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Violence in the neighborhood and mental health of community health workers in a Brazilian metropolis

Violência no território e saúde mental de agentes comunitários de saúde em uma metrópole brasileira

Violencia en el territorio y salud mental de agentes comunitarios de salud en una metrópoli brasileña

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Abstract

Violence is a major social problem in Brazil, with severe repercussions on the health care sector. Primary health care professionals, especially community health workers (CHWs), are at high risk of violence at facilities and in the socially vulnerable area where they work. This study analyzed the relationships between adverse working conditions and dimensions of localized violence on the prevalence of common mental disorders (CMD) among CHWs in Fortaleza, a state capital in Northeastern Brazil. Information was collected with a self-report questionnaire containing items on sociodemographic data, work-related violence, psychoemotional signs and symptoms (Self-Reporting Questionnaire-20)*, mental health care, and absence from work due to general or mental health issues. Based on the responses of 1,437 CHWs, the prevalence of CMD (32.75%) was associated with perceived, witnessed, or suffered violence in the work area. In the hierarchical analysis, CMD were associated with age, sex, religious identity, years of experience as a CHW with the Family Health Strategy (FHS), work neighborhood, activities in the community, considering the lack of bonding with families as an obstacle, having suffered domestic violence, use of medication for emotional dysregulation, identifying the neighborhood as violent, considering violence a physical or mental health determinant, and identifying impunity as a cause of violence. Thus, the work and mental health of CHWs were significantly affected by violence dimensions. Our findings are relevant to the adoption of strategies to mitigate the effects of violence on the work and mental health of CHWs.*

Violence; Exposure to Violence; Mental Health; Community Health Workers; Primary Health Care

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Introduction

The Family Health Strategy (FHS) is the main primary health care (PHC) system in Brazil. The FHS organizes and manages PHC, the backbone of the Brazilian Unified National Health System (SUS). The mission of the FHS/PHC is to implement SUS principles and guidelines at the municipal level, ensuring universal access, integral care, and equity. To do so, multiprofessional FHS teams are assigned to cover neighborhoods with a limited number of residents, approach and bond with families in the community, and coordinate integral and longitudinal care. Each team includes a physician (preferably a family or community health physician), nurses (preferably trained in family or community health), nursing technicians or assistants, oral health technicians or assistants, and community health workers (CHWs) [1,2,3].

The first CHWs in Ceará were employed by an emergency aid program for drought victims in 1987. In 1988, a CHW program recruiting women from local communities with good neighborly relations and communication skills was established to help improve indicators of maternal and child health care [4]. In 1991, the Brazilian government expanded the program to a nationwide plan, starting with states in the Northeast and focusing on maternal and children's health. Three years later, the program was incorporated into the Family Health Program (FHP), which eventually created the FHS. Thus, working under the guidance of FHS teams at local health facilities, CHWs represent a vital link between the community and public health services [5].

CHWs carry out many activities in the neighborhood, essentially as mediators between the community and the local health care facility, while working to improve access to health care and strengthening the bond between families and FHS teams. This is primarily done by home visits, with emphasis on user registration, collection of indicators on health and living conditions, identification of risk factors, health education and surveillance, guidance, and resolution of health problems [1,6].

By developing a community-based care, CHWs play an essential role. In fact, they are often the only link between the system and vulnerable individuals and marginalized groups in the neighborhood [7]. Unsurprisingly, the adoption of CHW programs in Brazil and elsewhere has had a positive effect on public health indicators [8,9].

On the other hand, CHWs are exposed to many adverse factors in their work, which have been shown to compromise their mental health, sometimes to the point of requiring sick leave [10,11,12]. One such factor, localized violence, affects work routine [1,13], which, in turn, can affect the CHW's mental health [12]. Regarding work-related mental health problems, particularly in the context of violence, common mental disorders (CMD) do not fully meet the criteria for establishing diagnoses of anxiety and/or depression, but cause psychological distress, whose symptoms are insomnia, fatigue, irritability, difficulty to concentrate, forgetfulness, and somatic complaints, among others. Indeed, this psychic suffering can result in functional loss, besides psychosocial damage to the person [11,14]. However, the literature is limited in the evaluation of the relation between community violence and the health professional's mental health, especially CHWs, which are part of the PHC system.

PHC professionals working on the outskirts of large cities are immersed in an environment of social and urban violence associated with drug trafficking, street gang activity, unemployment, low schooling levels, poverty, and social isolation [15]. FHS professionals are at risk of violence in both the neighborhood and the workplace, limiting the effectiveness of their activities, whether it be clinical appointments, home visits, or health promotion and disease prevention campaigns in the community [16].

CHWs are at risk of witnessing or suffering violence during their work in the community, especially if they live in the same neighborhood. In a cross-sectional Southeastern Brazilian study [17] on the exposure of FHS professionals to work-related violence, 62.1% of the reports of violence involved CHWs, mostly women aged 30-39 years, with over one year on the work environment. Verbal violence (36.9%) was the most frequent type of violence [17]. Violence rates in Northeastern Brazil are above the national average, and 6 of the 9 state capitals in this region are listed among the 30 most violent cities in the world. Fortaleza (Ceará State), the city in which our study was conducted, was deemed the world's 9th most violent city in 2018 [18].

In a study from Spain [19], 11% of the interviewed health care workers reported suffering physical violence at least once, while 34.4% had been intimidated or threatened, and 36.6% had been insulted. These different types of violence are significantly correlated with burnout symptoms,

showing a greater exposure of health care workers to psychosocial disorders and comorbidities like anxiety and depression.

Few studies have been conducted on the repercussions of violence on the mental health of PHC workers, especially CHWs who live and work in the same neighborhood and therefore are doubly exposed. This study analyzed the relations between adverse working conditions and forms of localized violence on the prevalence of CMD in CHWs in Fortaleza.

Methods

Fortaleza is the 5th largest municipality in Brazil (approximately 2.6 million inhabitants) and had, in 2019, 2,150 CHWs [20,21]. The municipality is divided into six subprefectures, which differ on many issues, such as Human Development Index (HDI), homicide rate, FHS coverage, etc. Information was collected by applying a questionnaire to CHWs at their workplace. To do so, the manager at each facility was asked to schedule a meeting with the CHWs. During the meeting the researchers explained the study purpose and answered questions from the attendees. All CHWs were reached out, except those in vacation or on leave at the data collection, which occurred from June to November 2019. CHWs who accepted to participate in the study provided written informed consent and completed the questionnaire individually and confidentially. During this activity, the researcher remained on the premises to answer any question and to personally collect the filled-out questionnaires. CHWs not responding the questionnaire were either absent from their respective facilities, on leave (e.g., on vacation or sick), or declined participation. The CHWs answered a printed version of the questionnaire, and thus, were able to not answer all questions. The procedure was followed at all PHC facilities in all subprefectures (SER I, II, III, IV, V, VI) of Fortaleza.

Reflecting the study objectives, the questionnaire included the following sections: (a) items on sociodemographic data; (b) items on work routine within the FHS, on community and personal violence (self-reported), and items on violence in the neighborhood and how to cope with it on the work environment; (c) *Self-Reporting Questionnaire-20* (SRQ-20), with items on anxiety, stress, depressive symptoms [14]; and (d) items on mental health care, absence/leave due to general or mental health issues.

The data were organized using the Microsoft Excel (https://products.office.com/), then transferred to the statistical software Stata, version 15.0 (https://www.stata.com). Initially, a standard descriptive statistical analysis was performed, determining the frequency of the categorical variables and the central tendency of the numerical variables. Notably, besides the Shapiro-Wilk and Kolgomorov-Smirnov tests – used to evaluate the normality of the distribution of variables and of residuals – Levene's test was used to check the equality of variances between groups.

Then, we tested for correlations between the numerical variables (age, time of residence in the neighborhood, time as CHW at current facility, time as CHW with the FHS) and estimated correlation coefficients and p-values at 5% ($p \leq 0.05$). Furthermore, Student's t-test was used to compare the mean values of the groups with and without SRQ-20 ≥ 7, which were considered, for this study, as a group of elevated risk of CMD [14].

Subsequently, a bivariate analysis was performed with a chi-squared test to identify independent variables associated with the study outcome (presence of CMD). Variables with p-values ≤ 0.20 in the bivariate analysis were considered to be associated with CMD.

The variables identified in the bivariate analysis were then organized into categories: (1) sociodemographic variables, (2) work-related variables, and (3) violence-related variables. Based on these categories, a hierarchical multiple logistic regression with odds ratios (OR) and their respective confidence intervals (95%CI) was performed. Variables with p-values ≤ 0.05 were retained in the final model.

Results

In total, two-thirds of the CHWs in Fortaleza (1,437/2,150) answered the questionnaire. The respondents were predominantly female (n = 1,140; 81.1%) and aged 40-59 years (n = 845; 64.6%). Approximately half (n = 736; 51.9%) had spouses/partners, the majority (n = 1,334; 93.5%) shared a religious identity, two-thirds (n = 943; 65.8%) had complete secondary education, two-thirds (n = 898; 66.5%) earned up to two minimum wages (approximately USD 400), and the majority (n = 1,190; 83.7%) worked and lived in the same neighborhood. Most participants (n = 1,090; 81%) had worked as CHWs for over 12 years. Targeted health promotion activities were carried out by 71.4% (n = 1,020), School Health Program (PSE) by 37.3% (n = 534), community activities by 47.5% (n = 679), and home visits by 94.9% (n = 1,357). According to the respondents, the greatest obstacles to their work were the large number of families covered (n = 596; 42%), the limited access of families to the facility (n = 413; 29.1%), and urban violence (n = 699; 49.3%).

Although 83.2% (n = 1,187) considered their neighborhood violent and 83.6% (n = 1,182) reported violence in their work neighborhood, only 32.1% (n = 450) felt capable of coping with violence. Violence was reported to interfere with work by 70.2% (n = 990), whereas 62.8% (n = 887) had witnessed violence on the work environment, 41.6% (n = 592) had suffered violence on the work environment, 46.8% (n = 665) had been threatened with violence on the work environment, and 36.5% (n = 519) had interrupted their activities at some time due to violence. The most frequently reported types of violence were urban (81.7%; n = 1,166), domestic (30.5%; n = 435) and institutional (29.9%; n = 426). One-fourth of the respondents (n = 318; 24%) reported having suffered domestic violence, whereas 20.7% (n = 295) reported taking medication for emotional dysregulation. Tables 1 and 2 show the sociodemographic, work-related, and violence-related variables for the CHWs in the study. It is noteworthy that among the questionnaires reached, some units had some unanswered questions, which explains the variability of respondent per question.

Using ≥ 7 as cut-off point [14], the results of the SRQ-20 revealed that 32.7% (n = 448) of the CHWs had signs and symptoms or increased risks of CMD. Tables 3 and 4 show the correlation between descriptive variables and signs of CMD: SRQ-20 ≥ 7 (chi-squared test and simple logistic regression). High scores on the SRQ-20 were associated with neighborhood (subprefecture), sex, religious identity, time of residence, relationship with neighbors, use of medication for emotional dysregulation, obstacles to the work (large number of families in the neighborhood, lack of a bond with families, limited access of families to the facility, urban violence), identifying the neighborhood as violent, identifying violence in the work vicinity, types of violence in the work neighborhood (domestic, urban, and institutional), identifying violence as an obstacle to work, witnessing violence on the work environment, being threatened with violence on the work environment, having activities interrupted due to violence, having suffered violence on the work environment, being capable of coping with violence in the community, and use of medication for emotional dysregulation. Over two-thirds (68.4%) of the CHWs using psychotropic medication displayed symptoms of CMD.

When comparing respondents with and without CMD, a significant difference was found for age and time of residence: respondents in the CMD group were slightly younger (45.5 vs. 46.7 years; $p < 0.001$) and had lived fewer years in the neighborhood (26.9 vs. 29.4 years; $p = 0.004$). Moreover, high SRQ-20 scores were significantly correlated with age (Pearson $r = -0.143$; $p < 0.001$), time of residence (Pearson $r = -0.099$; $p < 0.001$), and time as a CHW at the current facility (Pearson $r = -0.055$; $p = 0.042$). The correlations between time as CHW and time of residence (Pearson $r = 0.212$; $p < 0.001$) and between time of residence and age (Pearson $r = 0.234$; $p < 0.001$) were also statistically significant.

Among the variables associated with high SRQ-20 scores, even if slightly ($p < 0.20$), potential CMD triggers were identified and organized into three categories: (1) sociodemographic variables such as sex, marital status, age, religious identity, schooling level, race/skin color, time of residence, and relationship with neighbors; (2) work-related variables, including work neighborhood (subprefecture), time with the FHS, time working as CHW, activities in the community, obstacles to the work (large number of families in microareas, absence of bond with families, limited access of families to the facility); and (3) violence-related variables, including causes of violence, identifying urban violence as an obstacle to work, having suffered domestic violence, identifying violence in the neighborhood, main types of violence (urban, institutional, domestic) in the neighborhood, having witnessed violence,

Table 1

Descriptive data regarding sociodemographic profile and work activities of the community health workers (CHWs). Fortaleza, Ceará State, Brazil.

Variables	n	%
Sociodemographic profile		
Sex (n = 1,406)		
Male	266	18.92
Female	1,140	81.08
Age (years) (n = 1,307)		
< 40	355	27.16
40-59	845	64.65
≥ 60	107	8.19
Subprefecture (n = 1,423)		
I	188	13.21
II	159	11.17
III	274	19.26
IV	129	9.07
V	388	27.27
VI	285	20.03
Marital/Partnership status (n = 1,417)		
Does not live with spouse/partner	681	48.06
Lives with spouse/partner	736	51.94
Children (n = 1,432)		
No	302	21.09
Yes	1,130	78.91
Religious identity (n = 1,427)		
No	93	6.52
Yes	1,334	93.48
Time living in the neighborhood (years) (n = 1,232)		
< 20	318	25.81
≥ 20	914	74.19
Race/Skin color (n = 1,433)		
Not black	1,331	92.88
Black	102	7.12
Schooling level (n = 1,433)		
High school not completed	91	6.35
High school completed	852	59.46
Higher education	490	34.19
Good relationship with neighbors (n = 1,417)		
No	257	18.14
Yes	1,160	81.86

(continues)

Table 1 (continued)

Variables	n	%
Work		
Time with the FHS (years) (n = 1,394)		
< 12	1,011	72.53
≥ 12	383	27.47
Time as CHW at current facility (years) (n = 1,345)		
< 12	1,090	81.04
≥ 12	255	18.96
Income (minimum wages) (n = 1,351)		
Up to 2	898	66.47
Over 2	453	33.53
Other jobs (n = 1,421)		
No	1,284	90.36
Yes	137	9.64
Living and working in the same neighborhood (n = 1,421)		
No	231	16.26
Yes	1,190	83.74
CHW activities		
Home visits (n = 1,430)		
No	73	5.10
Yes	1,357	94.90
Targeted health promotion activities (n = 1,429)		
No	409	28.62
Yes	1,020	71.38
PSE activities (n = 1,430)		
No	896	62.66
Yes	534	37.34
Community activities (n = 1,430)		
No	751	52.52
Yes	679	47.48
Obstacles to the work		
Large number of families in the area covered (n = 1,418)		
No	822	57.97
Yes	596	42.03
Absence of bond with families (n = 1,418)		
No	1,379	97.25
Yes	39	2.75
Limited access of families to the facility (n = 1,418)		
No	1,005	70.87
Yes	413	29.13
Urban violence (n = 1,418)		
No	719	50.71
Yes	699	49.29

FHS: Family Health Strategy; PSE: School Health Program.

Table 2

Descriptive data regarding the perception of violence and mental health of the community health workers (CHWs). Fortaleza, Ceará State, Brazil.

Variables	n	%
Violence		
Has suffered domestic violence (n = 1,325)		
No	1,007	76.00
Yes	318	24.00
Considers neighborhood violent (n = 1,426)		
No	239	16.76
Yes	1,187	83.24
Violence in the community served (n = 1,413)		
No	231	16.35
Yes	1,182	83.65
Causes of violence		
Poverty (n = 1,426)		
No	800	56.10
Yes	626	43.90
Lack of education (n = 1,428)		
No	882	61.76
Yes	546	38.24
Alcohol and drug abuse (n = 1,427)		
No	278	19.48
Yes	1,149	80.52
Impunity (n = 1,426)		
No	927	65.01
Yes	499	34.99
Drug trafficking (n = 1,427)		
No	324	22.70
Yes	1,103	77.30
Criminal gangs (n = 1,428)		
No	477	33.40
Yes	951	66.60
Types of violence in the community		
Domestic (n = 1,424)		
No	989	69.45
Yes	435	30.55
Urban (n = 1,424)		
No	258	18.12
Yes	1,166	81.88
Institutional (n = 1,423)		
No	997	70.06
Yes	426	29.94
Believes violence interferes with work (n = 1,411)		
No	421	29.84
Yes	990	70.16
Has witnessed violence on the work environment (n = 1,412)		
No	525	37.18
Yes	887	62.82

(continues)

Table 2 (continued)

Variables	n	%
Has suffered violence on the work environment (n = 1,422)		
No	830	58.37
Yes	592	41.63
Has been threatened with violence on the work environment (n = 1,420)		
No	755	53.17
Yes	665	46.83
Has been deprived of contact with families, suspended unaccompanied home visits, or requested transfer to another area due to violence (n = 1,409)		
No	1,000	70.97
Yes	409	29.03
Has taken leave from work due to violence (n = 1,421)		
No	1,192	83.88
Yes	229	16.12
Has suspended FHS-related activities due to violence (n = 1,421)		
No	902	63.48
Yes	519	36.52
Has considered moving due to violence (n = 1,421)		
No	666	46.87
Yes	755	53.13
Has considered changing occupation due to violence (n = 1,412)		
No	1,100	77.90
Yes	312	22.10
Believes physical health on the job is impacted by violence (n = 1,412)		
No	743	52.62
Yes	669	47.38
Feels capable of coping with violence in the community (n = 1,401)		
No	951	67.88
Yes	450	32.12
Mental health		
Believes mental health on the job is impacted by violence (n = 1,415)		
No	622	43.96
Yes	793	56.04
SRQ-20 (n = 1,368)		
< 7	920	67.25
≥ 7	448	32.75
Uses medication for emotional dysregulation (n = 1,423)		
No	1,128	79.27
Yes	295	20.73

FHS: Family Health Strategy; SRQ-20: *Self-Reporting Questionnaire-20*.

Table 3

Comparative data regarding sociodemographic profile and work activities of the community health workers (CHWs) among groups with or without elevated risk of common mental disorders (CMD) (SRQ-20 ≥ 7). Fortaleza, Ceará State, Brazil.

Variables	SRQ-20				p-value	OR	95%CI
	< 7		≥ 7				
	n	%	n	%			
Sociodemographic profile							
Sex (n = 1,341)							
Male	693	64.17	387	32.51	**< 0.001**	2.416	1.728-3.376
Female	212	81.23	49	18.77		1.000	-
Age (years) (n = 1,253)							
< 40	220	63.95	124	36.05	**0.003**	2.200	1.298-3.729
40-59	545	67.62	261	32.38	**0.014**	1.869	1.132-3.087
≥ 60	82	79.61	21	20.39		1.000	-
Subprefecture (n = 1,356)							
I	121	69.54	53	30.46	**0.024**	1.879	1.085-3.255
II	99	65.13	53	34.87		2.297	1.318-4.004
III	173	67.05	85	32.95		2.108	1.260-3.527
IV	103	81.10	24	18.90		1.000	-
V	243	64.80	132	35.20		2.331	1.425-3.813
VI	175	64.81	95	35.19		2.329	1.395-3.878
Marital/Partnership status (n = 1,351)							
Does not live with spouse/partner	422	65.53	222	34.47	0.276		
Lives with spouse/partner	483	68.32	224	31.68			
Children (n = 1,365)							
No	191	67.49	92	32.51	0.924		
Yes	727	67.19	355	32.81			
Religious identity (n = 1,360)							
No	45	48.39	48	51.61	**< 0.001**	2.320	1.519-3.544
Yes	868	68.51	399	31.49		1.000	-
Time living in the neighborhood (years) (n = 1,177)							
< 20	181	59.74	122	40.26	**0.004**	1.491	1.138-19.55
≥ 20	602	68.88	272	31.12		1.000	-
Race/Skin color (n = 1,366)							
Not black	861	68.01	405	31.99	**0.034**	1.000	-
Black	57	57.58	42	42.42		1.566	1.033-2.373
Schooling level (n = 1,433)							
High school or less	622	69.03	279	30.97	**0.054**	1.000	-
Higher education	297	63.87	168	36.13		1.261	0.995-1.596
Good relationship with neighbors (n = 1,350)							
No	151	67.26	98	32.74	**0.014**	1.428	1.074-1.898
Yes	757	68.76	344	31.24		1.000	-

(continues)

Table 3 (continued)

Variables	SRQ-20				p-value	OR	95%CI
	< 7		≥ 7				
	n	%	n	%			
Work							
Time with the FHS (years) (n = 1,287)							
< 12	626	64.80	340	35.20	**0.008**	1.433	1.099-1.869
≥ 12	264	72.53	100	27.47		1.000	-
Time as CHW at current facility (years) (n = 1,244)							
< 12	685	65.61	359	34.39	**0.006**	1.563	1.136-2.151
≥ 12	179	74.90	60	25.10		1.000	-
Income (minimum wages) (n = 1,298)							
Up to 2	574	66.67	287	33.33	0.580		
Over 2	298	68.19	139	31.81			
Other jobs (n = 1,355)							
No	826	67.54	397	32.46	0.579		
Yes	86	65.15	46	34.85			
Living and working in the same neighborhood (n = 1,355)							
No	145	65.61	76	34.39	0.575		
Yes	766	67.23	268	32.77			
CHW activities							
Home visits (n = 1,363)							
No	46	65.71	24	34.29	0.775		
Yes	871	67.36	422	32.64			
Targeted health promotion activities (n = 1,318)							
No	257	66.07	132	33.93	0.555		
Yes	659	67.73	314	32.27			
PSE activities (n = 1,363)							
No	577	68.04	271	31.96	0.440		
Yes	340	66.02	175	33.98			
Community activities (n = 1,363)							
No	506	70.28	214	29.72	**0.013**	1.000	-
Yes	411	63.92	232	36.08		1.334	1.063-1.674
Obstacles to the work							
Large number of families in the area covered (n = 1,352)							
No	547	70.04	234	29.96	**0.008**	1.000	-
Yes	361	63.22	210	36.78		1.359	1.081-1.709
Absence of bond with families (n = 1,352)							
No	890	67.68	425	32.32	**0.018**	1.000	-
Yes	18	48.65	19	51.35		2.210	1.148-4.255
Limited access of families to the facility (n = 1,352)							
No	663	69.28	294	30.72	**0.010**	1.000	-
Yes	245	62.03	150	37.97		1.380	1.080-1.764
Urban violence (n = 1,352)							
No	506	73.65	181	26.35	**< 0.001**	1.000	-
Yes	402	60.45	263	39.55		1.828	1.452-2.302

95%CI: 95% confidence interval; FHS: Family Health Strategy; OR: odds ratio; PSE: School Health Program; SRQ-20: *Self-Reporting Questionnaire-20*.

Table 4

Comparative data on violence and mental health of of the community health workers (CHWs) among groups with or without high risk of common mental disorders (CMD) (SRQ-20 ≥ 7). Fortaleza, Ceará State, Brazil.

Variables	SRQ-20				p-value	OR	95%CI
	< 7		≥ 7				
	n	%	n	%			
Violence							
Has suffered domestic violence (n = 1,272)							
No	695	71.95	271	28.05	**< 0.001**	1.000	-
Yes	172	56.21	134	43.79		1.997	1.531-2.606
Considers neighborhood violent (n = 1,359)							
No	182	80.18	45	19.82	**< 0.001**	1.000	-
Yes	732	64.66	400	35.34		2.176	1.530-3.094
Violence in the community served (n = 1,349)							
No	177	80.09	44	19.91	**< 0.001**	1.000	-
Yes	732	64.89	396	35.11		1.776	1.413-2.233
Causes of violence							
Poverty (n = 1,360)							
No	554	72.80	207	27.20	**< 0.001**	1.000	-
Yes	360	60.10	239	39.90		1.728	1.372-2.176
Lack of education (n = 1,362)							
No	601	71.98	234	28.02	**< 0.001**	1.000	-
Yes	315	59.77	212	40.23		1.535	1.134-2.077
Alcohol and drug abuse (n = 1,361)							
No	198	74.44	68	25.56	**0.005**	1.000	-
Yes	717	65.48	378	34.52		1.481	1.084-2.023
Impunity (n = 1,316)							
No	631	71.87	247	28.13	**< 0.001**	1.000	-
Yes	284	58.92	198	41.08		1.781	1.410-2.249
Drug trafficking (n = 1,361)							
No	242	78.83	65	21.17	**< 0.001**	1.000	-
Yes	673	63.85	381	36.15		2.107	1.559-2.848
Criminal gangs (n = 1,362)							
No	337	74.39	16	25.61	**< 0.001**	1.000	-
Yes	579	63.70	330	36.30		1.655	1.288-2.127
Types of violence in the community							
Domestic (n = 1,314)							
No	659	69.81	285	30.19	**0.003**	1.000	-
Yes	256	61.69	159	38.31		1.436	1.127-1.829
Urban (n = 1,359)							
No	190	76.00	60	24.00	**0.001**	1.000	-
Yes	725	65.37	384	34.63		1.677	1.223-2.999
Institutional (n = 1,313)							
No	676	71.01	276	28.99	**< 0.001**	1.000	-
Yes	238	58.62	168	41.38		1.728	1.357-2.202
Believes violence interferes with work (n = 1,347)							
No	311	77.94	88	22.06	**< 0.001**	1.000	-
Yes	595	62.76	353	37.24		2.096	1.599-2.748
Has witnessed violence on the work environment (n = 1,348)							
No	380	76.31	118	23.69	**< 0.001**	1.000	-
Yes	529	62.24	321	37.76		1.954	1.523-2.506

(continues)

Table 4 (continued)

Variables	SRQ-20				p-value	OR	95%CI
	< 7		≥ 7				
	n	%	n	%			
Has suffered violence on the work environment (n = 1,355)							
No	593	75.16	196	24.84	**< 0.001**	1.000	-
Yes	323	57.07	243	42.93		2.276	1.805-2.870
Has been threatened with violence on the work environment (n = 1,355)							
No	539	74.97	180	25.03	**< 0.001**	1.000	-
Yes	373	58.65	263	41.35		2.111	1.675-2.660
Has been deprived of contact with families, suspended unaccompanied home visits, or requested transfer to another area due to violence (n = 1,345)							
No	695	73.00	230	27.00	**< 0.001**	1.000	-
Yes	211	53.69	166	46.31		2.332	1.826-2.978
Has taken leave from work due to violence (n = 1,356)							
No	811	71.08	330	28.92	**< 0.001**	1.000	-
Yes	102	47.44	113	52.56		2.722	2.022-3.663
Has suspended FHS-related activities due to violence (n = 1,355)							
No	621	71.96	242	28.04	**< 0.001**	1.000	-
Yes	291	59.15	201	40.85		1.772	1.403-2.237
Has considered moving due to violence (n = 1,354)							
No	419	67.36	203	32.64	0.911		
Yes	491	67.08	241	32.92			
Has considered changing occupation due to violence (n = 1,344)							
No	701	66.89	347	33.11	0.742		
Yes	201	67.91	95	32.09			
Believes physical health on the job is impacted by violence (n = 1,349)							
No	551	78.16	154	21.84	**< 0.001**	1.000	-
Yes	360	55.90	284	44.10		2.822	2.227-3.577
Feels capable of coping with violence in the community (n = 1,339)							
No	595	64.81	323	35.19	**0.003**	1.461	1.133-1.884
Yes	307	72.92	114	27.08		1.000	-
Mental health							
Believes mental health on the job is impacted by violence (n = 1,350)							
No	500	84.89	89	15.11	**< 0.001**	1.000	-
Yes	406	53.35	344	46.65		4.912	3.762-6.413
Uses medication for emotional dysregulation (n = 1,357)							
No	827	77.15	245	22.85	**< 0.001**	1.000	-
Yes	90	31.58	195	68.42		7.313	5.485-9.750

95%CI: 95% confidence interval; FHS: Family Health Strategy; OR: odds ratio; SRQ-20: *Self-Reporting Questionnaire-20*.

having suffered violence, felt threatened by the violence in the neighborhood, having been deprived of contact with families, having requested work leave, feeling capable of coping with violence in the neighborhood, identifying effects of violence on physical and/or mental health, and using medication for emotional dysregulation.

The hierarchical analysis revealed the high prevalence of CMD (SRQ-20 ≥ 7) among CHWs to be associated with age, sex, religious identity, time of work as CHW for the FHS, work neighborhood (subprefecture), activities in the community, identifying lack of bonding with families as an obstacle, having suffered domestic violence, using medication for emotional dysregulation, considering the neighborhood violent, identifying impact of violence on physical and/or mental health, identifying impunity as a cause of violence. Table 5 shows the results of the multivariate model.

Discussion

Sometimes referred to as the evil of the century, mental health disorders (especially depression and anxiety) have become frequent because of industrialization and the technological evolution of the globalized world, placing a heavy burden on workers and demanding prompt responses and an increasingly extensive know-how for the execution of multiple tasks. In addition, specific circumstances can considerably increase the prevalence of CMD in workers, as observed for FHS professionals, particularly CHWs [12]. This study found violence in the work neighborhood, among other aspects, to be an important factor modulating CMD in CHWs.

Table 5

Hierarchical multivariate analysis related to elevated risk of common mental disorders (CMD) (SRQ-20 ≥ 7) among community health workers (CHWs). Fortaleza, Ceará State, Brazil.

Variables	OR	95%CI	p-value
Category 1 – Sociodemographic			
Female sex	2.529	1.781-3.589	< 0.001
Age (years)			
< 40 vs. > 60	2.490	1.428-4.342	0.001
40-59 vs. > 60	2.117	1.253-3.578	0.005
No religious identity	2.365	1.497-3.735	< 0.001
Category 2 – Work			
Subprefecture			
I vs. IV	1.568	0.555-2.875	0.146
II vs. IV	2.042	1.107-3.768	0.022
III vs. IV	1.722	0.977-3.034	0.060
V vs. IV	2.044	1.191-3.507	0.009
VI vs. IV	1.952	1.114-3.419	0.019
Time with the FHS < 12 years	1.367	1.009-1.851	0.043
Activities in the community	1.384	1.073-1.785	0.012
Work compromised by absence of bond with family	2.494	1.118-5.564	0.026
Category 3 – Violence			
Mental health impacted by violence	2.456	1.700-3.550	< 0.001
Uses medication for emotional dysregulation	6.163	4.271-8.894	< 0.001
Considers neighborhood violent	1.632	1.025-2.597	0.039
Identifies impunity as a cause of violence	1.412	1.027-1.941	0.034
Has suffered domestic violence	1.629	1.149-2.308	0.006
Physical health is impacted by violence	1.432	1.022-2.005	0.037

95%CI: 95% confidence interval; FHS: Family Health Strategy; OR: odds ratio.

We observed a higher percentage of elevated risk of depressive symptoms (SRQ-20 ≥ 7) in this study when compared to others in the risk population. In a study from Ethiopia [22] distributing SRQ-20 to approximately 1,300 postnatal women (a condition particularly prone to CMD), 19.8% showed symptoms when the most conservative cut-off point (≥ 7) was adopted. A study from Vietnam [23] using the same instrument and cut-off found 14.4% of 1,528 adults living under socioeconomically unfavorable conditions to have symptoms of CMD.

SRQ-20 is widely used to screen for CMD. Sensitive and easy to distribute, this instrument can be used in different subpopulations and contexts, facilitating comparative analyses [14]. The prevalence of CMD (32.75%) in our sample of CHWs is nearly twice of that reported above for postnatal women and socioeconomically challenged adults, suggesting that exposure to violence on the work environment can have an emotional impact on these workers.

The way public health care activities are scheduled, managed, and set up in the workplace can also contribute negatively to the emotional health of CHWs. The role of the CHW within the FHS is in a certain sense paradoxical, thus stressful: CHWs are expected to mingle with the community, while at the same time maintaining a pedagogical and technical stance; approach families with informal language and neighborly manners while following strictly scientific guidelines as health professionals [12].

CHWs who live and work in the same neighborhood are doubly exposed to the risk of violence. Familiarity with the neighborhood may aggregate trust and facilitate bonding, but in locations disputed by rival criminal gangs, CHWs are under constant emotional stress, both at home and on the work environment. Many reports having to relinquish legal practices relevant to the work environment, as when refraining from notifying cases of abuse and sanitary irregularities to safeguard themselves and their families [24].

These findings show a close relationship between working conditions and the mental health of CHWs, especially in neighborhood with high levels of violence and social vulnerability. An adequate understanding of this relationship can help design occupational health strategies for CHWs and implement public health policies in neighborhoods with a high prevalence of CMD. In this study, the risk of CMD was influenced by several factors, including age, sex, religious identity, time of service with the FHS, work processes, neighborhood, profile of neighborhood, and experience with violence.

According to Seligmann-Silva et al. [25], work-related mental problems are increasing in Brazil. Increasingly fatiguing and degrading work conditions raise the risk of drug abuse, accidents, and disability, with high social and mental costs for society.

The important role CHWs play in the community and in the implementation of public health actions in Brazil highlights the urgency of changing this adverse scenario with the participation of the workers via opportunities for exchange and discussion, resignifying traumatic work experiences. Cremonese et al. [26] suggest simple actions to prevent or reduce suffering, such as encouraging teamwork, psychotherapy, sports, and religious encounters.

Nevertheless, the socioeconomic determinants of violence in the community and on the work environment should not be ignored. Curbing urban violence requires decisions at higher levels, above and beyond the reach of the FHS, but local strategies can be adopted, which attenuate the impact of violence on health professionals, keeping the workplace safer, healthier, and less distressing.

Although FHS workers (especially CHWs) are prone to emotional distress from violence, coping strategies recently developed by health professionals promise some degree of relief. To shield themselves psychologically, FHS workers are building networks of protection and solidarity with residents, reducing vulnerability and reinforcing collective trust and spiritual fortitude [27]. Despite that, the use of medication for emotional dysregulation is high among CHWs. Patel [28] indicates that task-sharing of psychosocial interventions is the most important priority for mental health policy and practice. Psychotherapy alone outperformed antidepressant medication, and thus, should be prioritized for the treatment in many mental health problems.

Relevant findings of this study, such as the association between religious identity and mental health, are supported by many studies reporting religious involvement to be positively correlated with indicators of psychological well-being, such as satisfaction with life and manageable levels of depression, alcohol/drug abuse, and suicidal ideation [29].

Although religious identity in general was associated with lower rates of CMD in our sample, its protective effect against violence within the household is more difficult to interpret. For exam-

ple, recent studies associate domestic violence with Protestant/Evangelical identity, lower family income, residence in poorer neighborhoods, absence of marital ties, lower schooling levels, and an alcoholic spouse [30,31].

The influence of religious identity on mental health has been studied extensively, but the factors determining the relationship are not clearly understood. However, available evidence confirms the relevance of an active faith, especially in situations of poverty, inequality, and violence beyond the control of the individual.

Our study associated domestic violence against women with CMD. This is supported by the literature, which shows that women suffering domestic violence tend to have lower body mass indices [32], higher rates of depression, post-traumatic stress, psychosis, digestive disorders, and suicide ideation [33], as well as a greater likelihood of premature childbirth and low birth weight [34]. These findings suggest overlapping factors in the occurrence of CMD in CHWs. In other words, many CHWs are exposed to the combined risk of domestic and occupational violence, compounding the mental health burden.

Physically or otherwise, violence is strongly correlated with burnout symptoms in health professionals, indicating an increased exposure to CMD and related comorbidities [19]. In fact, in urban environments in the Northeastern Brazil, the mental and physical fatigue of health workers induced by exposure to violence is maximized by the excessive workload, the insufficient primary health care coverage, and the disproportionate number of families served by each CHW, especially in borderline areas with highly adverse socioeconomic conditions [35].

CHWs whose social and cultural life coincides with their work neighborhood may suffer from anxiety. Many feel they are expected to address all health issues in their community and find it difficult to keep private and professional matters apart, besides frustrations over the inefficiency of the public health care system [36]. In other words, besides tension and fear from exposure to violence on the work environment, many CHWs experience feelings of despondency due to adverse working conditions [17].

Living in a neighborhood with criminal gangs inevitably affects the mental health of residents (not only the direct victims of violence), burdening individuals and society alike and escalating the prevalence of depression and anxiety [37,38].

CHWs often describe physical strain on the work environment (extension of the community served, localized violence, inadequate infrastructure), as well as cognitive strain (technical information overload, changes in information systems and procedures) and mental strain (fragile team dynamics, excessive workload, frustration with system inefficiency, lack of acknowledgment) [39]. The combination of these factors is likely to make CHWs more vulnerable to the threat of urban violence and compromise bonding with the large number of families in their neighborhood.

Living and working in violent environments is exhausting. In the United States, violence has had a heavy impact on the health care sector, including treatment of injuries and prevention of violence against physicians, staff, and the surrounding community. In 2017 alone, violence resulted in 2.3 million emergency room visits and 376,500 admissions, at a total estimated cost of USD 8.7 billion. Short- and long-term physical and psychological rehabilitation of victims of violence adds another USD 429 million to the direct and indirect cost borne by the US health care system. In fact, workers are more exposed to violence in the health care sector than in the average private sector: 7.8 vs. 2.0 cases per 1,000 workers per year [40].

The pattern is similar in Brazil, with the addition of resource waste, elevated hospital costs, social security costs related to sick leave, stagnating health indicators, and negative psychological effects on the population. The violence affecting CHWs has implications for the population's health, directly or indirectly, as when CHWs are prevented from carrying out routine tasks, and this is reflected in the health indicators of the neighborhood. Thus, if urban violence and social inequality are not addressed with intersectoral measures, the adoption of public health policies for the community and for health professionals are unlikely to produce the expected benefits.

Notably, the information used in this study was collected prior to the COVID-19 pandemic. The prevalence of CMD among CHWs is likely to have risen since early 2020 because of the increased workload of health professionals related to the containment of the disease [1]. The combined effect of violence and the pandemic has exacerbated the aforementioned scenario. The imposed lockdowns

and social distancing measures have made everyday actions more demanding for CHWs and have prevented elective procedures, with a likely further deterioration in public health indicators.

Despite the generation of knowledge regarding the impact of violence on CHW mental health, this study still has limitations. The fact that the data collection occurred in a municipality with high levels of violence [18] may have influenced our results. Furthermore, the fact that CHWs that were on sick leave due to health issues were excluded from the study may have underestimated the prevalence of CMH on the study population, as it is plausible to imagine that some of the absences were due to mental health problems. We did not have access to the reason of CHW sick leaves, thus we cannot consider this possible underestimation on our study.

Conclusion

The prevalence of CMD among CHWs in Fortaleza was influenced by high levels of localized violence and on the work environment. Our hierarchical analysis revealed that CMD is associated with age, sex, religious identity, time as a CHW for the FHS, neighborhood of employment (subprefecture), involvement in community activities, identifying the absence of bonding with families as an obstacle, having suffered domestic violence, use of medication for emotional dysregulation, identifying the neighborhood as violent, identifying violence as a physical and mental health determinant, and identifying impunity as a cause of violence.

Studies on work-related violence and associated mental health problems among CHWs, and effective measures to relieve this predicament, are urgently necessary. Health care managers should encourage collective initiatives of psychotherapy on the work environment, frequent team activities, training in coping skills and health education to motivate workers and relieve the burden of CMD. Likewise, the authorities should be urged to extend FHS coverage, provide a secure work environment at health facilities and in the neighborhood, and give incentives to sports, culture, and leisure in the community via intersectoral programs.

Contributors

A. P. G. F. Vieira-Meyer contributed to the study conception and design, data collection, analysis and interpretation, writing, and revision of the manuscript; and approved the final version of the manuscript. A. P. P. Morais contributed to the study conception and design, data collection, analysis and interpretation, writing, and revision of the manuscript; and approved the final version of the manuscript. H. P. G. Santos contributed to data analysis and interpretation, writing, and review of the manuscript; and approved the final version of the manuscript. A. K. Yousafzai revised the manuscript; and approved the final version of the manuscript. I. L. B. Campelo contributed to data analysis and interpretation, writing and review of the manuscript; and approved the final version of the manuscript. J. M. X. Guimarães contributed to data analysis and interpretation, writing and review of the manuscript; and approved the final version of the manuscript.

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Resumo

A violência é um grande problema social no Brasil, com graves repercussões no setor de saúde. Profissionais da atenção primária à saúde, principalmente os agentes comunitários de saúde (ACS), apresentam alto risco de violência nas instalações e na área de vulnerabilidade social onde atuam. Este estudo analisou as relações entre condições adversas de trabalho e as dimensões da violência no território na prevalência de transtornos mentais comuns (TMC) entre ACS de Fortaleza, uma capital do Nordeste do Brasil. As informações foram coletadas por meio de um questionário de autorrelato (Self-Reporting Questionnaire-20) *com itens sobre dados sociodemográficos, violência relacionada ao trabalho, sinais e sintomas psicoemocionais, cuidados em saúde mental e ausência ao trabalho por problemas gerais ou de saúde mental. Com base nas respostas de 1.437 ACS, a prevalência de TMC (32,75%) foi associada à violência percebida, testemunhada ou sofrida na área de trabalho. Na análise hierárquica, os TMC estavam associados a idade, sexo, identidade religiosa, anos de experiência como ACS na Estratégia Saúde da Família (ESF), bairro onde trabalha, atividades na comunidade, considerando a falta de vínculo com as famílias como obstáculo, ter sofrido violência doméstica, uso de medicação para desregulação emocional, identificar o bairro como violento, considerar violência um determinante da saúde física ou mental e identificar a impunidade como causa de violência. Assim, o trabalho e a saúde mental dos ACS foram significativamente afetados pelas dimensões da violência. Nossos achados são relevantes para a adoção de estratégias para mitigar os efeitos da violência no trabalho e na saúde mental dos ACS.*

Violência; Exposição à Violência; Saúde Mental; Agentes Comunitários de Saúde; Atenção Primária à Saúde

Resumen

La violencia es un problema social importante en Brasil, con graves impactos en el sector de la salud. Los profesionales de la atención primaria de salud, en especial los agentes comunitarios de salud (ACS), se encuentran en alto riesgo de violencia en los establecimientos y en el área de vulnerabilidad social donde actúan. Este estudio analizó la relación entre las condiciones laborales adversas y las dimensiones de la violencia localizada en la prevalencia de los trastornos mentales comunes (TMC) entre los ACS de Fortaleza, una capital en la Región Nordeste de Brasil. Para recabar la información, se aplicó un cuestionario de autoinforme (Self-Reporting Questionnaire-20) *que constaba de ítems sobre datos sociodemográficos, violencia laboral, signos y síntomas psicoemocionales, cuidados en salud mental y ausencia al trabajo por problemas generales o de salud mental. De las respuestas de 1.437 ACS, se constató que la prevalencia de TMC (32,75%) estuvo asociada con la violencia percibida, que se presenció o sufrió en el lugar de trabajo. En el análisis jerárquico, los TMC se asociaron con la edad, el sexo, la identidad religiosa, los años de experiencia como ACS en la Estrategia de Salud Familiar (ESF), el barrio donde actúan, las actividades en la comunidad, considerando como obstáculo la falta de vínculo con las familias, haber sufrido violencia intrafamiliar, uso de medicamentos para la desregulación emocional, la identificación del barrio como violento, considerar la violencia como determinante de la salud física o mental e identificar la impunidad como causa de la violencia. Por lo tanto, el trabajo y la salud mental de los ACS se vieron significativamente afectados por las dimensiones de la violencia. Estos hallazgos son relevantes para aplicar estrategias de mitigación de los efectos de la violencia en el trabajo y en la salud mental de los ACS.*

Violencia; Exposición a la Violencia; Salud Mental; Agentes Comunitarios de Salud; Atención Primaria de Salud

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