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Perceived stress among Primary Health Care Professionals in Brazil

Estresse percebido em profissionais da Estratégia Saúde da Família

Luiz Bernardo Leonelli[I], Solange Andreoni[I], Patricia Martins[II], Elisa Harumi Kozasa[III], Vera Lúcia de Salvo[I], Daniela Sopezki[I], Jesus Montero-Marin[IV], Javier Garcia-Campayo[V], Marcelo Marcos Piva Demarzo[I,III]

ABSTRACT: ***Objective:*** To evaluate the perceived stress (PS) of professionals in Primary Health Care and its association with the characteristics of the teams in the Family Health Program (FHP). The association between PS and self-referred morbidity was also investigated. ***Methods:*** This is a cross-sectional study conducted with 450 employees from 60 teams in 12 Basic Health Units (BHUs) in a region of São Paulo. The differences in the total score in the Perceived Stress Scale were evaluated through multiple linear regression models. ***Results:*** Higher levels of PS were observed in those who had been working for one year or more in the same team, in the categories of doctors, nurses and community health workers, females, non-religious, and in BHU professionals in incomplete teams (absence of a physician). Lower perceived stress was found in widowers. It was observed that individuals with higher levels of PS have higher chances of reporting chronic health problems. ***Conclusion:*** It can be concluded that the perception of stress in this population is associated with individual, professional factors, and the composition of teams in healthcare units.

Keywords: Psychological stress. Occupational health. Primary health care. Family Health Strategy. Health Centers.

[I]Department of Preventive Medicine, Universidade Federal de São Paulo – São Paulo (SP), Brazil.
[II]School of Medicine, Universidade de Itaúna – Itaúna (MG), Brazil.
[III]Hospital Israelita Albert Einstein – São Paulo (SP), Brazil.
[IV]Faculty of Health Sciences and Sports, University of Zaragoza – Huesca, Spain.
[V]Faculty of Medicine, University of Zaragoza – Spain.
Corresponding author: Marcelo Marcos Piva Demarzo. Rua Botucatu, 740, CEP: 04038-034, São Paulo, SP, Brasil. E-mail: demarzo@unifesp.br
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RESUMO: ***Objetivo:*** Avaliar o estresse percebido (EP) de profissionais da Estratégia de Saúde da Família (ESF) e a associação com características das equipes. Também foi investigada a ocorrência de associação entre EP e morbidade autorreferida. ***Métodos:*** Trata-se de estudo transversal com 450 trabalhadores de 60 equipes em 12 Unidades Básicas de Saúde (UBS), em uma região de São Paulo. As diferenças entre o escore total da Escala de Estresse Percebido e suas associações com as características individuais e das equipes foram avaliadas por meio de modelos múltiplos de regressão linear. ***Resultados:*** Observaram-se níveis mais elevados de EP naqueles com tempo de trabalho igual ou superior a um ano na mesma equipe, nas categorias de médicos, enfermeiros e agentes comunitários de saúde, gênero feminino, em não praticantes de credos religiosos, e em profissionais de UBS com equipes incompletas (ausência do médico). Menor estresse percebido foi encontrado em viúvos. Observou-se que indivíduos com níveis mais elevados de EP têm mais chance de relatar problemas crônicos de saúde. ***Conclusão:*** Conclui-se que a percepção de estresse na população estudada está associada a fatores individuais, profissionais, e à composição das equipes nas unidades básicas de saúde.

Palavras-chave: Estresse psicológico. Saúde do trabalhador. Atenção primária à saúde. Estratégia de Saúde da Família. Unidade Básica de Saúde.

INTRODUCTION

The Family Health Program (FHP) is understood as a reorientation strategy of the care model assisted by the implementation of multidisciplinary teams in Basic Health Units (BHUs), in a defined geographic area[1].

In face of so many work demands, it has been observed that the professionals who make up the teams are submitted to psychosocial[2,3,4] and environmental risk factors related to work[5,6,7] generating both physical and psychological symptoms associated with work stress[4,5,8].

Health professionals with chronically elevated levels of perceived stress (PS) are known to be more prone to burnout syndrome, as they are also susceptible to conditions such as fatigue, insomnia, anxiety, depression, obesity, coronary diseases, diabetes, cancer, psychosomatic disorders and drug abuse. Thus, the quality of health care may be compromised[9,10,11,12], consequently decreasing the quality of clinical results among those in follow-up[13,14], and increasing patients' dissatisfaction with the health care offered[15].

Given the scarcity of empirical data on the theme in Brazil, this study aims to evaluate the levels of PS among professionals in FHP, and verify their association to the characteristics of the teams to which they are connected. The association between PS and self-reported morbidity was also investigated in this population.

METHODS

This is a cross-sectional study, carried out between October 2011 and February 2012, using self-report questionnaires. The study area was a neighborhood in the

municipality of São Paulo with approximately 285,000 inhabitants (2010), with mean Family income of about R$ 720.00 and a Human Development Index (HDI) considered as average[16]. This neighborhood was chosen due to access to the Basic Health Units (BHUs), integrated in a single social organization which manages all Family Health Teams (FHT) in the region. The minimal teams consisted of six community health agents (CHA), two auxiliary nurses, one nurse and one doctor, according to the current regulations[17].

All 570 professionals from the BHUs who had FHT in the period studied were invited. The professionals were distributed into 60 teams over 12 BHUs. Inclusion criteria were: voluntary acceptance of participation in the research and being a professional in the FHT, identified by contract. Exclusion criteria were: absence due to vacation; being a temporary doctor on duty shifts; being away for reasons related to health, such as sickness, accident or maternity leave, and by the National Institute of Social Security (*Instituto Nacional de Seguridade Social* – INSS); and absence by dismissal. Data collection in BHUs was performed collectively and under the supervision of field researchers. Each unit was visited at least twice, with a three-week interval. The questionnaires were distributed individually and consisted of closed question on sociodemographic data, occupational characteristics, self-reported morbidity and the Perceived Stress Scale (PSS), in its previously validated version in Brazil[18]. The PSS is used internationally to measure the PS among health workers and other areas, universally and non-specifically in relation to stressors[17], and correlate to other instruments which measure physical and psychological symptoms associated to stress, such as anxiety, depression and burnout[19,20]. The translation of PSS into Portuguese was proven valid regarding its clarity. The scale had good reliability, and construct validity verified by the alpha Cronbach's coefficient found and by the factorial loads obtained (varimax method) [18].

The PSS was used from the previous month of the application of the instrument[14]. Answers to items evaluating situations considered stressful are of the Likert type, with options ranging from zero to four points (0 = never; 1 = almost never; 2 = sometimes; 3 = almost always and 4 = always). PS is given by the sum of scores in all answers and varies from 0 to 56 points. In questions 4, 5, 6, 7, 9,1 0 and 13, the score is summed up in reverse[18]. The original score (0 to 56) was transformed to a basis of 0 to 100, in order to facilitate the visualization and understanding of the results. Changes of 1 point in the original scale of mean PSS (0 to 4 points) are equivalent to the change of 25 points in the scale from 0 to 100.

Self-reported morbidity was built based on reports of existing current "diseases", from the answers to questions about the occurrence of: diabetes, cardiac disease, hypertension, arthritis, asthma, thyroid disease, anemia, epilepsy, headache or migraine, neurological diseases, low back pain, anxiety, depression and other "diseases". The time elapsed since diagnosis was not discussed.

In this study, the sociodemographic variables used were: gender, age, education, marital status and Family income. The occupational characteristics were: professional category, type of contract, qualification to work in FHP, time length of work in the unit. Information were

collected on the practice or not of mental health promoting activities, called "anti-stress practices", in order to control this confounding variable for the correlations[21]. As a proxy for such condition, participants answered to the following self-report question: "Do you regularly practice any physical or mental activity as a stress relief strategy?". Information on "practicing or not one's own religion" were collected. The time spent on these activities was not inquired.

The BHU to which the professional belonged and the characteristics of their teams were also considered as variables. Since, in the research period, only incomplete teams were found, due to the absence of doctors, the variable of incomplete teams (1 = yes; 0 = no) was used, according to the presence or absence of a doctor. It was not possible to obtain information which characterize BHUs regarding their work load which could aggregate information about the teams and BHUs. Thus, the percentage of incomplete teams in each BHU in the period studied was used to describe the "BHU effect".

All variables consisting of more than two categories were evaluated through indicative variables. The descriptive analysis of the data is presented according to absolute and relative frequencies of the evaluated characteristics. The age and mean total score of PSS were summarized with central tendency and dispersion measures by professional category. The internal consistency of the PSS was evaluated according to the Cronbach's alpha (α) reliability coefficient.

Initially, the PS was evaluated as a dependent variable, using models of multiple linear regression analysis, according to sociodemographic and occupational characteristics, religious and anti-stress activities practice, controlled by BHU and by teams within the BHUs. The linear regression model was chosen, with BHU effects, and teams within the BHUs, as being fixed (non-random) rather than multilevel models, in which the BHUs and the teams would be treated as having random effects, due to the study's design, since BHUs and the teams were not randomly selected, but all existing ones were contemplated in the region evaluated. The regression model with fixed effects is recommended in the literature when the variances associated to hierarchy levels, BHU and teams, are not significant, causing convergence problems in the multilevel model, or if the number of sample units of levels superior to the individual is lower than 30[22,23]. The results found apply only to professionals, BHUs and teams, evaluated in this study. The models used do not ignore hierarchy levels of the study (individuals, teams and BHUs), once they are controlled by them.

In the first model, the independent variables used were: gender, age, education, Family income, marital status, professional category, time of work, qualification to work with FHP, practicing anti-stress activities, religious practice, BHU to which the professional belongs, and the team within the BHU to which the professional belongs. A backward process for the removal of variables was used, keeping independent variables with significance lower than 0.20 and variables corresponding to BHUs and the teams within the BHUs. Independent variables categories were grouped according to statistical similarities regarding PS, except for the professional category, BHU and teams within the BHU. The model resulting from these procedures is 2.

In model 2, variables that parsimoniously predict PS are considered, in addition to the variables indicating BHUs and teams within BHUs. In order to verify the influence of team composition (complete or not) in PS, a model of contextual effects was used[23], called model 3. A contextual effect is defined as the effect difference of a variable on a higher level (in this case, the effect of proportions of incomplete teams in BHUs in the stress means for BHUs) and their effect on a lower level (comparison between PS means within BHUs)[23].

In model 3, the explanatory variables obtained in model 2 are considered; however, the effects of the variables corresponding to BHUs (differences between BHUs means) and the teams within BHUs (differences between the means of teams within the same BHU) were rewritten as a linear proportion function of incomplete teams in the respective BHU (the coefficient provides the effect of incomplete teams in PS of the BHUs); and of team characteristics (complete = 0 and incomplete = 1) minus the proportion of incomplete teams of the respective BHU (the coefficient provides an incomplete team effect within the BHU).

The self-reported morbidity was chosen not to be used as an explanatory variable in PS models. In the perspective approached in this study, this variable may be strongly related to age and PS as a dependent variable, and not necessarily as a cause, being used as a validity measure of the PSS[24]. Thus, self-reported morbidity was evaluated separately as a dependent variable, through the use of logistic regression models, in order to verify whether there was a connection between the health problems reported and the PSS scores, controlled by age. The most often health problems are also described. Data were organized in a database in the computer statistics software SPSS 15.0.

The research project was approved by the Research Ethics Committee (*Comitê de Ética e Pesquisa* – CEP) of Unifesp (CEP/Unifesp No. 0779/11) and by the Municipal Health Department (*Secretaria Municipal de Saúde* – SMS) of the municipality of São Paulo (CEP/SMS No. 316/11), with authorization of the regional coordination and the respective managers for the studied BHUs.

RESULTS

Five hundred and seventy professionals were identified, distributed in 12 BHUs and 60 teams, being 343 CHA, 118 auxiliary nurses, 60 nurses and 49 doctors. Of the 570 professionals, 78.9% (n = 450) participated in the study. Reasons not to take part in the study were: refusal to participate in the study (9.1%, n = 52), vacations (5.1%, n = 29), medical leave (2.8%, n = 16), INSS leave (2.1%, n = 12), maternity leave (1.1%, n = 6), dismissal period (0.5%, n = 3) and absence due to medical appointments (0.4%, n = 2). By professional category, in descending order of representation, there were 86.3% of CHA, 75.0% of nurses, 69.5% auxiliary nurses and 55.1% of doctors answering the instruments proposed.

Fourteen incomplete teams (absence of a doctor) were observed, 11 waiting for admittances and 3 due to the dismissal period, corresponding to 23.3% of the 60 teams evaluated.

One BHU had 100% of incomplete teams, six BHUs had all teams complete, and five BHUs had 14.3% to 66.7% of incomplete teams.

It is noteworthy that the highest levels of education and income are found among doctors and nurses. Doctors evaluated also had shorter time of work in relation to other workers. As for non-adjusted means of PS, standard deviation (SD, medians and percentiles of 75 by professional and total categories, an overall mean PS of 42.2 ± 13.9 was observed for the total professionals; 44.3 ± 13.3 for nurses; 42.9 ± 14.1 for community health agents; 40.7 ± 11.8 for doctors; and 39.0 ± 13.7 for auxiliary nurses. The scores regarding the percentile of 75 were 52.8 for the total, 52.7 for nurses, 53.6 for CHA, 50.0 for doctors and 48.1 for auxiliary nurses. The internal consistency of the PSS had Cronbach's alpha coefficient of 0.85.

From the perspective of using a multilevel model with random effects of BHUs and team to explain the variability of OS of these workers, given the insignificance of the components of BHUs variance, and team within the BHU, and the convergence problems as for individual and professional characteristics introduced in the model, the model of non-random effects of BHU, and teams within BHUs, were chosen to explain the PA.

Table 1 presents the adjusted models for PS through non-random BHU and team effects. In model 1 (with sociodemographic data of the individuals, professional characteristics, BHU and team within the BHU), the differences between mean PS between the categories of education and income variables were not significant. Also, there were no differences of PS due to age, specific qualification to work with the FHP and to practice anti-stress activities ($p > 0.20$). Thus, due to the use of the backward procedure, all individual characteristics with $p > 0.20$ were excluded and the categories of explanatory variables similar as for the PS were grouped, with the resulting model presented in model 2.

In the adjustment of stress scores in model 2 (individual characteristics, BHU effects and team within the BHU), no statistically significant differences were found in the mean scores among doctors, nurses and Community health agents, though it was observed that auxiliary nurses had lower mean scores for PS when compared to other professionals ($p = 0.041$). It is observed that, although statistically different from mean stress scores of nurses and community health agents, the mean score of doctors becomes the highest one when adjusted by other variables. A tendency for greater PS among females ($\beta = 5.8$; $p = 0.067$) was observed. Still in model 2, differences between PS means regarding widowhood were observed ($\beta = -10.7$; 5.8; $p = 0.027$), time of work longer or equal to one year ($\beta = 5.9$; $p = 0.002$), not practicing religious beliefs ($\beta = 3.1$; $p = 0.032$) and BHU ($p = 0.041$). There were no statistically significant differences between stress scores as for the teams within the same BHU ($p = 0.202$).

The differences between PS and BHU mean scores found in model 2 were investigated, through model 3 (Table 1) and could be explained by the composition of BHU teams (proportion of incomplete teams, *i.e.*, proportion of teams without doctors in BHUs). In this

Table 1. Estimate effects (β) estimated by regression models on perceived stress, sub-region of São Paulo (SP), 2012.

Characteristics	Model 1			Model 2			Model 3		
	β	95%CI	p-value	β	95%CI	p-value	β	95%CI	p-value
Gender			0.07			0.06			0.04
Female	6.0	[-0.5 ; 12.4]	0.07	5.8	[-0.4 ; 12.1]	0.06	6.2	[0.2 ; 12.1]	0.04
Male	ref.			ref.			ref.		
Education			0.99						
Primary Incomplete/Complete	0.4	[-8.1 ; 8.8]	0.93						
High School Incomplete/Complete	ref.								
College education Incomplete/Complete/ Graduate education	0.2	[-3.8 ; 4.2]	0.91						
Income			0.79						
< 1	0.5	[-7.6 ; 8.6]	0.90						
1 |- 3	ref.								
3 |- 6	1.2	[-2.5 ; 4.9]	0.52						
6 |- 10	0.9	[-5.6 ; 7.3]	0.79						
> 10	5.4	[-4.0 ; 14.7]	0.26						
Marital status			0.19			0.03			0.03
Single	10.9	[0.5 ; 21.3]	0.04	10.7	[1.3 ; 20.2]	0.03	9.8	[0.8 ; 18.9]	0.03
Married/Stable union	8.7	[-1.3 ; 18.6]	0.09	10.7	[1.3 ; 20.2]		9.8	[0.8 ; 18.9]	
Divorced	8.2	[-2.6 ; 19.0]	0.14	ref.			ref.		
Widower	ref.								
Age (years)	-0.065	[-0.24 ; 0.11]	0.47						
Professional			0.09			0.04			0.03
CHA	2.0	[-9.3 ; 13.4]	0.72	-2.8	[-9.1 ; 3.4]	0.37	-2.8	[-9.0 ; 3.3]	0.37
AN	-3.2	[-14.1 ; 7.7]	0.56	-6.8	[-13.5 ; -0.1]	0.05	-6.9	[-13.5 ; -0.2]	0.04
N	0.3	[-7.6 ; 8.1]	0.95	-0.8	[-7.8 ; 6.3]	0.83	-0.6	[-7.6 ; 6.4]	0.87
D	ref.			ref.			ref.		
Qualification for FHP									
No	ref.		0.50						
Yes	1.1	[-2.2 ; 4.5]	0.50						

Continue...

Table 1. Continuation.

Characteristics	Model 1			Model 2			Model 3		
	β	95%CI	p-value	β	95%CI	p-value	β	95%CI	p-value
Time of work			0.05			<0.01			<0.01
Up to 6 months	ref.			ref.			ref.		
6 months to 11 months	0.8	[-6.2 ; 7.8]	0.83	ref.			ref.		
1 year to 2 years	5.1	[-0.5 ; 10.7]	0.07	5.9	[2.1 ; 9.6]	<0.01	5.2	[1.73 ; 8.7]	<0.01
2 years to 5 years	6.1	[0.5 ; 11.8]	0.03	5.9	[2.1 ; 9.6]	<0.01	5.2	[1.73 ; 8.7]	<0.01
More than 5 years	7.4	[1.6 ; 13.1]	0.01			0.03			<0.01
Religious practice			0.12						
No	2.3	[-0.6 ; 5.3]	0.12	3.1	[0.3 ; 5.8]	0.03	3.8	[1.2 ; 6.4]	<0.01
Yes	ref.			ref.			ref.		
Anti-stress activity			0.19						
No	1.9	[-1.0 ; 4.9]	0.19						
No	ref.								
BHU			0.09			0.04			
1	4.9	[-2.1 ; 12.0]	0.17	6.1	[-0.7 ; 12.8]	0.08			
2	4.2	[-3.0 ; 11.5]	0.25	4.6	[-2.3 ; 11.6]	0.19			
3	4.6	[-2.5 ; 11.7]	0.20	4.8	[-2.0 ; 11.6]	0.17			
4	10.7	[3.3 ; 18.2]	<0.01	11.3	[4.1 ; 18.6]	<0.01			
5	5.6	[-1.2 ; 12.4]	0.10	5.9	[-0.8 ; 12.5]	0.08			
6	1.8	[-6.0 ; 9.6]	0.65	1.4	[-6.1 ; 9.0]	0.71			
7	5.9	[-0.9 ; 12.7]	0.09	6.4	[-0.1 ; 13.0]	0.05			
8	1.5	[-5.8 ; 8.7]	0.69	1.4	[-5.7 ; 8.4]	0.70			
9	9.2	[0.5 ; 17.9]	0.04	8.8	[0.4 ; 17.3]	0.04			
10	9.1	[1.9 ; 16.3]	0.01	9.4	[2.4 ; 16.5]	0.01			
11	5.8	[-1.4 ; 13.0]	0.11	5.9	[-1.1 ; 12.8]	0.09			
12	ref.			ref.					
Team within BHUs			0.29			0.20			
Proportion of incomplete teams in BHUs							4.2	[0.1 ; 8.3]	0.04
Incomplete team – Proportion of incomplete teams in BHUs							2.9	[-1.8 ; 7.6]	0.23
R^2	23.7%			22.3%			7.6%		
Estimated variance	180.7			176.5			182.6		
Adjusted mean	35.8	[30.7 ; 40.9]		33.4	[27.9 ; 39.0]		34.1	[28.9 ; 39.4]	

CHA: Community health agents; AN: auxiliary nurse; N: nurse; D: doctor; FHP: Family Health Program; ref.: category of reference.

model, higher stress means among females were observed (β = 6.2; p = 0.042); as well as time of work equal or longer than one year of service (β = 5.2; p = 0.003); professional categories involving doctors, nurses and CHA (p = 0.033); and non-practitioners of religious beliefs (β = 3.8; p = 0.004); and the lowest mean stress score in widowhood (β = -9.8; p = 0.033). Also in model 3, it was observed that, the greater the proportion of incomplete teams in each health units, the greater the PS (β = 4.2; p = 0.047). In fact, BHUs consisting only of incomplete teams have, on average, 4.2 points of increase in PS regarding BHUs with all teams completed (Table 1, Figure 1). No differences were found among the means of the teams within the same BHU (p = 0.227) nor indications of contextual effects of incomplete teams in PS (1.3 = 4.2-2.9; p = 0.680; 95%CI [-5.0; 7.6]). The magnitude of the differences found (β) in OS was modest, since the change of 1 point in the original scale of the mean PSS (0 to 4 points) is equivalent to the change of 25 points in the scale from 0 to 100.

Although incomplete teams by absence of doctors explain some differences between PS of the BHUs and the teams, there still seem to be other BHU characteristics, teams and individuals to influence these differences that were not measured. This can be observed through the proportion of variance of PS explained by factors considered in model 3 (R^2 goes from 22.3% in model 2 to 7.6% in model 3).

The effect of the absence of doctors was also investigated, being different among professionals, from three types of interactions tested between professional, proportion of incomplete teams in BHUs and teams within BHUs. None of these interactions were significant (all p > 0.134).

Some verifications were made for the generalization of the model obtained by multilevel models with random BHU and team effects. In this case, the effect of proportion of incomplete teams on PS would be non-significant (p = 0.146) and the effect of other characteristics slightly decreased, though with < 0.05.

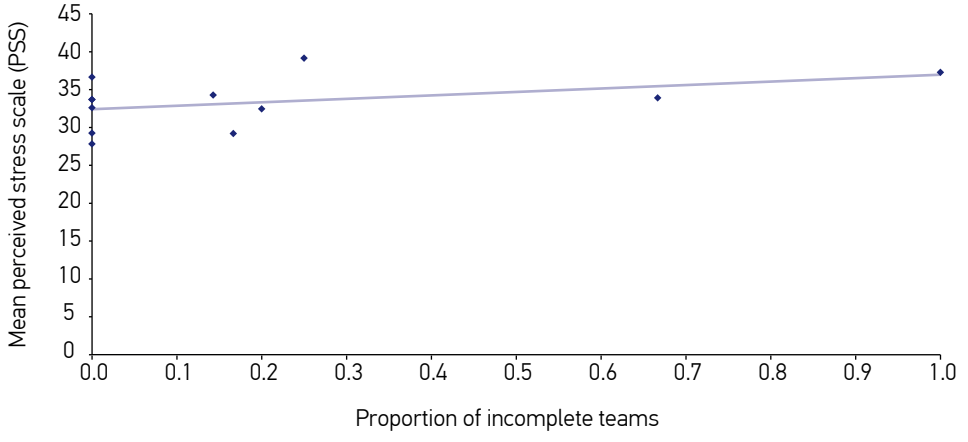

Figure 1. Adjusted mean of perceived stress (model 2) by the proportion of incomplete teams in BHUs, sub-region of São Paulo (SP), 2012.

Secondarily, there was an association between the scores of PS and the report of chronic health problems (self-reported morbidity) among professionals taking part in the study. About 50.2% of professionals reported currently having some health problem. Being controlled by age, the addition of a unit in the PSS score increased the chances of reports on chronic health problems by 4% or 1.04 times (*odds ratio* = 1.04; 95%CI [1.02; 1.05]) among these professionals. The most commonly reported health problems were: headaches (16.9%), anxiety (15.8%), hypertension (15.6%) and problems in the lumbar spine (14.0%).

DISCUSSION

Stress is a multidimensional and complex construct, and can be measured from different models, such as the environmental, biological and psychological ones[24,25,26]. In this study, different methodologies were used from the application of questionnaires and self-report scales in order to increase reliability in the study as a psychological model for the evaluation of work-related stress. Literature data indicate that self-reported instruments generate evidence of self-knowledge level, a determinant factor for self-regulation, levels of resilience and stress control, as well as provide a significant number of health and wellness indicators[27,28].

The Perceived Stress Scale (PSS) used in this study is a psychological model[16] characterized by measuring the overall perception of stress. It presents high convergent validity with scales which measure symptoms of anxiety, depression and burnout syndrome[19,29], and which measure stress according to their consequences (morbidity symptoms and conditions)[25]. In this perspective, the results of the present study are potentially relevant, since they were obtained from a scale capable of inferring clinical consequences resulting from dysfunctional levels of stress. The PSS used had appropriate internal consistency (0.85), slightly superior to the one found in their validation study (0.83)[16], suggesting it as valid for PS mediation between professionals of Primary Health Care (PHC)[25].

From the results obtained, higher levels of PS were observed among doctors, nurses and CHA in relation to auxiliary nurses, which could be explained by the support function they play, resulting in lower perception of work overload as for the remaining members of the health teams[2,3,6]. Still in relation to the category, there were no statistical differences in PS levels of doctors, nurses and CHA.

As for gender, elevated levels of PS were observed among female professionals, which had already been reported previously[5], with overload factors with double or triple working hours, constituting causal hypotheses for this phenomenon[30].

Higher PS levels were also found among professionals with one or more years of work in the same teams and among professionals belonging to BHUs with incomplete work teams. As for the first group, previous studies had already presented similar results[8], a fact probably associated to long-term effects due to cumulative exposure to occupational risks[30].

Regarding the composition of the teams, the results obtained are apparently unpublished in literature, evidencing an effect of incomplete teams (23.3% of total teams) in the professional group of BHU, which can be explained by the hypotheses of redistribution of tasks and actions within the scope of BHUs as a whole, having an impact on PS levels beyond each team. Future studies can prove or refute such hypothesis. However, it seems that there still are other BHU characteristics, teams and individuals that influenced these differences that were not measured, given the low variability of PS explained by the factors considered (7.6%).

The lowest levels of PS were observed among professionals in widowhood, all females and those who practiced their religious beliefs. Studies show that, in general, the wife is the main caregiver and, due to being overloaded with functions, display elevated levels of stress in this condition[31]. In relation to the positive influence of religion, previous studies presented similar results, showing the benefits from these practices, especially among CHA[30].

It is noteworthy that, having excluded professionals in medical leave, and therefore with greater probability of stress, the prevalence found may be underestimated[26]. The sociodemographic characteristics found were similar to the ones in previous studies, with FHP professionals[5,8,30]. No significant associations were found between PS and variables of age, education and income, possibly confused with the "professional category" variable.

In regard of the secondary effects resulting from stress, it was observed that individuals with more elevated levels of PS have greater chances of reporting chronic health problems. From the group of respondents, approximately one out of four presented increased risk of stress related symptoms and clinical conditions[15,18,19,21,26,29,32]. Fifty-two percent of professionals reported having some kind of health problems, although those cannot be attributed exclusively to stress, given the cross-sectional nature of the study. The problems mentioned were common mental disorders, such as anxiety, circulatory disorders such as hypertension, and musculoskeletal problems in the lumbar spine, which are similar to the ones found in literature[6,26].

The main limitation for the generalization of results in this research is due to the fact that the samples of professionals is restricted to one single region, managed by the same social organization. It is quite likely that the sociodemographic differences and the different management/organization models of work processes are relevant in relation to PS, and future studies should compare and analyze the impact of the different forms of management in health services on stress levels of their workers. Also, the study did not evaluate other potentially relevant aspects in determining the perception of stress by PHC professionals, such as work load, environmental risk factors and other factors related to the organization and work processes, with the alternatives adopted in the absence of a doctor in family health in each BHU. On the other hand, the metropolitan characteristics of the municipality and the neighborhood studied add value to the study, along with the novelty of the PS instrument used and, especially, to the fact it evaluates professional categories of the nuclear FHP teams, including doctors and auxiliary nurses, usually absent in previous studies.

CONCLUSION

It can be concluded that the perception of stress in the studied population of FHP professionals is associated to individual and professional factors and work characteristics, emphasizing independent variables such as professional category, gender, time working in the same team, widowhood as marital status and composition of teams in health units where the professional is inserted.

From the point of view of health care, it is likely that the PSS is a useful instrument, practical and simple to be used when monitoring the management of stress levels among PHC professionals, emphasizing populations of apparent higher risk: professionals in the same unit for more than one year, no regular religious practice, women and those connected to the BHU with incomplete teams, especially in the absence of a doctor. The results of this study may contribute to formulating of future policies on the health of workers in the PHC context, enhancing cost-effective actions in promoting health and preventing conditions related to work within the Brazilian health system.

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