restricted everyone the possibility of carrying out activities outside work, whether social, cultural, leisure or sports, and it is clear that the exercise of the work activity in the health area requires good physical and mental health.

Regarding study limitations, it is necessary to point out that, like any study with non-probabilistic sampling, the generalization of results obtained must be considered with caution. The study used self-report measures, which makes results susceptible to social desirability; however, currently there are no other methods available to assess these variables. Furthermore, the present investigation had cross-sectional design, which restricts the possibility of inferring causality from associations found between variables under study. Despite these limitations, the present study provides important information about the health conditions of indigenous health professionals that have not yet been addressed in other studies, with the exception that the data collection phase may have influenced the results found, highlighting the need to a perennial look at the working conditions of these professionals.

The burden of a professional who works in precarious areas, although cannot necessarily be characterized as greater, is different and more delicate than the burden of professionals who work in urbanized health areas with more adequate infrastructure. Thus, regarding the possible study directions, it is suggested to carry out studies that deepen the look at situations to which health professionals working in indigenous areas are submitted, especially when the COVID-19 situation is completely overcome.

Conclusion

The prevalence of BS identified among health professionals working in indigenous communities was highly significant. The age and marital status of professionals, their area of expertise, the time working in indigenous health, with care function and reporting lower level of tranquility when working during the pandemic were factors associated with its occurrence.

Collaborations

JAC Ferraz and FM Flório devised the study; JAC Ferraz conducted the study and writing of the manuscript; FM Flório, AMG Oliveira and LZ Souza contributed with the final and critical review of the manuscript.

References

1. Ministério da Saúde (MS). Fundação Nacional de Saúde (FUNASA). *Política Nacional de Atenção à Saúde dos Povos Indígenas*. Brasília: MS; 2002.
2. Mendes AM, Alfonso JR, Langdon EJ, Grisotti M, Martínez-Hernáez A. Representations and care practices of professionals regarding indigenous use of alcohol. *Cien Saude Colet* 2020; 25(5):1809-1818.
3. Mendes AM, Leite MS, Langdon EJ, Grisotti M. O desafio da atenção primária na saúde indígena no Brasil. *Rev Panam Salud Publica* 2018; 42:e184.
4. Ramos DP, Pimentel SK. Movimentos indígenas, pandemia e controle social: Estratégias de mobilização e enfrentamento da COVID-19 pelos povos indígenas no Brasil. *Dilemas* 2021; n. esp: 106. [acessado 2021 ago 3]. Disponível em: https://www.reflexpandemia2021.org/texto-106
5. Scopel D, Dias-Scopel R; Neves RDCM, Segata J. Os povos indígenas e a covid-19. *Espaço Ameríndio* 2021; 15(2):1-15.
6. Lima AS, Farah BF, Bustamante-Teixeira MT. Análise da prevalência da síndrome de burnout em profissionais da atenção primária em saúde. *Trab Educ Saude* 2018 16(1):283-304.
7. Ferreira NN, Lucca SR. Burnout syndrome in nursing assistants of a public hospital in the state of São Paulo. *Rev Bras Epidemiol* 2015; 18(1):68-79.
8. Theorell T, Karasek RA. Current issues relating to psychosocial job strain and cardiovascular disease research. *J Occup Health Psychol* 1998; 1(1):9-26.
9. Franc-Guimond J, Hogues V. Burnout among caregivers in the era of the COVID-19 pandemic: Insights and challenges. *Can Urol Assoc J*. 2021; 15(6 Suppl. 1):s16-s19.
10. Orrù G, Marzetti F, Conversano C, Vagheggini G, Miccoli M, Ciacchini R, Panait E, Gemignani A. Secondary traumatic stress and burnout in healthcare workers during COVID-19 outbreak. *Int J Environ Res Public Health* 2021; 18(1):337.
11. Alves JD, Abade AS, Peres WP, Borges JE, Santos SM, Scholze AR. Impact of COVID-19 on the indigenous population of Brazil: a geo-epidemiological study. *Epidemiol Infect* 2021; 149:e185.
12. Marconi MA, Lakatos EM. *Técnicas de pesquisa*. São Paulo: Atlas; 2002.
13. Maslach C, Jackson SE. The measurement of experience burnout. *J Organ Behav* 1981; 2:99-113.
14. Maslach C, Jackson S. *Maslach Burnout Inventory manual*. Palo Alto: Consulting Psychologist Press; 1986.
15. Tamayo RM. Relação entre a síndrome de Burnout e os valores organizacionais no pessoal de enfermagem de dois hospitais públicos [Dissertação]. Brasília: Universidade de Brasília; 1997.
16. Shirom A. Burnout in work organizations. In: Cooper CL, Robertson I, editors. *International Review of Industrial and Organizational Psychology*. New York: Wiley & Sons; 1989. p. 25-48.
17. Gil-Monte PR. El síndrome de que-marse por el trabajo (síndrome de burnout) en profesionales de enfermería. *InterAção Psy* 2003; 1(1):19-33.
18. Batista JB, Carlotto MS, Coutinho AS, Augusto LG. Prevalência da síndrome de *burnout* e fatores sociodemográficos e laborais em professores de escolas municipais da cidade de João Pessoa, PB. *Rev Bras Epidemiol* 2010; 13(3):502-512.
19. Tamayo MR. Burnout: implicações das fontes organizacionais de desajuste indivíduo-trabalho em profissionais da enfermagem. *Psicol Reflex Crit* 2009; 22(3):474-482.
20. R Core Team. *R: A language and environment for statistical computing*. Vienna: R Foundation for Statistical Computing; 2020
21. Porciuncula AM, Venâncio SA, Silva CMFPD. Burnout syndrome in Family Health Strategy managers. *Cien Saude Colet* 2020; 25(4):1555-1566.
22. Schaufeli WB, Leiter MP, Maslach C. Burnout: 35 years of research and practice. *Career Dev Int* 2009; 14(3):204-220.
23. Moura RS, Carvalho Saraiva FJ, Santos RM, Silva KRLR, Silva NAR, Albuquerque WDM. Estrés, burnout y depresión en los profesionales de enfermería de las unidades de cuidados intensivos. *Enfermeria Glob* 2019;18(2):79-123.
24. Zhang WR, Wang K, Yin L, Zhao WF, Xue Q, Peng M, Min BQ, Tian Q, Leng HX, Du JL, Chang H, Yang Y, Li W, Shangguan FF, Yan TY, Dong HQ, Han Y, Wang YP, Cosci F, Wang HX. Mental health and psychosocial problems of medical health workers during the COVID-19 epidemic in China. *Psychother Psychosom* 2020; 89(4):242-250.
25. Schmidt B, Crepaldi MA, Bolze DAS, Silva LN, Demenech LM. Impactos na saúde mental e intervenções psicológicas diante da pandemia do novo coronavírus (COVID-19). *Estud Psicol* 2020; 37:e200063)
26. Guajajara MJSB, Santos SC. Tecidos, linhas e agulhas: mulheres indígenas e a" costura" de interlocuções no contexto da pandemia. *Vukápanavo: Revista Terena* 2020; 3:103.
27. Souza FCC, Souza MGA. O direito de participação ativa e a elaboração de políticas públicas de contenção da Covid-19 nas populações indígenas. *Vukápanavo: Revista Terena* 2020; 4:183.
28. Andrade RAO, Machado A. Políticas públicas e etno -estratégias para saúde indígena em tempos de Covid-19. *Vukápanavo: Revista Terena* 2020; 4:261.
29. Herbetta A, Pocuhto T, Pimentel Silva MDS, Guajajara C. Urgent considerations on the relationship between the advance of COVID-19 in Indigenous territories in Brazil and the Impacts of monoepistemic public policies. *Front Sociol* 2021; 6:623656.
30. Santos VS, Araújo AAS, Oliveira JR, Quintans-Júnior LJ, Martins-Filho PR. COVID-19 mortality among Indigenous people in Brazil: a nationwide register-based study. *J Public Health (Oxf)* 2021; 43(2):e250-e251.
31. Silva MG, Pereira PMB, Portela WF, Daros GC, Barbosa CRA, Vanassi BM, Parma GOC, Bitencourt RM, Iser BPM. Epidemiology of COVID-19 Among Indigenous Populations in Brazil. *J Racial Ethn Health Disparities* 2022; 9(3):960-966.

32. Diehl EE, Pellegrini MA. Saúde e povos indígenas no Brasil: o desafio da formação e educação permanente de trabalhadores para atuação em contextos interculturais. *Cad Saude Publica* 2014; 30(4):867-874.
33. Wisetborisut A, Angkurawaranon C, Jiraporncharoen W, Uaphanthasath R, Wiwatanadate P. Shift work and burnout among health care workers. *Occup Med (Lond)* 2014; 64(4):279-86.
34. Freitas RF, Barros IMD, Miranda MAF, Freitas TF, Rocha JSB, Lessa ADC. Preditores da síndrome de burnout em técnicos de enfermagem de unidade de terapia intensiva durante a pandemia da COVID-19. *J Bras Psiquiatr* 2021; 70(1):12-20.
35. Palamim CVC, Ortega MM, Marson FAL. COVID-19 in the Indigenous Population of Brazil. *J Racial Ethn Health Disparities* 2020; 7(6):1053-1058.
36. Son DM, Ham OK. Influence of group resilience on job satisfaction among Korean nurses: A cross-sectional study. *J Clin Nurs* 2020; 29:3473-3481.
37. Puhanić P, Erić S, Talapko J, Škrlec I. Job satisfaction and burnout in Croatian physiotherapists. *Healthcare (Basel)* 2022; 10(5):905.
38. Tomaz HC, Tajra FS, Lima ACG, Santos MM. Síndrome de burnout e fatores associados em profissionais da Estratégia Saúde da Família. *Interface (Botucatu)*. 2020; 24(Supl. 1):e190634
39. Barcellos RDA, Lucena MAGD, Vieira JLDC. A Síndrome de Burnout e suas repercussões no cotidiano de trabalho do enfermeiro. *Res Soc Dev* 2021; 10(4):e38510414352.
40. Brasil. Ministério da Saúde (MS). Secretaria Especial de Saúde Indígena – SESAI – editais disponíveis. 2021. [acessado 2021 nov 13]. Disponível em: http://www.saudeindigena.net.br/coronavirus/listEditais.php
41. Albuquerque FJB, Melo CF, Araújo Neto JL. Avaliação da síndrome de burnout em profissionais da Estratégia Saúde da Família da capital paraibana. *Psicol Reflex Crit* 2012; 25(3):542-549.
42. Maslach C, Leiter MP. Early predictors of job burnout and engagement. *J Appl Psychol* 2008; 93(3):498-512.

Article submitted 13/12/2021
Approved 05/08/2022
Final version submitted 07/08/2022

Chief editors: Romeu Gomes, Antônio Augusto Moura da Silva