




Mental health of public health workers in Bento Gonçalves, Rio Grande do Sul, Brazil

Saúde mental dos trabalhadores da saúde
pública em Bento Gonçalves, no Rio Grande do Sul

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ABSTRACT | **Background:** Work-related mental disorders are an acknowledged global health problem. **Objective:** The aim of the present study was to investigate the prevalence of and factors associated with common mental disorders and suicidal ideation among public health workers. **Methods:** We conducted a cross-sectional study with municipal healthcare workers. We collected sociodemographic and occupational data including employment relationship, job area, professional category, length of work in current job and interpersonal conflict in the workplace (ICW). The analyzed mental health indicators were common mental disorders (CMD) and suicidal ideation by means of the *Self Reporting Questionnaire* (SRQ-20). Statistical analysis included the χ^2 test and Poisson regression. **Results:** The prevalence of CMD and suicidal ideation was 20.3% and 11.6%, respectively, among the 597 participants. Permanent and younger employees exhibited higher CMD rates, while suicidal ideation predominated among the participants with higher educational level and the widowed/separated/divorced. Physicians, administrative employees, cleaning personnel and community health agents exhibited the highest rates of CMD. In turn, there was no association between professional category and suicidal ideation on multivariate analysis. ICW was associated with poorer mental health indicators, the association being stronger when conflict involved supervisors and coworkers. **Conclusion:** Both analyzed indicators (CMD and suicidal ideation) point to a worrisome situation as concerns the mental health of professionals charged of collective health care. The possible limitations of the questionnaire applied notwithstanding, ICW was the main factor associated with poorer mental health indicators. These findings point to the need to develop specific approaches to improve the psychosocial work environment.

Keywords | mental health; occupational health; mental disorders; suicidal ideation; conflict (psychology).

RESUMO | **Contexto:** Os transtornos mentais relacionados ao trabalho são reconhecidos como um problema global de saúde. **Objetivo:** Este estudo buscou avaliar a prevalência e os fatores associados aos transtornos mentais mais frequentes, além da ideação suicida recorrente entre os trabalhadores públicos da área da saúde. **Métodos:** Foi realizado um estudo transversal entre trabalhadores municipais que atuam na área da saúde. Coletaram-se dados sociodemográficos e fatores ocupacionais como tipo de vínculo, setor de atuação, função desempenhada, antiguidade no cargo e existência de conflitos interpessoais no trabalho (CIT). Os indicadores de saúde mental utilizados foram transtornos mentais comuns (TMC) e ideação suicida, usando *Self Reporting Questionnaire* (SRQ-20). A análise estatística recorreu aos métodos χ^2 e regressão de Poisson. **Resultados:** Entre os 597 entrevistados, verificou-se prevalência de TMC de 20,3% e de ideação suicida de 11,6%. Trabalhadores concursados e mais jovens apresentaram aumento nas taxas de TMC, enquanto a ideação suicida predominou entre pessoas com escolaridade alta e viúvos ou separados/divorciados. Os trabalhadores que exercem as funções de médicos, administrativos, higienizadoras e agentes comunitários apresentaram as prevalências mais elevadas de TMC. No entanto não houve associação entre função e ideação suicida após análise multivariada. A ocorrência de CIT associou-se com o aumento dos indicadores de saúde mental, de forma mais intensa quando relacionada a chefias e colegas. **Conclusão:** Os dois indicadores estudados (TMC e ideação suicida) alertam para uma situação preocupante quanto à saúde mental dos profissionais responsáveis por cuidar da saúde coletiva. Apesar de possíveis limitações do questionário utilizado para definir os critérios, o CIT foi o principal fator associado com a piora dos indicadores de saúde mental, sinalizando a necessidade de abordagens específicas para melhorar o ambiente psicossocial de trabalho.

Palavras-chave | saúde mental; saúde do trabalhador; transtornos mentais; ideação suicida; conflito (psicologia).

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INTRODUCTION

According to the International Labor Organization (2016), “There has been growing attention on the effects of psychosocial hazards and risks and work-related stress among researchers and policymakers” in recent years¹. Work-related psychosocial risks are determined by the work organization, relationships and content. They occur when demands do not meet or exceed the skills, resources or needs of workers¹.

Upon evaluating the magnitude of mental health problems among the population, a review of Brazilian studies that applied the *Self Reporting Questionnaire* (SRQ-20) found that the prevalence of mental disorders varied from 20 to 56% differing as a function of the analyzed population².

Work in healthcare services has been associated with heavy mental overload, resulting in a large number of sick leaves due to mental disorders³. Common mental disorders (CMD) are frequently found among healthcare workers, particularly among the ones subjected to high psychological demands and with low control over their tasks^{4,5}, both in the hospital⁴ and the primary care setting⁵. The prevalence of CMD (also known as minor psychiatric disorders) among primary care workers varied from 16% in a study conducted in the Northeastern and Southern regions of Brazil⁶ to 42.6% in Botucatu county, São Paulo⁵. Work overload, excessive working hours, precarious working conditions, shift work — especially night work, lack of career opportunities and interpersonal conflict are some among the main causes of psychosocial problems at work.

Psychiatric disorders such as depression and bipolar disorder might lead to suicidal thoughts⁷. The World Health Organization (WHO) suicide prevention manual describes some healthcare professions, such as physicians, dentists and pharmacists, as associated with the highest suicide rates⁷. A review study confirmed and enlarged this list of professions at high risk of suicide by including nurses. In addition, it identified occupational risk factors for suicidal ideation among physicians, such as moral harassment, overload and burnout syndrome⁸.

Although more difficult to notice, interpersonal conflict in the workplace (ICW), including verbal aggression (even a single episode), hostility, gossip⁹ and “milder” varieties of aggressive behavior, was found to be frequent among healthcare workers¹⁰. In addition, these behaviors were considered

to be predictors of psychological problems, such as depression, low self-esteem, and physical symptoms¹¹. Some authors consider humiliation, verbal aggression and other types of ICW as psychological violence at work¹². They also related ICW to mental illnesses among workers¹. ICW is further associated with poorer quality of care delivery, higher rates of burnout syndrome and increased direct and indirect healthcare costs¹⁰.

Healthcare professionals who provide direct patient care, such as physicians, nurses and technicians, work in complex and stressful environments favorable to the development of conflict^{12,13}. While not always causing damage, dysfunctional conflict might have negative impact on the quality of care delivery, employee satisfaction with work and well-being¹³.

As a function of the high frequency of mental disorders in different healthcare settings, the aim of the present study was to investigate the prevalence of and workplace factors associated with CMD and suicidal ideation among workers within a public municipal healthcare network.

METHODS

We performed a cross-sectional study with employees of the Municipal Secretariat of Health (MSH) of Bento Gonçalves, a town in Rio Grande do Sul, Brazil, with 110,000 inhabitants at the time of the study. We included employees with any type of employment relationship (civil servants, under the Consolidation of Labor Laws (CLL) regimen, outsourced, trainees and in trust positions of trust) allocated to several areas: Primary Care Units/Family Health Strategy, emergency care (emergency departments/Mobile Urgent Care Service), health surveillance (sanitary, epidemiological and environmental), reference services (medical specialties, mother-child, Psychosocial Care Centers, Testing and Counseling Center, nutrition and physical therapy, among others), support services (transport, maintenance, storage, reception and others), diagnosis and treatment services (pharmacies, laboratories and radiology) and management coordination units.

The MSH top management (secretary and adjunct secretary), members of the study coordination staff (Workers' Health Surveillance and the municipal occupational physician) and employees away from work at the time of field work (November and December 2013) by several

reasons — vacation, sick leaves, etc. — were excluded. Employees of the reference Unified Health System (Sistema Único de Saúde–SUS) hospital were not included, because this is a private institution.

Based on the aforementioned criteria, we located 670 eligible workers and interviewed 597 of them, i.e., the rate of losses and refusals was 11%. The rate of losses was higher among drivers and support/maintenance workers, while refusals predominated among the physicians. As a function of the high rate of losses and missing responses on mental health questions, adjusted analysis per professional category did not include drivers or employees at the support area.

The data were collected based on an individual self-report questionnaire, which once responded was placed into a sealed container; questionnaires were responded anonymously. We analyzed sociodemographic (sex, age range, educational level and marital status), lifestyle (smoking, problem drinking as per the CAGE questionnaire — which is widely used in studies on alcoholism, and hours/week of physical activity and health status (presence or not of chronic diseases and use of controlled medication) variables. Prevalence of chronic diseases was calculated based on the affirmative answer to question “Do you have some chronic disease?” When the answer was affirmative, subjects were requested to indicate the type of chronic disease they had. As chronic diseases were considered conditions requiring periodical medical follow-up (as e.g. asthma, diabetes, hypertension, thyroid, rheumatic, neurological and psychiatric diseases). Similarly, information on use of controlled medication was collected through question “Do you take some controlled medication (requiring a controlled drug prescription)?” As controlled medicines were considered any medication continuously used and requiring a medical prescription. In regard to the CAGE questionnaire, two or more affirmative answers were considered indicative of problem drinking¹⁴.

Occupational variables considered were: type of employment relationship (civil servant, outsourcing, under CLL regimen, other), weekly working hours, length of work at MSH (in years), frequency of night and weekend work, work area (primary care, emergency/MUCS, Reference Services, Diagnosis and Treatment, health surveillance, management coordination and support services) and professional category (physicians, nurses, other high-level professionals, nursing technicians and assistants, oral health, laboratory,

radiology and pharmacy technicians and assistants, administrative assistants, cleaning personnel, community health agents — CHA and other).

To investigate the impact of ICW on the prevalence of insomnia, a study performed in Japan applied the *Brief Job Stress Questionnaire*, which comprises four categories, two questions on interpersonal conflict and one question on perceived more friendly relationships¹⁵. Another study with young workers tested a conceptual model focusing on the identification of the source of conflict based on the assumption that relationships with supervisors are qualitative different from relationships with coworkers¹¹.

In the present study, we adopted a more synthetic approach by combining the notions described in the aforementioned studies. Occurrence of ICW was analyzed based on a dichotomous scale and the category of individuals identified as source of conflict, which was categorized in three groups: service users, supervisors and coworkers. In addition, we sought to gather more specific information on conflict with negative psychological impact as reported by the participants. For this purpose, occurrence of ICW was defined as an affirmative answer to question “Have you ever had any conflict or serious problems causing psychological problems with any of these categories of people: supervisors, coworkers or service users?” Although the instrument was not validated on epidemiological studies, the obtained information represented the occurrence of ICW as perceived by the workers. This approach is attuned to the notion of psychological violence at work formulated by Heloani and Barreto¹⁶, which manifests as “verbal aggression, coercion, insult, malicious gossip, disqualification, discrimination, racist practices, threats or humiliation on a case-by-case basis.” ICW questions were developed in multidisciplinary meetings based on situations observed at the workplace. Since the instrument has not yet been validated, here we described the data as they were collected conflicts or strong disagreement among people in the workplace.

For investigation of mental health problems we applied SRQ-20¹⁷, to wit, a 20-question instrument frequently used in epidemiological studies to evaluate minor psychiatric disorders, also known as CMD, such as anxiety, depression, panic and psychosomatic complaints. Six positive answers among men or eight among women were considered as indicative of CMD¹⁷; this was the criterion considered on multivariate analysis. On descriptive assessment of SRQ-20,

we had resource to analysis per groups, and its performance was assessed by means of factor analysis¹⁸.

Variable suicidal ideation was extracted from SRQ-20, being identified through the affirmative answer to question “Has the thought of ending your life been on your mind?”.

Statistical analysis was performed with software IBM Statistical Package for the Social Sciences (SPSS) version 22 and included calculation of mean and standard deviation (SD) for continuous variables and of proportions for categorical variables. Bivariate analysis was performed by means of Pearson's χ^2 test or linear trend estimation. Multivariate analysis was performed based on a hierarchical model through Poisson regression with robust variance; variables exhibiting association with alpha error less than 20% were kept in the model. Associations with $p=0.05$ were considered to be significant.

The hierarchical model included the following variables:

- Level 1: sociodemographic variables (sex, age, educational level and marital status) and type of employment relationship;
- Level 2: other occupational indicators (area, professional category, length of work in current job, working hours, night work and weekend work) and lifestyle and health habits (smoking, alcoholism and physical activity);
- Level 3: variables representative of ICW.

Since a part of the chronic diseases reported were psychiatric (and often concomitant with others) due to this overlapping of effects, chronic diseases and use of controlled medications, they were not included in multivariate analysis. Outcomes were mental health indicators (CMD and suicidal ideation).

The study was approved by the ethics committee of Cenecista School of Bento Gonçalves (Faculdade Cenecista de Bento Gonçalves–FACEBG) via Plataforma Brasil, ruling no. 473,768/2013, in compliance with the National Health Council (Conselho Nacional de Saúde–CNS) Resolution no. 466/2012. The confidentiality of sources was ensured. All the participants signed an informed consent form.

RESULTS

Among the 597 participants, 81.3% were women and 18.7% were men (Table 1). The average age of the sample

was 37.3 years old (SD=10.7) varying from 18 to 69 years old. The participants had attended 13.1 years of formal schooling, on average (SD=2.8) varying from 3 to 18 years.

Smoking was reported by 14.7% of the participants (7.3% smoked every day and 7.3% on occasions) the rate being lower among the ones with higher education ($p<0.001$). Only three participants (0.5%) were classified as with a drinking problem according to the CAGE questionnaire; as their number was too small, this variable was not included for analysis. About 27.8% of the sample reported performing physical activity at least 3 hours per week; this variable was associated with higher educational level ($p<0.001$).

At the time when the study was conducted, the MSH workforce basically exhibited two types of employment relationship, civil servants (49.6%) and outsourced — hired by a foundation (47.4%); the remainder of the sample had other or unknown employment relationship (Table 2). The participants worked 36 hours per week, on average (SD=8.7); 71% worked 40 hours per week (Table 2) and 6.6% more than 60. The participants with longer working hours were mainly allocated to the emergency area. The average length of work at MSH was 5.5 years, being longer for the permanent employees (civil servants).

Occurrence of chronic diseases was reported by 116 participants (20.1%); the most frequent ones were hypertension, hypothyroidism, asthma, diabetes and psychiatric disorders (often concomitant with the others). Among the participants who used controlled medicines, 74% used at least one psychiatric medication. The proportion of workers with self-reported chronic diseases and/or using controlled medicines was higher among the cleaning personnel and CHA.

The rate of reported ICW with psychological effects varied according to the people involved in the conflict: 16.1% reported ICW with supervisors, 20.2% with coworkers and 18.8% with service users (patients and/or relatives) (Table 2).

In regard to mental health indicators, the prevalence of CMD was 20.3% and suicidal ideation was reported by 11.6% of the participants. Bivariate analysis pointed out a trend for higher prevalence of CMD among women (Table 1) and the younger participants ($p=0.07-0.08$). The prevalence of suicidal ideation was higher among the group of separated, divorced and widowed participants, as well as the ones with low educational level and ex-smokers. Both CMD and suicidal ideation were associated with self-reported chronic diseases and/or use of controlled medications, but not with performance of physical activity.

Table 1. Sociodemographic factors, health aspects and mental health indicators: common mental disorders and suicidal ideation, Bento Gonçalves, 2017 (n=567)**.

Variable	Sample n (%)	CMD n (%)	Suicidal ideation n (%)
Total	597 (100%)	102 (20.3%)	68 (11.6%)
Sex		p=0.08	p=0.09 ^(b)
Male	107 (18.7)	13 (13.3)	7 (6.7)
Female	466 (81.3)	85 (21.2)	58 (12.6)
Age range (years old)		p=0.07	p=0.82
Up to 25	76 (13.2)	22 (32.8)	10 (13.3)
26 to 35	218 (37.8)	34 (18.2)	23 (10.8)
36 to 45	144 (25.0)	22 (18.8)	16 (11.3)
46 and above	139 (24.1)	22 (19.0)	19 (13.9)
Marital status		p=0.72	p=0.06
Married/with partner	361 (61.4)	58 (19.3)	40 (11.3)
Single	175 (29.8)	31 (20.4)	16 (9.2)
Separated/divorced/widowed	52 (8.8)	11 (24.4)	11 (21.2)
Formal schooling (years)		p=0.70	p=0.002*
Up to 11	231 (39.8)	38 (20.5)	39 (17.5)
12 to 15	201 (34.7)	33 (19.1)	17 (8.5)
16 or more	148 (25.5)	31 (23.0)	11 (7.5)
Smoking		p=0.43	p=0.03
Never	443 (75.6)	74 (19.2)	43 (9.8)
Ex-smoker	57 (9.7)	13 (26.5)	11 (19.3)
Smoker	86 (14.7)	15 (22.7)	14 (16.7)
Physical activity		p=0.72	p=0.21*
None	334 (59.1)	61 (21.6)	43 (13.3)
Up to 2 hours/week	74 (13.1)	12 (19.0)	9 (12.5)
3 or more hours/week	157 (27.8)	26 (18.4)	14 (8.9)
Chronic diseases		p<0.001	p=0.01
Yes	461 (79.9)	63 (16.2)	43 (9.5)
No	116 (20.1)	33 (33.3)	20 (17.5)
Controlled medication		p<0.001	p<0.001
Non-user	485 (81.6)	64 (15.3)	40 (8.4)
User	109 (18.4)	38 (45.8)	28 (25.7)

CMD: common mental disorders; p value on the χ^2 test; *linear trend estimation; **missing data were excluded.

Table 2. Occupational factors and mental health indicators, Bento Gonçalves, 2017 (n=567)**.

Variable	Total n (%)	CMD n (%)	Suicidal ideation n (%)
Total	597 (100%)	102 (20.3%)	
Employment relationship		p=0.07	p=1.00
Outsourcing and others	299 (50.4)	42 (16.7)	34 (11.7)
Permanent/civil servants	294 (49.6)	58 (23.3)	34 (11.7)
Emergency/MUCS		p=0.04	P=0.13
No	493 (83.3)	92 (22.1)	32 (9.9)
Yes	99 (16.7)	10 (12.2)	36 (14.0)
Primary care		p=0.02	P=0.13
No	331 (55.9)	47 (16.7)	61 (12.6)
Yes	261 (44.1)	55 (25.3)	7 (7.2)
Length of work at MSH-BG		p=0.004	p=0.58
Up to 11 months	146 (24.6)	15 (12.4)	12 (8.4)
1 year to <4 years	170 (28.7)	44 (29.3)	22 (13.1)
4 to <9 years	123 (20.7)	19 (19.8)	15 (12.7)
9 years or more	154 (24.0)	22 (16.7)	17 (11.1)
Professional category (groups)		p=0.001	p<0.001
Drivers/support area	20 (3.4)	-	-
Nursing technicians/assistants	109 (18.4)	10 (11.5)	14 (13.3)
Other technicians (radiology/laboratory/dental care)	30 (5.1)	4 (16.0)	4 (13.8)
Physicians	75 (12.7)	11 (15.9)	5 (6.7)
Nurses	66 (11.1)	12 (20.3)	4 (6.1)
Other high level professionals	67 (11.3)	11 (19.3)	1 (1.5)
Administrative employees	127 (21.3)	21 (19.3)	12 (9.7)
Inspectors/surveillance	12 (2.0)	4 (36.4)	4 (33.3)
Cleaning personnel	32 (5.4)	8 (34.8)	9 (28.1)
CHA	54 (9.1)	20 (45.5)	14 (25.9)
Working hours (total)		p=0.22	p=0.01
Up to 39 hours	43 (9.4)	7 (17.1)	1 (2.4)
40 hours	323 (70.8)	63 (22.8)	45 (14.2)
41 hours or more	90 (19.7)	11 (14.3)	5 (5.6)

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Table 2. Continuation.

Variable	Total n (%)	CMD n (%)	Suicidal ideation n (%)
Night work		p=0.20	p=0.48
No	435 (72.9)	81 (21.7)	52 (12.2)
Yes	162 (27.1)	21 (16.4)	16 (10.1)
Weekend work		p=0.26	p=0.51
No	374 (65.3)	71 (22.0)	47 (12.7)
Yes	199 (34.7)	29 (17.7)	21 (10.8)
Conflict with supervisors		p<0.001	p=0.005
No	434 (83.9)	59 (15.7)	42 (9.7)
Yes	83 (16.1)	30 (41.7)	17 (20.5)
Conflict with coworkers		p<0.001	p=0.001
No	419 (79.8)	48 (13.4)	38 (9.1)
Yes	106 (20.2)	44 (46.3)	21 (20.2)
Conflict with service users		p<0.001	p=0.02
No	428 (81.2)	61 (16.6)	42 (9.9)
Yes	99 (18.8)	31 (35.2)	18 (18.2)

% of professional categories includes drivers/support area; CMD: common mental disorders; MUCS: Mobile Urgent Care Service; MSH-BG: Municipal Secretariat of Health, Bento Gonçalves; CHA: community health agents; p value on the χ^2 test; *linear trend estimation; **missing data were excluded.

In crude analysis of occupational variables, the prevalence of CMD was higher among civil servants, workers allocated to primary care, who did not work in emergency departments and the ones with 1 to 4 years in the current job (Table 2). The occupational categories with poorer mental health indicators were the ones involved in surveillance, CHA and cleaning personnel (the latter two exhibited higher rates of both CMD and suicidal ideation). CMD was not associated with working hours (after various analyses), night or weekend work (Table 2). A higher rate of suicidal ideation was found for the participants who worked 40 hours per week. Both mental health indicators were associated with occurrence of ICW considering all the categories of people involved in the conflict.

Analysis of ICW did not detect any difference as a function of sex or age, but were more frequent among the participants with higher educational level. Conflict involving

supervisors or coworkers was more frequent among civil servants; but differences in ICW involving service users were not statistically significant. On analysis of ICW per professional category, nurses and surveillance staff exhibited the highest rates of conflict mainly involving supervisors and coworkers. Conflict with service users was higher among nurses, physicians, administrative employees and CHA.

Table 3 describes the prevalence of CMD symptoms identified by means of SRQ-20 on group-based analysis. The most frequent symptom was nervousness/tension/worry, which affected almost half the participants. Also headache, sleep disorders, trouble to think clearly, sadness and tiredness were frequent reported). In regard to the group of depressive thoughts, the main symptom was "having lost interest in things" (14.7%). As a function of its frequency (11.6%) and the fact it is a symptom that points to greater severity of mental disorders, suicidal ideation was considered as a specific outcome.

MULTIVARIATE ANALYSIS: COMMON MENTAL DISORDERS

Association was not found between CMD and sex or marital status. On adjusted analysis, the prevalence of CMD was lower among the participants above 25 years old (Table 4).

Table 3. Prevalence of groups of common mental disorder symptoms (*Self Reporting Questionnaire – SRQ-20*), Bento Gonçalves, 2017 (n=567)*.

SRQ-20	n	%
Physical symptoms		
Frequent headache	187	32.0
Poor appetite	43	7.4
Poor sleep	167	28.6
Shaking hands	59	10.1
Poor digestion	107	18.2
Uncomfortable feelings in the stomach	104	17.7
Depressive/anxious mood		
Easily frightened	116	19.9
Feels nervous, tense or worried	281	48.4
Felt sad recently	166	28.3
Cries more than usual	76	13.0
Reduced vital energy		
Difficulty to think clearly (blurred ideas)	160	27.6
Difficulty to enjoy daily activities	94	16.2
Difficulty to make decisions	119	20.4
Daily work is suffering	65	11.1
Feels tired all the time	117	20.0
Becomes easily tired	153	26.0
Depressive thoughts		
Unable to play a useful part in life	69	11.9
Lost interest in things	86	14.7
Feels is a worthless person	38	6.5
Thoughts of ending one's life	68	11.6

*Missing data were excluded.

The prevalence of CMD was higher among permanent employees and the ones having worked 1 to almost 4 years at MSH. The association between work area and CMD did not remain after adjusted analysis.

Analysis per professional category showed that the prevalence of CMD was higher among physicians, administrative employees, cleaning personnel and mainly CHA.

ICW was associated with higher prevalence of CMD, the risk being higher in the case of conflict with supervisors and coworkers (Table 4).

MULTIVARIATE ANALYSIS: SUICIDAL IDEATION

Higher educational level exhibited inverse correlation with prevalence of suicidal ideation on both crude and adjusted analysis (Table 4). Suicidal ideation was not associated with sex. Widowed, separated or divorced employees exhibited higher prevalence of suicidal ideation. In turn, the association with smoking did not remain after adjusted analysis. Suicidal ideation was not associated with working hours on multivariate analysis. On crude analysis, the prevalence of suicidal ideation was higher for the cleaning personnel, CHA and in a borderline manner ($p=0.06$) for surveillance personnel (prevalence ratio-PR=2.50). On adjusted analysis, no professional category exhibited significantly higher prevalence of suicidal ideation (Table 4).

ICW involving different categories of people was associated with higher prevalence of suicidal ideation (Table 4).

DISCUSSION

In the present study, we found a considerable prevalence of CMD and suicidal ideation, which points to a complex situation as concerns mental health problems among health-care professionals.

The prevalence of CMD was over 16%, and thus similar to the one reported in a study conducted in the primary care setting⁶. However, it was lower than the rates found by studies which also applied SRQ-20: 28% for hospital employees¹⁹, 24% among healthcare professionals¹⁹ and 35% for nursing staff²⁰. The considerable number of non-responded SRQ-20 items (and also CAGE and ICW) suggest that the prevalence of the analyzed indicators might have been underestimated.

Table 4. Multivariate analysis: factors associated with common mental disorders (CMD) and suicidal ideation, Bento Gonçalves, 2017 (n=567).

Variables	CMD		Suicidal ideation	
	Crude PR (CI)	Adjusted PR (CI)	Crude PR (CI)	Adjusted PR (CI)
Sex	p=0.09	p=0.17	p=0.10	p=0.28
Male	1	1	1	1
Female	1.60 (0.93-2.75)	1.45 (0.85-2.49)	1.88 (0.88-3.99)	1.52 (0.72-3.24)
Age range (years old)	p=0.05	p=0.03	p=0.82	----
Up to 25	1	1	1	
26 to 35	0.55 (0.35-0.88)	0.53 (0.27-0.83)	0.81 (0.41-1.62)	
35 to 45	0.57 (0.34-0.95)	0.48 (0.27-0.86)	0.85 (0.40-1.77)	
46 and over	0.58 (0.35-0.96)	0.47 (0.37-0.94)	1.04 (0.51-2.12)	
Formal schooling	p=0.70	-----	p=0.004*	p=0.002*
11 years (secondary school)	1		1	1
12 to 15 years	0.93 (0.61-1.41)		0.49 (0.28-0.83)	0.50 (0.28-0.89)
16 years or more	1.12 (0.74-1.70)		0.43 (0.23-0.81)	0.44 (0.23-0.83)
Marital status	p=0.72	----	p=0.05	p=0.07
Married/with partner	1		1	1
Single	1.06 (0.71-1.56)		0.82 (0.47-1.42)	0.95 (0.53-1.70)
Separated/widowed	1.26 (0.72-2.22)		1.87 (1.02-3.40)	1.89 (1.06-3.38)
Permanent civil servant	p=0.08	p=0.02	p=1.00	-----
No	1	1	1	
Yes	1.38 (0.97-1.97)	1.60 (1.08-2.39)	1.00 (0.64-1.56)	
Smoking	p=0.42	-----	p=0.03	p=0.11
Never	1		1	1
Ex-smoker	1.38 (0.83-2.30)		1.98 (1.08-3.61)	1.69 (0.89-3.21)
Smoker	1.18 (0.73-1.93)		1.71 (0.98-2.98)	1.63 (0.85-2.81)
Length in job	p=0.005	p=0.007	p=0.59	-----
Up to 11 months	1	1	1	
1 to <4 years	2.37 (1.39-4.04)	2.25 (1.29-3.92)	1.56 (0.80-3.04)	
4 to <9 years	1.60 (0.86-2.97)	1.36 (0.69-2.70)	1.52 (0.74-3.11)	
9 years or more	1.34 (0.73-2.47)	1.16 (0.54-2.51)	1.32 (0.66-2.67)	
Professional category	p<0.001	p<0.001	p<0.001	p=0.01
Nursing technicians/assistants	1	1	1	1

Continue...

Table 4. Continuation.

Variables	CMD		Suicidal ideation	
	Crude PR (CI)	Adjusted PR (CI)	Crude PR (CI)	Adjusted PR (CI)
Dental, radiology, laboratory technicians	1.39 (0.48-4.06)	1.03 (0.24-4.45)	1.03 (0.37-2.90)	1.01 (0.39-2.63)
Physicians	1.39 (0.63-3.07)	2.48 (1.03-5.95)	0.50 (0.19-1.33)	0.48 (0.15-1.57)
Nurses	1.77 (0.82-3.83)	1.56 (0.70-3.49)	0.46 (0.16-1.32)	0.40 (0.13-1.26)
Other high level professionals	1.68 (0.76-3.69)	1.72 (0.82-3.62)	... ^a	... ^a
Administrative employees	1.68 (0.83-3.37)	2.05 (1.00-4.20)	0.73 (0.35-1.50)	0.70 (0.32-1.52)
Inspectors/surveillance	3.16 (1.19-8.39)	2.43 (0.75-7.85)	2.50 (0.98-6.38)	2.26 (0.74-6.89)
Cleaning	3.03 (1.35-6.79)	3.84 (1.63-9.04)	2.11 (1.01-4.41)	1.70 (0.80-3.64)
CHA	3.96 (2.03-7.70)	7.43 (3.28-16.84)	1.94 (1.00-3.78)	1.88 (0.95-3.75)
Conflict with supervisors	p<0.001	p<0.001	p=0.004	P<0.001
No	1	1	1	1
Yes	2.65 (1.85-3.80)	3.13 (2.15-4.56)	2.10 (1.26-3.51)	2.40 (1.47-3.93)
Conflict with coworkers	p<0.001	p<0.001	p=0.001	p<0.001
No	1	1	1	1
Yes	3.45 (2.45-4.84)	3.05 (2.11-4.40)	2.22 (1.36-3.62)	2.56 (1.57-4.20)
Conflict with service users	p<0.001	p=0.001	p=0.02	p=0.002
No	1	1	1	1
Yes	2.12 (1.47-3.05)	1.85 (1.28-2.68)	1.84 (1.11-3.06)	2.15 (1.34-3.47)

PR: prevalence ratio; CI: 95% confidence interval; ACS: community health agents; *linear trend estimation; only associations with p=0.20 were subjected to regression analysis; CMD adjusted for sex, age range, educational level, employment relationship, length of work in current job, professional category; suicidal ideation adjusted for sex, educational level, marital status, smoking and professional category; ^aexcluded from analysis due to low number of participants.

The rate of reported suicidal ideation points to higher levels of mental suffering than in other studies with health-care workers, in which it varied from 2 to 4% (at university hospitals^{19,21}, medical and multi-professional health residents²²). In turn, it was lower than the rate found for the population of Campinas, São Paulo, Brazil, 17%²³. Several studies reported an increase of suicidal ideation among healthcare professionals^{8,24} and called the attention to the risk of suicide among this population due to excessive stress and work overload.

The lack of difference in occurrence of CMD according to sex and smoking status is consistent with the findings of some studies^{6,22}, while others reported higher frequency

among females²⁰ following exclusion of chemical dependency². The results relative to suicidal ideation might have been influenced by limitations in the sample size, because the literature points to association with smoking and other varieties of chemical dependency^{7,8}.

The prevalence of CMD was higher among the younger participants, which agrees with the results of other studies conducted with healthcare professionals^{6,19,20}. In the same direction, the prevalence of burnout syndrome was higher among younger workers in primary care services²⁵. Differently, studies on the overall population found that the prevalence of CMD increases together with age²⁶. As a function of their lesser professional experience, younger

workers might be more vulnerable to performance pressure, as well as to institutional problems in healthcare services. In addition, also the generation effect might be possible, which suggests that a larger proportion of youths might be emotionally sensitive to the impact of pressure in the workplace in the present time.

The protective effect of education in regard to suicidal ideation was consistent with the results of a study performed with workers in the United States²⁴. In turn, it diverges from the high prevalence of suicidal thoughts among higher level professionals, such as physicians and lawyers, among others^{8,24}.

The high prevalence of CMD among the permanent employees, i.e., with more stable employment relationship, seems to have been an independent effect, because it remained following adjustment for age and length of work in current job. A similar finding was reported by Dilélio et al. in their study in the primary care setting: the prevalence of CMD was lower among the employees with more precarious employment relationship and shorter time in the current job⁶. Stability might possibly increase the cumulated exposure to stressful events or might favor internal conflict, causing rancor and grudge. Also selection effect should be considered, whereby the workers with less stable employment relationship, mental, personal and/or work-related problems are more easily excluded.

Long working hours, night and weekend work were not associated with any of the analyzed mental health indicators. The effect of long working hours is controversial. While some studies reported increased risk of CMD^{19,20,25}, others found partial association with the weekly, but not with the daily working hours²⁷, or even lesser risk²⁸. The healthy worker effect might account for these results, i.e., individuals with better health conditions and resistance to work overload remain under such work rhythm and schedule regimen²⁷.

On analysis per professional category, the prevalence of CMD was higher among administrative employees, who are exposed to direct pressure from users seeking access to services, as well as to management demands. The prevalence of CMD was high among the physicians, however, it might be even higher, as a considerable number of doctors refused participation or did not answer some items on SRQ-20. This finding agrees with other studies conducted with hospital physicians^{27,28} and medical residents²², while studies performed in the primary care setting did not find any difference^{5,6}.

The high prevalence of CMD found among cleaning personnel and CHA is consistent with the results of a study conducted in the primary setting, which also found higher prevalence of CMD among CHA — which however did not remain after adjustment for job satisfaction (Health Unit physical environment, visits, field activities, staff)⁶. The prevalence of CMD among CHA was similar to the one reported in other studies, of about 43%^{5,29} and was associated with burnout syndrome²⁹. CHA deal with difficult situations at work, such as violence and drug trafficking and consumption, in addition to family conflict often without an adequate social support network or duly qualified multidisciplinary staff²⁹. In addition to their low educational level, cleaning personnel and CHA reported poorer state of health. Both groups of workers usually exhibit socioeconomic limitation, however, we could not investigate the influence of these factors.

Our intention to use a short instrument (such as the one effectively applied) limited the investigation of relevant aspects, such as income, debt or work-family conflict indicators, which might also have effects on mental health³⁰. Also the cross-sectional design of the study is a limitation, i.e., the so-called reverse causality, hindering us from drawing causal conclusions for the associations found, as e.g., between ICW and mental health indicators. In addition, the sample size might have been insufficient in the analysis of some professional categories, such as drivers (excluded from analysis) and surveillance staff. Despite the considerable risk evidenced for both analyzed indicators, the associations found for surveillance staff were not significant due to the low statistical power. Active work in health surveillance might bring frequent conflict as a function of technically complex demands or tense situations involving economic and/or political interests, and unavailability of systematic support from the management during crises.

The association between ICW and both analyzed mental health indicators stood out in the present study. According to Frone, conflict with coworkers might have negative impact on self-evaluation and psychological health by undermining one's sense of self and similarity with others¹¹.

Relationship was found between ICW and several health indicators, such as depression symptoms, job satisfaction and physical symptoms^{1,9}. This effect was found to be stronger when conflict involved supervisors and coworkers, which

suggests that misunderstandings with service users are better tolerated (a case of “all in a day’s work?”).

A review of studies conducted with hospital employees found high rates of workplace violence, verbal aggression in particular, the main perpetrators being patients and their relatives¹². In turn, the long time spent with coworkers and supervisors might potentiate or make recurrent the mental harm derived from conflict. However, this association might have reverse causality i.e., individuals with non-occupational mental disorders might be more susceptible even to routine problems at the workplace. According to one study, individuals with depression symptoms might be more vulnerable to ICW, leading to a vicious circle composed of workplace conflict and depression symptoms⁹.

Future studies should investigate ICW more thoroughly, as it seems to have a much larger magnitude and stronger effects on mental health than is currently recognized. For this purpose, proper methods and validated instruments should be used. In addition, approaches to reduce the impact of ICW on the health of workers should be developed, such as interpersonal conflict management and psychosocial support.

Frequent and prolonged ICW might be destructive and impair the quality of services, with consequent deterioration of the mental health of workers, including increase of suicidal ideation¹. Prevention of ICW (or approaches to prevent existing conflict from becoming worse) is a collective task and should involve workers in all the hierarchical levels of organizations. Some of the suggested actions include providing training to managers and supervisors for early identification of dysfunctional conflict and its origins and conflict management techniques. Stress reduction programs, including better balance in job demands and better conditions for cooperation and communication, might also be good options. While interpersonal conflict cannot be eliminated, adequate management is feasible and recommended¹.

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Several authors advocate actions to improve the psychological and social environment as a means to prevent and properly address mental disorders. For instance, the International Labor Organization recommends:

- education, training and divulgation of information;
- workplace improvement;
- employee participation in this process.
- providing support to employees with mental disorders².

CONCLUSION

The present study evidenced a complex and worrisome situation as concerns the mental health of healthcare workers and identified risk factors which might ground actions to improve relationships at the workplace. The main aspect deserving of attention is the psychological impact of interpersonal conflict, which might be associated with long-lasting mental harm, although it often passes unnoticed by the affected individuals or the institution.

Analysis of the factors associated with mental health problems showed that destructive forms of human relationships might have more significant impact on work-related mental suffering than the classical occupational factors, such as work overload and night work. Improving the psychosocial environment at healthcare services poses an urgent challenge which should involve all actors: managers, coordinators, employees and service users.

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