



## Influence of work organization on the prevalence of common mental disorders among community health workers in the city of Belo Horizonte, Brazil

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*Influência da organização do trabalho sobre a prevalência de transtornos mentais comuns dos agentes comunitários de saúde de Belo Horizonte*

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### Abstract

*Introduction:* as the role of community health workers (CHW) is recognized to health system objectives it is clear the concern about prevalence of psychological symptoms among these workers, urging the identification of indicators that can be modified in favor of CHWs' mental health. *Objective:* to examine associations between the prevalence of common mental disorders (CMD) and work conditions among CHWs inserted into the primary health care of the city of Belo Horizonte, state of Minas Gerais, Brazil. *Method:* random and representative sample that included 196 individuals. Data was collected through a Self-Reporting Questionnaire (SRQ-20) and a self-administered questionnaire containing blocks related to sociodemographic questions, occupational and lifestyle habits. Multivariate analysis adopted hierarchical input of variables and Poisson regression with robust variance estimate. *Results:* the prevalence of CMD was 26.5% and it was associated with high job demands, reports of aggression against workers and dissatisfaction with personal relationships. *Conclusion:* the association of significance regarding job demands at work is worrisome because it would be possible to design CHWs' work without having them exceeding their limits. Adequacy of the organizational model and redesign of tasks can contribute positively to CHWs' mental health.

**Keywords:** worker's health; mental health; community health workers; mental disorders; SRQ-20.

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## Introduction

A significant percentage of the global burden of diseases (14%) has been attributed to neuropsychiatric disorders, particularly those related to diagnoses of depression, common mental disorders (CMD), anxiety, substance use and psychosis<sup>1</sup>. Prevalence of CMD in the group of health care workers is high, calling for intervention measures<sup>2</sup> to avoid the acknowledged risks for patients and users<sup>3</sup>.

CMD are depressive or anxiogenic morbidities that may include somatoform symptoms<sup>4</sup> screened by standard scales (Self-Reporting Questionnaire, SRQ-20, or General Health Questionnaire, GHQ)<sup>3</sup> applied to populations treated in primary care services. Recently, such scales have been used in occupational surveys interested in deepening interpretation of results from studies on social determinants of mental health<sup>5</sup>. They cannot be used to individual clinical diagnosis, but increase reliability for detection of potential cases<sup>6</sup>.

Results of population studies using the cited structural scales brought evidence on the relationship between job characteristics and occurrence of mental disorders<sup>7</sup>. In the field of public health, detection of such relationships can guide the development of strategies to improve work systems and facilitate the approach of mental health problems underlying them<sup>3</sup>.

The relation between unemployment and prevalence of CMD<sup>8</sup> is acknowledged. However, recent research highlighted the importance of employment in psychiatric disorders: on one hand, the work can open up possibilities for development of skills and social recognition; on the other, it can generate substantial stressors for workers<sup>9</sup>. In the latter, poor work quality was considered as damaging to mental health as unemployment.

In the city of Belo Horizonte, state of Minas Gerais, Brazil, with an estimated population of 2.5 million inhabitants in 2015<sup>10</sup>, the Family Health Strategy (FHS) is strongly dependent on the work of community health workers (CHW), whose mission has expanded with the deployment of the FHS. Previously focused on maternal and child care, the mission is currently extended to the family and community fields<sup>11</sup>. The implementation of this new care practice covers 70% of the population, with positive results, especially in the most vulnerable areas of Belo Horizonte<sup>12</sup>.

The mission of CHW requires autonomy, because it demands technical skills to solve problems encountered locally and reflected on the context in which they are produced. They are positive aspects for construction of professional experience. Additionally,

there is the need for knowledge related to their culture that often clashes with scientific knowledge<sup>13</sup>. In short, CHWs' work in this "hybrid" and "mediator" position, without the necessary support (definition and resources) for carrying out the procedures, can generate substantial stressors for the individuals.

Tasks are designed primarily in households of greater social risk, marked by situations of intense misery. It would not be incorrect to assume the existence of everyday tensions with possible effects on the agents' mental health. They report their fear of reprisals from users disgruntled with the offered service and there is ambivalence at the approach of a residence inhabited by people involved with crime and drugs, for example. Occupational hazards have been previously described: constant displacement on foot, exposure to bad weather and poor hygiene conditions in areas and households, as well as constant contact with infectious diseases (tuberculosis, AIDS, hepatitis C)<sup>14</sup>.

It is worth noting that CHWs live in the area where they act, being this characteristic a criterion for selecting these professionals. Thus, when the CHWs' missions are established, they face situations in which their work/life borders become blurred, developing stressors with which they will have to deal in their lives<sup>14-16</sup>.

Considering the occupational environment in which CHWs develop their activities, the hypothesis of increased prevalence of CMD in that group was assumed. For further discussion, we investigated associations between CMD prevalence and working conditions in a CHW sample inserted into the primary health care centers in Belo Horizonte.

## Method

### Design and study sample

This study is based on data from a survey that aimed to identify dimensions that involve work and health of health workers at different care levels in Belo Horizonte, Minas Gerais, Brazil, in 2009. The random sample was calculated taking into account the number and proportion of eligible subjects according to health district and prevalence of interest outcomes, and it was stratified according to each segment (workers from basic health as well as reference and emergency units, district managers and health agents), according to the original composition.

Based on the estimate of 26.0% prevalence for CMD<sup>17</sup>, a 95% confidence interval and 5% of precision, a sample of 247 CHW was selected, out of 1,495 workers. Those who were not in office because of illness, vacation, transfer, retirement or death have

been replaced, taking into account the geographical area of the health unit.

The study was approved by the Research Ethics Committee of the Federal University of Minas Gerais (UFMG, opinion no. 542/07). All participants signed the Free and Clarified Consent document.

### Studied variables

A non-identifiable self-completion questionnaire was applied. It was composed of four blocks: socio-demography information, questions about habits and lifestyle, mental health and job characteristics.

For the evaluation of CMD prevalence, the Self-Reporting Questionnaire (SRQ-20) was used in the version adapted to Portuguese, with suitable psychometric properties<sup>18</sup>. The scores range from 0 to 20, summing the affirmative answers in each question. As cutoff point, seven or more affirmative answers were defined, as CMD suspect for both sexes<sup>19</sup>.

The explanatory variables considered in the data analysis were the following: (1) socio-demographic information (sex, age, marital status, education and place of residence); (2) habits and lifestyle (frequency of physical activity, smoking and drinking habits, performing leisure activities); (3) job characteristics (physical demands, psychosocial aspects of work, social support from colleagues and management, training and working time); (4) reports of aggressions suffered in the last 12 months involving both employee and user and satisfaction with personal relationships.

The variable “physical activity” was built on the answers to the question: “How often per week do you perform physical activities (walking, exercise, sports)?”, they were categorized according to the scale: 0 = three or more times, 1 = once or twice, 2 = never.

Regarding smoking, the variable was based on the question “considering that a frequent smoker is someone who has already smoked at least 100 cigarettes, or five packs, how do you classify yourself?”, with answer options 0= non-smoker, 1= ex-smoker, and 2 = current smoker<sup>20</sup>.

The habit of drinking was assessed indirectly by CAGE (acronym related to four issues – cut down, annoyed by criticism, guilty and eye-opener), a screening tool for detection of problematic alcohol use, validated in Brazil<sup>21</sup>. Two or more affirmative responses were adopted as cutoff point for definition of suspected case of alcohol abuse<sup>22</sup>.

Physical demand at work was measured by seven questions that evaluated the worker’s opinion as to the physical characteristics of tasks. The questions

included the following topics: adopting inadequate postures, maintaining orthostatic posture or sitting for long periods, need to walk long distances, mobilization of patients and lack of breaks. All questions had the following possible answers 0 = never, 1 = rarely, 2 = sometimes, and 3 = always. Higher scores indicate a greater physical demand at work. The variable was operationalized from the sum of the items above, which were then categorized by the median in low physical demand (equal to or below the median) and high physical demand (above the median values).

Psychosocial work conditions were assessed using the Job Content Questionnaire (JCQ). It assesses domains of job demands (those regarding the job, such as time pressure, required concentration level, interruption of tasks and need to wait for activities performed by other workers), job control (use and development of skills and authority for decision making) and social support at work (relations with colleagues and bosses)<sup>23</sup>. Domains were analyzed separately from calculation of the medians to form two categories for job demands (high/low), job control (high/low), and social support at work (high/low).

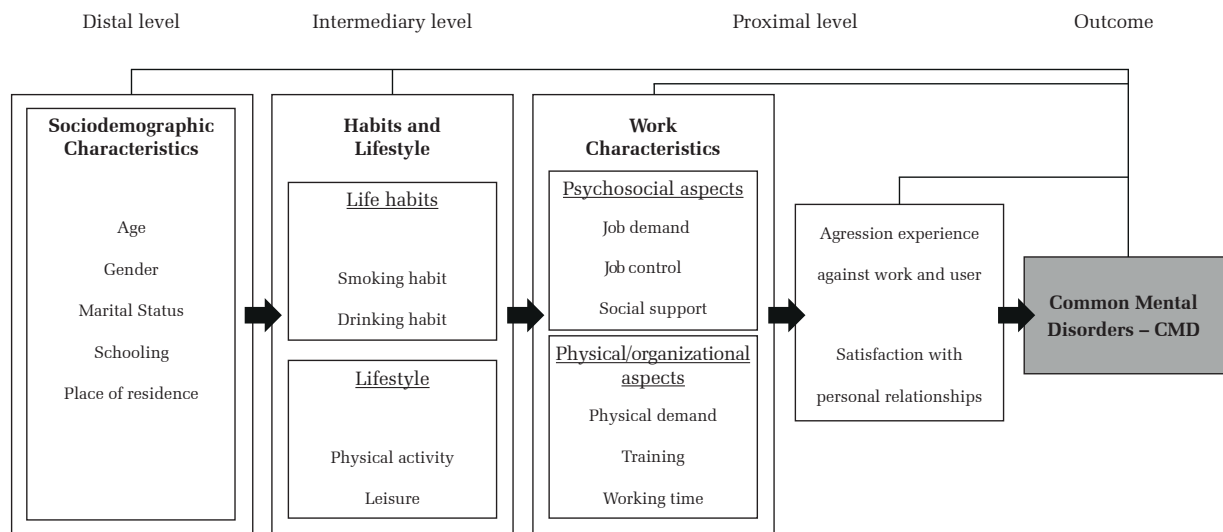
The authors studied the occurrence of aggressions either against workers or users in the last 12 months. In the first case, the question was: “Did you suffer any aggression in the last 12 months?”. Regarding aggression to the user, another question was presented: “In the last twelve months, was there an episode of aggression or threat committed by your bosses or co-workers against service users?”

To both questions, the response options were 0 = never; 1 = once; 2 = sometimes; 3 = frequently. If the answer to the first question was affirmative, the respondent was asked about what type of aggression (physical, psychological, sexual, verbal/name calling, neglect, destruction acts, others) and who committed the aggression (user/patient, neighbor, stranger, etc.). For the analysis, the answers were dichotomized into 0 = no and 1 = yes.

To assess workers’ satisfaction with their personal relationships, they were asked to what extent they were pleased with their personal relationships (friends, relatives, co-workers). They were given five choices, ranging from very dissatisfied to very satisfied. Subsequently, this variable was dichotomized into 0 = satisfied (satisfied or very satisfied) and 1 = dissatisfied (below satisfied).

### Theoretical framework for data analysis

The assumptions described based the hierarchical model preparation shown in **Figure 1**, considering CMD as the dependent variable.



**Figure 1** Model for hierarchical analysis of CMD and independent variables among basic care service CHW in Belo Horizonte, MG, Brazil, 2009

In the first stage, socio-demographic information, which relate to more stable characteristics of the individual, was included. Sex, age and education influence the position each one has in society, providing them more or less potentialities to face external environment factors<sup>24</sup>.

In the second stage, information about life habits was inserted. This strategy is guided by the clarification that socio-demographic characteristics articulate the behavior of the individual or his/her groups regarding the way he/she interacts with the environment (using drugs to face external stressors, for example), or/and the way they choose or adopt specific practices (physical activity during leisure time and healthy food, for example)<sup>2</sup>.

In the third stage, job information was included. Influences of psychosocial, physical and organizational demands are explained regarding morbidities identified in groups of basic care CHW<sup>25</sup>. Health differentials of specific groups are originated from specificities related to their work conditions<sup>26</sup>. These conditions consist of circumstances in which the work is carried out and are related to exposure to risks, such as physical, chemical, mechanical (that cause accidents and require intense musculoskeletal efforts) and biological. Damage resulting from excessive solicitations of human capabilities at work are cited as aggravating factors – effects from technical-organizational system and known as factors related to work organization<sup>27</sup>.

The report of aggressions and satisfaction with personal relationships formed the fourth stage of the hierarchical model building. Association between CMD and violent events, including aggressions, was

described in studies on both the general population<sup>28</sup> and CHW occupational groups as well<sup>29</sup>.

#### Data analysis

Statistical analysis was carried out using Stata 12.0. Initially, a descriptive analysis of distributions was conducted, as well as a verification of data consistency and categorization of continuous or discrete variables. To examine factors associated with CMD, an univariate analysis was conducted with estimates of prevalence ratios with calculation of confidence intervals. Poisson regression with robust variance estimation was used in the multivariate model, variables that presented statistical significance of 20% were inserted ( $p < 0.20$ ).

For multivariate statistic, the hierarchical input of variables was adopted. In this model, each block of independent variables is inserted in the regression equation in separated steps, which means that the theoretical model determines the temporal order of such inclusion of variables. The variables of distal blocks remained as adjustment factors for the hierarchically inferior blocks. Thus, the specific contribution of a block of variables or a specific variable can be determined regarding the effects of variables previously inserted<sup>30</sup>. The variables that were not significantly associated with CMD were excluded prior to the next variable block input and the final model contains only the factors that remained associated at level of  $\alpha = 0.05$ .

Multicollinearity tests were carried out between the independent variables that remained in the final model. Multicollinearity was considered high when it was possible to observe simultaneously if a condition index was greater than 30, if a component contributed

90.0% or more to the variance of two or more variables, and if there was a tolerance lower than 0.1 (variance inflation factor - VIF), lower than 10<sup>31</sup>.

## Results

A total of 196 CHW properly filled out the questions of SRQ-20, belonging to the set of 247 randomly selected after the sample calculation (response rate equal to 79.4%). The CMD prevalence of 26.5% was found.

**Table 1** presents the complete description of the sample.

Most participants were female (89.3%) with mean age of 38 years (standard deviation [SD] = 10.1 years), less than 30 years (29.6%), in a stable union (52.1%), high school or college education (90.3%), with one to three children (88.4%). The monthly individual income was R\$496.57 (SD = R\$18.7) on average, equivalent to the minimum wage at the time. About 44.4% of CHW lived in the microregion where they worked (**Table 1**).

Regarding healthy behavior, 28.1% practiced physical activity once or twice a week, while 20.4% stated they adopted such practice three or more times a week. Most CHW declared to be non-smokers (67.9%). According to CAGE, the majority (95.9%) did not present problematic alcohol use. Most were workers that reported leisure activities in their off hours (65.8%) (**Table 1**).

Activities of CHW require physical efforts, especially long distance displacements on foot (98.1%). Inappropriate postures were reported by 82.3% of respondents.

The proportion of CHW in the extract of high job demand is high (32.7%), in contrast to the equally high percentage of workers with low job control (62.7%) and

low social support at work (41.8%). The working time in CHW function was on average 70.0 months and 83.7% were trained for their job. As for experienced aggression, 14.8% of respondents reported suffering aggression at work, with episodes of name calling (80.0%) coming mostly from the system patient/user (60%). 16.8% of CHW reported aggressions against service users. Approximately 16.3% of CHW were dissatisfied with personal relationships at work (**Table 1**).

**Table 2** shows frequency and univariate analysis of CMD prevalence according to the explanatory variables. They show higher CMD prevalence among female respondents who reported dissatisfaction with personal relationships, and those who reported experiences with aggression and high job demands in performing tasks.

Factors significantly associated with CMD ( $p < 0.20$ ) in univariate analysis were included in the multivariate analysis (**Table 2**). The prevalence of CMD was associated with sex, age, marital status and smoking. As for the variables related to working conditions, CMD partnered with job demands at work and lack of training. Experience of aggression against the workers and users and dissatisfaction with personal relationships were also associated with the outcome.

In multivariate analysis using Poisson's regression with robust variance estimation (**Table 3**), no variable related to the individual characteristics and lifestyle remained in the model. As for working conditions, the only variable that remained significantly associated with the outcome were job demands. Experience of aggression against workers and dissatisfaction with personal relationships also remained in the model ( $p < 0.05$ ). Finally, the assumption of multicollinearity between the independent variables was tested and there was no violation of this assumption.

**Table 1** Number of observations and frequencies according to assessed variables among basic care service CHW in Belo Horizonte, MG, Brazil, 2009

	CHW	
	<i>n</i>	(%)
Individual characteristics		
Sex		
Male	21	10.7
Female	175	89.3
Age		
30 years old or less	58	29.6
More than 30 years old	138	70.4
Marital status		
Other	130	66.3
Single	66	33.7

(To be continued)



**Table 1** Continuation...

	<i>n</i>	<i>CHW</i>	(%)
Education			
Elementary school	19		9.7
High School or superior	177		90.3
Place of residence			
Out of the microregion	102		55.6
In microregion	94		44.4
Lifestyle			
Physical activity			
3 or more times	40		20.4
1 or 2 times	55		28.1
Never	101		51.5
Smoking habit			
Non smoker	133		67.9
Ex-smoker	28		14.3
Current smoker	35		17.8
Drinking habit			
Absent	188		95.9
Present	8		4.1
Leisure			
Yes	129		65.8
No	67		34.2
Working conditions			
Physical demand			
Low	109		55.6
High	87		44.4
Job demand			
Low	132		67.3
High	64		32.7
Working control			
Low	123		62.7
High	73		37.3
Social support			
Low	82		41.8
High	114		58.2
Has received training			
Yes	164		83.7
No	32		16.3
Working time			
Less than 67 months	50		25.5
More than 67 months	146		74.5
Aggression experience			
Aggression against worker			
No	167		85.2
Yes	29		14.8
Aggression against user			
No	163		83.2
Yes	33		16.8
Satisfaction with personal relationships			
Satisfied	164		83.7
Unsatisfied	32		16.3

**Table 2** Prevalence of common mental disorders (CMD) according to assessed variables among basic care service CHW in Belo Horizonte, MG, Brazil, 2009

	<i>CMD prevalence n (%<sup>**</sup>)</i>	<i>PR</i>	<i>95% CI</i>
Individual characteristics			
Sex			
Male	2 (9.5)	1	
Female	50 (28.6)	2.99	0.78 – 11.48*
Age			
30 years old or less	22 (37.9)	1	
More than 30 years old	30 (21.7)	0.57	0.36 – 0.90*
Marital status			
Other	30 (23.4)	1	
Single	22 (33.3)	1.42	0.89 – 2.26*
Education			
Elementary school	5 (26.3)	1	
High school or superior	47 (26.6)	1.00	0.90 – 1.11
Place of residence			
Out of microregion	26 (25.5)	1	
In microregion	26 (27.7)	1.23	0.78 – 1.96
Lifestyle			
Physical activity			
3 or more times	5 (12.5)	1	
1 or 2 times	12 (21.8)	1.38	0.57 – 3.34
Never	35 (34.7)	1.52	0.66 – 3.46
Smoking habit			
Non smoker	32 (24.1)	1	
Ex-smoker	11 (39.3)	1.59	0.92 – 2.77*
Current smoker	9 (25.7)	1.04	0.55 – 1.98
Drinking habit			
Absent	49 (26.1)	1	
Present	3 (37.5)	1.44	0.57 – 3.64
Leisure			
Yes	30 (23.3)	1	
No	22 (32.8)	1.40	0.88 – 2.23
Working conditions			
Physical demand			
Low	28 (25.7)	1	
High	24 (27.6)	1.07	0.67 – 1.71
Job demand			
Low	28 (21.2)	1	
High	24 (37.5)	1.91	1.20 – 3.03*
Working control			
Low	36 (29.3)	1	
High	16 (21.9)	0.78	0.47 – 1.30
Social support			
Low	24 (29.3)	1	
High	28 (24.6)	0.79	0.49 – 1.27
Has received training			
Yes	40 (24.4)	1	
No	12 (37.5)	1.59	0.95 – 2.69*

(To be continued)

**Table 2** Continuation...

	<i>CMD prevalence n (%<sup>**</sup>)</i>	<i>PR</i>	<i>95% CI</i>
Working time			
Less than 67 months	18 (36.0)	1	
More than 68 months	34 (23.3)	0.61	0.34 – 1.09
Aggression experience			
Aggression against worker			
No	38 (22.7)	1	
Yes	14 (48.3)	2.12	1.33 – 3.39*
Aggression against user			
No	39 (24.0)	1	
Yes	13 (39.4)	1.63	0.98 – 2.71*
Satisfaction with personal relationships			
Satisfied	33 (20.1)	1	
Unsatisfied	19 (59.3)	2.92	1.64 – 5.20*

\* Significant at level of 20%.

\*\* Prevalence was calculated according the relation between the number of positive cases and the total of each assessed variable category (Table 1).

PR = prevalence ratio; CI = confidence interval

**Table 3** Multivariate analysis of factor associated to common mental disorder (CMD) among basic care service CHW in Belo Horizonte, MG, Brazil, 2009

<i>Variables</i>	<i>CMD Adjusted Model</i>	
	<i>PR</i>	<i>95% CI</i>
Job demand		
Low	1	
High	1.77	1.14 – 2.76
Aggression against worker		
No	1	
Yes	1.87	1.21 – 2.90
Satisfaction with personal relationships		
Satisfied	1	
Unsatisfied	2.82	1.85 – 4.30

PR: prevalence ratio; CI = confidence interval.

## Discussion

This research focused on the prevalence of CMD, according to the results of SRQ-20 in the CHW group of primary care services in Belo Horizonte (MG). The significant association with job demands of the tasks, experience of aggression and dissatisfaction with personal relationships is noteworthy. Contrary to expectation, no socio-demographic variable or lifestyle remained in the final model.

The prevalence of CMD was higher than the results obtained in the CHW group studied in the Southern and Northeastern regions of the country<sup>2</sup> but lower than the prevalence observed in Botucatu and São Paulo<sup>29</sup>. Methodological options of the authors<sup>2,31</sup> explain, at least in part, the different results obtained, as only the last study used identical cutoff as ours to interpret SRQ-20.

The finding that most professionals were exposed to high job demands at work converges to specific literature<sup>17</sup>. It is known that health care work



is characterized by mental demands of tasks that require responsibility, decision making under time pressure and contact with acute stress situations<sup>32</sup>. It also converges with research that showed the effect of high job demands on psychological distress and depression symptoms<sup>19</sup>, both processes captured by SRQ-20. This effect is manifested by feelings of dissatisfaction and discouragement that, added to tiredness or fatigue, become important mental strain factors<sup>14</sup>. In short, it is possible that job demands at CHWs work is a risk factor for CMD<sup>3,7</sup>.

The significant positive association between experiences of aggression and CMD is consistent<sup>13,33</sup>. The existence of such violent acts is a dimension of occupational stress and disturbs the necessary collaboration that health work requires, especially in the context of basic care attention<sup>17</sup>. Negative psychological effects, such as CMD are predictors of worse health status of the individuals<sup>34</sup>.

Unexpectedly living and working in the same microregion did not influence the prevalence of CMD in CHWs. Future studies may subsidize relevant information regarding this subject.

Job control and social support at work were not associated with CMD, differently from literature. Possibly latent variables not captured by the survey explains this result. Autonomy is associated with individuals' health<sup>35</sup>, but was not associated with negative effects of high demand on the mental health of CHW in the basic care network of São Paulo<sup>17</sup>.

The role of CHW in the context of FHS should be highlighted. The labor dynamics of CHW is critical for monitoring the users of health service, as it acts as a link between staff and population<sup>36</sup>. The professional field that focuses on a gap between scientific knowledge and the experience built by reducing the boundaries between the user and the health staff.

However, there may be paradoxical requirement for the CHW, as the community places them in a predominantly personal relationship, and the health staff expects from him/her a technical and pedagogic practice. The required liability may, for example, generate anxiety when CHW compare their knowledge and income with other professionals of the staff<sup>13</sup>. It is possible that such contradictions are in fact an expression of professional identity construction process of this group, reflecting insecurity or difficulties in decision making by the CHW on the community's own dilemmas and on those of the own staff<sup>13</sup>.

No socio-demographic characteristics or lifestyle was associated with the occurrence of CMD. Similar results are shown in literature<sup>17,29</sup>. Still, it draws attention to the absence of association with the female sex in the model for hierarchical analysis of CMD adopted

in this study. It is not possible to explain such result, since it is recognized that women are disproportionately vulnerable to mental health problems<sup>37</sup>.

From any angle, the results indicate the need to draw up measures to change the organization of work. However, it is not surprising that the association significance regarding job demand at work is worrisome because it would be possible to design services and tasks in order to strengthen CHW in tasks without exceeding his/her own limits.

If the task nature cannot be modified, it is possible to provide resource services, both material and organizational, to facilitate the development of operating methods employed by CHW. The organizational model can provide the agents with more time to deal with the cases, ensuring continuous training mechanisms and expanding the space to talk about the experienced stressors.

It is recognized that the consolidation of the Brazilian Unified Health System (SUS) and the development of primary care in recent years have brought success to many goals of health reform: increasing the supply, access and service use; reducing child mortality; reduction in hospitalizations. Despite the recognition of the key role of human resources for the goals of health systems produced within the health reforms in the world<sup>38</sup>, there are remaining challenges for the management of work.

The current model of labor management in primary care may be creating barriers to the activity of CHW, as planning the number of households per staff tends to create incongruities between the numerical target and principles of SUS that guide the activity<sup>39</sup>.

Advantages and limitation of this study should be discussed. Cross-sectional studies produce a snapshot of the population exposure or sample the effect studied. So, the burden of identifying only associations between variables is assumed.

This study focused on the health of CHW in Belo Horizonte. therefore, comparisons with other populations require careful observation. However, this study becomes more relevant because it is a random and representative sample, which suggests internal validity. In addition, the prevalence of CMD found is consistent regarding the literature on the subject and corroborates the results described.

The effect of a healthy worker should be considered, because it is possible that there was underestimation of the results, since individuals away from work for reasons of health<sup>40</sup> were not interviewed. The limitation is an additional element to the unknown number of individuals retired prematurely or who were unable to remain in their posts because of mental health symptoms.

In short, taking care of one's own health is not exclusively the result of free will or decisions in the individual sphere. Health promotion depends on decisions on management spectrum. For CHW, the results on the prevalence of CMD and associated

factors (psychological demands of work, experience of aggression and dissatisfaction with personal relationships) suggest the need to redesign tasks and organizational model to support the development of work in primary care health of Belo Horizonte.

## Authors' contributions

Alcântara, M. A.: responsible for the design, analysis and interpretation of data, critical review, drafting and final approval of the article. Assunção, A. A: participated in data collection, preparation of the manuscript, critical review, drafting and final approval of the published version.

## References

1. Prince M, Patel V, Saxena S, Maj M, Maselko J, Phillips MR, et al. No health without mental health. *Lancet*. 2007;370(9590):859-77.
2. Dilélio AS, Facchini LA, Tomasi E, Silva SM, Thumé E, Piccini RX, et al. Prevalence of minor psychiatric disorders among primary healthcare workers in the South and Northeast regions of Brazil. *Cad Saúde Pública*. 2012;28(3):503-14.
3. Gärtner FR, Nieuwenhuijsen K, van Dijk FJH, Sluiter JK. Impaired work functioning due to common mental disorders in nurses and allied health professionals: the Nurses Work Functioning Questionnaire. *Int Arch Occup Environ Health*. 2012;85(2):125-38.
4. Goldberg DP, Huxley P. Common mental disorders: a bio-social model. Cambridge: Tavistock/Routledge; 1992.
5. Lahelma E, Laaksonen M, Martikainen P, Rahkonen O, Sarlio-Lähteenkorva S. Multiple measures of socioeconomic circumstances and common mental disorders. *Soc Sci Med*. 2006;63(5):1383-99.
6. Andreoli SB, Almeida Filho N, Coutinho ESF, Mari JJ. Identificação de casos psiquiátricos em estudos epidemiológicos multifásicos: métodos, problemas e aplicabilidade. *Rev Saúde Pública*. 2000;34(5):475-483.
7. Bilsker D. Mental Health Care and the Workplace. *Can J Psychiatry*. 2006;51(2):61-2.
8. Butterworth P, Leach LS, Mcmanus S, Stansfeld SA. Common mental disorders, unemployment and psychosocial job quality: is a poor job better than no job at all? *Psychol Med*. 2013;43(8):1763-72.
9. Marklund S, Bolin M, Von Essen J. Can individual health differences be explained by workplace characteristics? – A multilevel analysis. *Soc Sci Med*. 2008;66(3):650-62.
10. Instituto Brasileiro de Geografia e Estatística. Cidades: Minas Gerais, Belo Horizonte, 2015 [citado em 2016 abr 8]. Disponível em: <http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=310620>.
11. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. O trabalho do agente comunitário de saúde. Brasília: Ministério da Saúde; 2009.
12. Mendonça CS, Harzheim E, Duncan BB, Nunes LN, Leyh W. Trends in hospitalizations for primary care sensitive conditions following the implementation of Family Health Teams in Belo Horizonte, Brazil. *Health Policy Plan*. 2012;27(4):348-55.
13. Nunes MDO, Trad LB, Almeida BDA, Homem CR, Melo MCIC. Community-based health workers: building the identity of this hybrid, polyphonic character. *Cad Saúde Pública*. 2002;18(6):1639-46.
14. Trindade LL, Gonzales RMB, Beck CLC, Lautert L. Cargas de trabalho entre os agentes comunitários de saúde. *Rev Gaúcha Enf*. 2007;28(4):473-9.
15. Lancman S, Ghirardi MIG, Castro ED, Tuacek TA. Repercussões da violência na saúde mental de trabalhadores do Programa Saúde da Família. *Rev Saúde Pública*. 2009;43(4):682-8.
16. Murofuse NT, Rizzotto MLF, Muzzolon ABF, Nicola AL. Diagnóstico da situação dos trabalhadores em saúde e o processo de formação no polo regional de educação permanente em saúde. *Rev latinoam enferm*. 2009;17(3):314-20.
17. Braga LC, Carvalho LR, Binder MCP. Working conditions and common mental disorder among primary health care workers from Botucatu, São Paulo State. *Ciênc Saúde Coletiva*. 2010;15 Suppl 1:1585-96.
18. Mari JJ, Williams P. A validity study of a Psychiatric Screening Questionnaire (SRQ-20) in Primary care in the city of São Paulo. *Br J Psychiatry*. 1986;148:23-6.
19. Araújo TM, Aquino E, Menezes G, Santos CO, Aguiar L. Work psychosocial aspects and

- psychological distress among nurses. *Rev Saúde Pública*. 2003;37(4):424-33.
20. Souza RA, Oliveira CL, Lima-Costa MF, Proietti FA. A satisfação com o entorno físico e social e o hábito de fumar cigarros na região metropolitana de Belo Horizonte. *Rev bras epidemiol*. 2014;17(3):775-86.
  21. Masur J, Monteiro MG. Validation of the “CAGE” alcoholism screening test in a Brazilian psychiatric inpatient hospital setting. *Braz J Med Biol Res*. 1983;16(3):215-8.
  22. Amaral RAD, Malbergier A. Evaluation of a screening test for alcohol-related problems (CAGE) among employees of the Campus of the University of São Paulo. *Rev Bras Psiq*. 2004;26(3):156-63.
  23. Araújo TMD, Graça CC, Araújo E. Occupational stress and health: contributions of the Demand-Control Model. *Ciênc Saúde Coletiva*. 2003;8(4):991-1003.
  24. Muntaner C, Borrell C, Vanroelen C, Chung H, Benach J, Kim H, et al. Employment relations, social class and health: a review and analysis of conceptual and measurement alternatives. *Soc Sci Med*. 2010;71(12):2130-40.
  25. Garcia LP, Höfelmann DA, Facchini LA. Self-rated health and working conditions among workers from primary health care centers in Brazil. *Cad Saúde Pública*. 2010;26:971-80.
  26. Lahelma E, Laaksonen M, Aittomäki A. Occupational class inequalities in health across employment sectors: the contribution of working conditions. *Int Arch Occup Environ Health*. 2009;82(2):185-90.
  27. Telles SH, Pimenta AMC. Síndrome de Burnout em ACS e estratégias de enfrentamento. *Saúde Soc*. 2009;18(3):467-78.
  28. Santos EG, Siqueira MM. Prevalência dos transtornos mentais na população adulta brasileira: uma revisão sistemática de 1997 a 2009. *J Bras Psiquiatr*. 2010;59(3):238-46.
  29. Silva ATC, Menezes PR. Burnout syndrome and common mental disorders among community-based health agents. *Rev Saúde Pública*. 2008;42(5):921-9.
  30. Victora CG, Huttly SR, Fuchs SC, Olinto MT. The role of conceptual frameworks in epidemiological analysis: a hierarchical approach. *Int J Epidemiol*. 1997;26(1):224-7.
  31. Martins, AMEB, Barreto SM, Pordeus IA. Objective and subjective factors related to self-rated oral health among the elderly. *Cad Saúde Pública*. 2009;25(2):421-35.
  32. Tomasi E, Facchini LA, Piccini RX, Thumé E, Silveira DSD, Siqueira FV, et al. Epidemiological and socio-demographic profile of primary care workers in the South and Northeast of Brazil. *Cad Saúde Pública*. 2008;24 Suppl 1:s193-s201.
  33. Resende MCD, Azevedo EGS, Lourenço LR, Faria LDS, Alves NF, Farina NP, et al. Mental health and anxiety in community health agents in Uberlândia (MG, Brazil). *Ciênc Saúde Coletiva*. 2011;16(4):2115-22.
  34. Herrman H, Saxena S, Moodie R. Promoting mental health: concepts, emerging evidence, practice: a report of the World Health Organization, Department of Mental Health and Substance Abuse in collaboration with the Victorian Health Promotion Foundation and the University of Melbourne. Geneva: World Health Organization; 2005.
  35. Kaikkonen R, Rahkonen O, Lallukka T, Lahelma E. Physical and psychosocial working conditions as explanations for occupational class inequalities in self-rated health. *Eur J Public Health*. 2009;19(5):458-63.
  36. Barros MMM, Chagas MIO, Dias MSA. Knowledge and practices of the community health agent in the universe of mental disorder. *Ciênc Saúde Coletiva*. 2009;14(1):227-32.
  37. Bekker MH, Rutte CG, van Rijswijk K. Sickness absence: A gender-focused review. *Psychol Health Med*. 2009;14(4):405-18.
  38. Fritzen AS. Strategic management of the health workforce in developing countries: what have we learned? *Hum Resour Health*. 2007;5(4). doi:10.1186/1478-4491-5-4.
  39. Vilela RAG, Silva RC, Jackson Filho JM. Poder de agir e sofrimento: estudo de caso sobre Agentes Comunitários de Saúde. *Rev Bras Saúde Ocup*. 2010;35(122):289-302.
  40. Shah D. Healthy worker effect phenomenon. *Indian J Occup Environ Med*. 2009;13(2):77-9.