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SYMPTOMS OF ANXIETY AND DEPRESSION IN CLIMACTERIC WOMEN AND ASSOCIATED FACTORSMENTAL HEALTH AND HEALTH CONDITIONS

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ABSTRACT

This study aimed to estimate prevalence of anxiety and depression symptoms and associated factors in climacteric women assisted in Primary Health Care. Epidemiological study, analytical, performed with climacteric women assisted in Primary Health Care of Montes Claros and the coverage period was selected from August 2014 to August 2015. Sociodemo graphicquestionnairies, lifestyle, health conditions, obstetric characteristics and climatic profile were used. Anxiety was investigated by Beck Anxiety Inventory as well as depression by Beck Depression Inventory. A hierachical Poisson regression model was used. Partcipated in the study 867 women aged 51,03 (±7,19) years. Prevalence of anxiety symptoms 57,3% and 39,1% depression symptoms. The variables associated with anxiety were having attended middle school (PR= 1,271) e elementary school (PR= 1,307), practicing activity irregulary (PR= 0,808) and being sedentary (PR= 0,841), being a smoker (PR= 1,298), having sleep disorders (PR= 1,640), having heart problems (PR=1,279) and back problems (PR= 1,292), symptoms of moderate climacteric (PR= 1,714) and symptoms of intense climacteric (PR=1,882). With regared to depression remained associated having attended middle school (PR=1,350) and elementary school (PR=1,708), being a smoker (PR= 1,530), having sleep disorders (PR= 2,645) and anxiety (PR= 2,766), symptoms of moderate climacteric (PR= 1,715) and symptoms of intense climacteric (PR= 2,285). Sociodemographic factors, lifestyle and climate profile were associated with depression and anxiety. Anxiety symptoms were associated with depression.

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INTRODUCTION

Mental disorders have become, in the last century, a public health problem and affect more than 300 million of people in the world (World Health Organization, 2017), bringing repercussions in everyday life, besides impacting the quality of life of the affected population (Park; Kim, 2018). It is estimated that the prevalence of anxiety and depression have increased in recent decades (World Health Organization, 2017), mainly in middle-aged women (LuiFilho et al., 2015).

In the climacteric, which represents the transition period from the reproductive to the non-reproductive phase, women may become more prone to anxiety and depression disorders due to hormonal changes, plus changes in the family environment (Nogueira et al., 2018), in addition to the influence of stress daily life and physical decline of health, as documented in the literature (Dennerstein; Smith; Morse, 1994). However, it should be considered that possible variables that may increase vulnerability to anxiety and depression symptoms during this phase have not yet being sufficiently investigated (Mullhall; Andel; Anstey, 2018; Catuzzi; Beck, 2014) and understanding the symptomatology of this conditions may underlie more effective therapeutic strategies in primary care (Macinko; Matthew; Harris, 2015; Aragão et al., 2018). In the last decades, Brazil has experienced an expansion of the coverage of Primary Health Care (PHC) services through the implementation of multiprofessional teams named Family Health Strategy (Andrade et al., 2018). However, there are still barriers that hinder the ability of the PHC service to adequately treat anxiety and depression symptoms (Vistorte et al., 2018).

In view of that climacteric is an important phase of women´s life cycle (Zhou et al., 2012), and a pathological character can be reversed (Jurczak et al., 2018), added to the scarcity of studies monitored by PHC teams (Macinko; Matthew; Harris, 2015), the present study aimed to analyze the prevalence of anxiety and depression symptoms in climacteric women assisted in PHC and associated factors.

METHODS

This is a cross-sectional and analytical study, carried out in the city of Montes Claros/MG, Brazil, from August 2014 to August 2015, whose target population consisted of 30.801 climacteric women enrolled in 73 unites of the Family Health Strategy. The sampling was probabilistic and the sample selection took place in two stages. Each Family Health Strategy team was taken as a conglomerate, with the 20 unites drawn from urban and rural areas being drawn for data collection. Afterwards, a proportional number of women were randomly selected, according to the climacteric stratification criterion according to the Brazilian Climacteric Society (The Third Report of the National Cholesterol Education Program, 2001). The sample size was determined as a function of the multiple health problems of climacteric women investigated in the research. A maximum expected prevalence of 50% was considered, with a confidence level of 95% and a 5% error margin, after correction by the deff drawing effect equal to 2,0 and increase of 10% for non-response rate. The calculations showed a sample size of at least 836 climacteric women. Women aged between 40 and 65 years old, registered in the selected teams and with physical conditions to answer the questionnaires were considered eligible to participate in the research and were submitted to anthropometric measurements and laboratory measurements, observing, for the latter, the

recommendation from the 12 hour fast. The researchers pre-trained all collectors and interviewers, and supervision was maintained during data collection. After this selection, the women were invited to perform in the community at a previously established date. The symptoms of anxiety and depression were considered the dependent variables of the study. Anxiety was investigated through the Beck Anxiety Inventory, Portuguese version, validated by Cunha (2001). This instrument has a symptomatic scale that measures the severity of anxiety symptoms, consisting of 21 items, with 4 response options, classifying anxiety symptoms as: minimum from 0 to 10, mild from 11 to 19, moderate from 20 to 30 and severe from 31 to 63. Anxiety symptoms were dichotomized into: no anxiety symptoms (absent), with anxiety symptoms (mild, moderate and severe) (Cunha, 2001). The symptoms of depression were investigated using the Portuguese version of Beck Depression Inventory of the Beck Scales (Cunha, 2001; Gorenstein; Andrade, 1998). The questionnaire consists of 21 items that address symptoms and attitudes, the intensity of which ranges from 0 to 3. The sum of points allows tracking the existence and intensity of a depression. A score from 0 to 9 points is considered normal; 10 to 15 suggests mild depression; from 16 to 23 a medium depression and 24 or more points a severe depression. The symptoms of depression were dichotomized into: no symptoms of depression (normal), with symptoms of depression (mild, medium and severe) (Gorenstein; Andrade, 1998). Women answered questions regarding independent variables that were allocated into three blocks: (Distal) sociodemographic, (Intermediate) lifestyle and health conditions, (Proximal) obstetric characteristics, climacteric profile. In the distal block, sociodemographic variables included age (40-45, 46-51, 52-65 years); educational level (elementary school, middle school, high school/college); marital status (with partner, without partner); religion (with religion, without religion). In the middle block, the variables that comprised lifestyle were: the practice of physical activity was investigates through International Physical Activity Questionnaire (IPAQ, short version) (Matsudo et al., 2001); categorized into (active; very active; irregularly active; sedentary), smoker (no, yes), habit of consuming meat with fat (does not consumes meat with fat; consumes meat with fat). Through self-report sleep quality was assessed by Pittsburgh Sleep Quality Index (Buysse et al., 1989) categorized as (no disorder; with disorder). Regarding health conditions, the variables were investigated through self-report, involving hypertension (no, yes), diabetes mellitus (no, yes), hypercholesterolemia (no, yes), heart problems (no, yes), arthritis (no, yes), spine problem (no, yes), cancer (no, yes), risk for cardiovascular disease assessed by Framingham Global Risk Score (D'Agostino et al., 2008); subsequently classified as (low, intermediate and high), the metabolic syndrome was assessed using the NCEP-ATPIII criterion of the Brazilian Society for the Diagnosis and Treatment of MS (The Third Report of the National Cholesterol Education Program, 2001) categorized (absence and presence), nutritional status, body mass index (BMI) were calculated by dividing body weight by height squared (BW/H^2) (The Third Report of the National Cholesterol Education Program, 2001); BMI results were classified according to World Health Organization (2000) criterion in adults: adequate weight (18,5 to 24,9); overweight (25,0 to 29,9); obesity (30,0 or above), further categorized into (eutrophic, overweight and obesity).

In the proximal block the variables that comprised the obstetric characteristics were: number of children (nulliparous, one or more children), age at first pregnancy (over 18 years old, under

18 years old). Regarding the climacteric profile, the variables involved the classification of menopause according to Brazilian Climacteric Society (premenopausal, Peri-menopausal and postmenopausal), climacteric symptoms were investigated according to Kupperman index (Kupperman; Blatt, 1953), and categorized into (mild, moderate, intense). Data were tabulated in the statistical program IBM Statistical Package for the Social Science (SPSS), version 21. Initially, descriptive analyzes of all variables investigated through their frequency distributions were performed. Then, bivariate analyzes of the outcome variable (anxiety and depression) were performed with each independent variable (sociodemographic, lifestyle, health conditions, climacteric profile, obstetric characteristics), using the Poisson Regression Model with robust variance. Crude prevalence ratios (PR) were estimated with their respective 95% confidence intervals. Variables with a descriptive level (p-value) of less than 0,20 were selected for multiple analysis. In this analyzes, used the hierarchical Poisson Regression Model, adapted to the model of other authors (Klobukoski1; Höfelmann, 2017; Costa *et al.*, 2002). For this model, the scheme presented in Figure 1 was followed, consisting of blocks of variables at distal (sociodemographic characteristics), intermediate (lifestyle and health conditions) and proximal (climacteric profile and obstetric characteristics) levels.
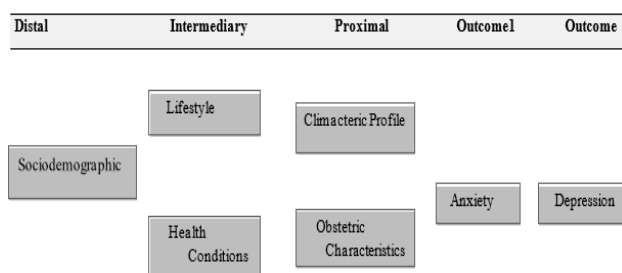

Figure 1. Hierarchical theoretical model of possible factors associated with anxiety and depression symptoms in climacteric women assisted by Primary Health Care in Montes Claros, Minas Gerais, Brazil

At each hierarchical level, the stepwise forward procedure was adopted, that is, the model was started with the variable with the highest statistical significance selected in the bivariate analysis, and then the other variables were added one by one in descending order descriptive doable. The block of sociodemographic variables was the first to be included in the model, remaining as an adjustment factor for the intermediate and proximal determinants. Then, the intermediate level variables (lifestyle and health conditions) were included, remaining as an adjustment factor for the proximal level variable. Finally, the proximal level variables (climacteric profile and obstetric characteristics) were included. At all levels, only those variables with a descriptive level p< 0,05 remained in the model, after adjusting for the variables of the previous levels. Prevalence ratios (PR) adjusted with their respective 95% confidence intervals were estimated. To assess the quality of fit of the multiple models, the Deviance test was used. To incorporate the structure of the complex sampling plan into the statistical analysis of the data, each respondent was associated with a weight w, which corresponded to the inverse of their probability of sample inclusion (f) (Szwarcwald; Damacena, 2008).

As it was a study involving human, this study was submitted, appreciated and approved by the Ethics and Research Committee of the Faculdades Integradas Pitágoras of Montes Claros under no. 817.166, being the ethical precepts of the resolution CNS 466/2012 fully observed.

RESULTS

867 women participated in the study considering the loss of 93 non-respondent women (10,7%), with a mean age of 51,03 (±7,19) year sold and most had a partner (63,2%). The prevalenceofanxietysymptoms was 57,3% and depressive symptoms was 39,1% among climacteric women (Table 1).

Table 1. Classification of anxiety/depression symptoms in climacteric women assisted by Primary Health Care - Montes Claros, Minas Gerais, Brazil, 2014/2015 (n=867)

Classification of Anxiety Symptoms	n	%
Absence of symptoms	370	42,7
Mild	236	27,2
Moderate	162	18,7
Severe	99	11,4
Classification of Depression Symptoms		
Absence of depression	528	60,9
Mild	220	25,4
Moderate	108	12,5
Severe	11	1,3

Regarding education, 32,0% of women attended high school and college. In the analysis of lifestyle, was observed that 55,9% of climacteric women were classified as irregularly active, 10,1% smoker and 21,3% alcoholic. The presence of sleep disorder was reported by 67,0%. Regard health condition, the most prevalent pathologies were hypertension (45,9%), Hypercholesterolemia (40,8%), spine problem (52,7%), metabolic syndrome (48,0%) and overweight (74,0%). Among the women surveyed 93,2% had one or more children, and age of first pregnancy was below 18 years old (72,8%). In the analysis of the climacteric profile, 43,8% of women were classified in the postmenopausal phase 62,5% with mild climacteric symptoms. Table 2 presents the results of the bivariate analyzes between anxiety and depression and the independent variables. The results of the factors associated with anxiety symptoms obtained in the hierarchical multiple Poisson regression analysis are shown in Table 3.

At the distal level of determination, variable education was a factor associated with anxiety symptoms, middle school (PR= 1,271; p = 0,005) and elementary school (PR= 1,307; p < 0,001). At the intermediate level, practicing physical activity irregularly (PR= 0,808; p = 0,008), being sedentary (PR= 0,841; p = 0,027), being a smoker (PR= 1,292; p <0,001), having a sleep disorder (PR= 1,640; p<0,001), having heart (PR=1,279; p <0,001) and spine problem (PR= 1,292; p <0,001) were factors associated with anxiety symptoms in climacteric women. At the proximal level, the symptoms of moderate (PR= 1,714; p<0,001) and intense (PR=1,882; p<0,001) climacteric were associated with anxiety symptoms, after adjusting for the hierarchically superior blocks variables. Table 4 presents the results of the factors associated with the symptoms of depression obtained in the hierarchical multiple Poisson regression analysis. The independent variables that were associated with symptoms of depression in the distal hierarchical model were: having attended middle school (PR=1,350; p = 0,027) and elementary school (RP=1,708; p <0,001).

Tabela 2. Bivariate analyzes of depression and anxiety symptoms in climacteric women assisted in Primary Health, Montes Claros, Minas Gerais, Brazil, 2014/2015 (n=867)

Variables		Sample n (%)	Presence of anxiety symptoms n (%)	p	Presence of depression symptoms n (%)	p
DISTAL LEVEL						
Sociodemographic						
Age group	40 to 45 years old	333 (27,7)	135 (28,3)		83 (25,9)	
	46 to 51 years old	241 (27,0)	133 (26,4)	0,610	89 (25,7)	0,883
	52to65 years old	393 (45,3)	229 (45,3)	0,779	167 (48,4)	0,218
Schooling	High School/ College	281 (32,0)	135 (26,7)		80 (23,1)	
	Middle School	227 (26,4)	137 (27,9)	0,005	85 (25,7)	0,027
	Elementary School	355 (41,6)	223 (45,4)	<0,001	172 (51,2)	<0,001
Marital Status	With partner	526 (63,2)	310 (61,8)		203 (59,0)	
	No partner	309 (36,8)	185 (38,2)	0,360	135 (41,0)	0,055
Religion	With Religion	855 (98,9)	490 (98,6)		334 (98,2)	
	No Religion	9 (1,1)	06 (1,4)	0,299	05 (1,8)	0,055
INTERMEDIARY LEVEL						
Lifestyle						
Physical Activity	Very active/Active	113 (12,7)	77 (14,7)		47 (12,9)	
	Irregularly active	478 (55,9)	255 (52,8)	0,009	165 (50,6)	0,336
	Sedentary	276 (31,4)	166 (32,4)	0,154	127 (36,5)	0,395
Smoker	No	514 (88,9)	292 (86,6)		183 (84,8)	
	Yes	245 (10,1)	144 (13,4)	<0,001	112 (15,2)	<0,001
Alcoholist	No	640 (78,7)	363 (76,0)		246 (75,3)	
	Yes	163 (21,3)	105 (2,4)	0,023	72 (24,7)	0,072
Fattymeat consumption	No	674 (83,8)	381 (81,7)		266(84,1)	
	Yes	134 (16,2)	89 (18,3)	0,050	53 (15,9)	0,869
Sleep	No disorder	276 (33,0)	100 (21,2)		51 (15,6)	
	With disorder	541 (67,0)	367 (78,8)	<0,001	269 (84,4)	<0,001
Health Conditions						
Arterial Hypertension	No	412 (54,1)	225 (50,9)		147 (48,6)	
	Yes	398 (45,9)	246 (49,1)	0,037	173 (51,4)	0,015
Diabetes	No	692 (86,5)	396 (84,8)		260 (83,5)	
	Yes	121 (13,5)	76 (15,2)	0,067	61 (16,5)	0,034
Hypercholesterolemia	No	483 (59,2)	256 (53,5)		165 (50,8)	
	Yes	331 (40,8)	217 (46,5)	<0,001	157 (49,2)	<0,001
Heart Problem	No	696 (89,4)	384 (85,4)		261 (82,6)	
	Yes	117 (10,6)	88 (14,6)	<0,001	60 (17,4)	0,002
Rheumatoid Arthritis	No	659 (80,3)	364 (76,3)		241 (75,2)	
	Yes	154 (19,7)	108 (23,7)	<0,001	80 (24,8)	0,003
Spine Problem	No	391 (47,3)	190 (39,4)		127 (39,9)	
	Yes	421 (52,7)	282 (60,6)	<0,001	193 (60,1)	<0,001
Cancer	No	799 (98,6)	464 (98,4)		314 (98,0)	
	Yes	10 (1,4)	7 (1,6)	0,453	6 (2,0)	0,234
Cardiovascular Disease	Intermediary	421 (48,8)	243 (49,4)	0,666	162 (49,1)	0,598
	High	65 (7,9)	98 (7,9)	0,911	32 (9,4)	0,156
MetabolicSyndrome	Absence	462 (52,0)	266 (52,7)		173 (49,6)	
	Presence	405 (48,0)	231 (47,3)	0,603	166 (50,4)	0,291
	Eutrophic	227 (26,0)	130 (25,4)		84 (23,9)	
Nutritional Status	Overweight	330 (37,9)	179 (35,8)	0,646	114 (33,0)	0,666
	Obesity	304 (36,1)	186 (38,8)	0,219	138 (43,1)	0,021
PROXIMAL LEVEL						
Obstetric Characteristics						
Children Number	Nulliparous	58 (6,8)	29 (5,9)		22 (6,8)	
	Oneor more children	807 (93,2)	468 (94,1)	0,258	317 (93,2)	0,928
Age offirstpregnancy	Over 18 yearsold	215 (27,2)	336 (69,5)		228 (68,8)	
	Under 18 yearsold	601 (72,8)	138 (30,5)	0,011	96 (31,2)	0,044
Climacteric Profile						
Climateric Classification	Premenopausal	231 (26,3)	116 (23,2)		76 (23,3)	
	Peri-menopause	241 (29,9)	156 (30,7)	0,076	101 (28,4)	0,575
	Postmenopause	382 (43,8)	225 (46,1)	0,029	162 (48,3)	0,055
Climacteric Symptomatology	Mild	538 (62,5)	212 (44,2)		135 (41,1)	
	Moderate	244 (27,9)	202 (39,6)	<0,001	134 (38,9)	<0,001
	Severe	84 (9,6)	83(16,2)	<0,001	70 (20,1)	<0,001

PR – Prevalence Ratio; CI – Confidence Interval; percentage m totaling 100% in the column

At the intermediate level, there was na association with women Who were smokers (PR= 1,530; p < 0,001), Who had sleep disorders (PR= 2,645; p < 0,001) and anxiety (PR= 2,766; p < 0,001). At the proximal level, moderate (PR= 1,715; p<0,001) and intense (PR= 2,285; p< 0,001) climacteric symptoms were associated after adjustment for the variables of the hierarchically higher levels.

DISCUSSION

This study found a high prevalence of anxiety and depression symptoms in climacteric women accompanied by family health teams in the city of Montes Claros, associated with sociodemographic factors, lifestyle, health conditions, obstetric characteristics and climacteric profile.

Table 3. Adjusted model of anxiety symptoms in climacteric women assisted by Primary Health Care, Montes Claros, Minas Gerais, Brazil, 2014/2015 (n=867)

	PR (95% CI) adjusted	p-Value
DISTAL LEVEL		
Sociodemographic		
Schooling		
High Scool/College	1	
Middle School	1,271 (1,076-1,501)	0,005
Elementary School	1,307 (1,123-1,521)	<0,001
INTERMEDIARY LEVEL		
Lifestyle		
Physical Activity		
Veryactive/Active	1	
Irregularly active	0,808 (0,691-0,945)	0,008
Sedentary	0,841 (0,716-0,988)	0,027
Smoker		
No	1	
Yes	1,298 (1,116-1,509)	<0,001
Sleep		
No disorder	1	
With disorder	1,640 (1,374 – 1,956)	<0,001
Health Conditions		
Heart Problem		
No	1	
Yes	1,279 (1,131-1,481)	<0,001
Sping		
No	1	
Yes	1,279 (1,131 – 1,481)	<0,001
PROXIMAL LEVEL		
Climacteric Profile		
Climacteric Symptomatology Mild	1	
Moderate	1,714 (1,489-1,974)	<0,001
Intense	2,882 (1,634-2,169)	<0,001

PR: adjusted prevalence ratio; 95% CI: confidence interval

Tabela 4. Adjusted model of depression symptoms in climacteric women assisted by Primary Health Care, Montes Claros, Minas Gerais, Brazil, 2016/2017 (n=867)

Variables	PR (95%CI) ajusted	p-Value
DISTAL LEVEL		
Sociodemographic		
Schooling		
High School/College	1	
Middle School	1,350 (1,035-1,761)	0,027
Elementary School	1,708 (1,359-2,146)	<0,001
INTERMEDIARY LEVEL		
Lifestyle		
Smoker		
No	1	
Yes	1,530 (1,222-1,916)	<0,001
Sleep		
No disorder	1	
With disorder	2,645 (1,981-3,533)	<0,001
Health Conditions		
Anxiety		
No symptoms	1	
With symptoms	2,766 (2,011-3,804)	<0,001
PROXIMAL LEVEL		
Climacteric Profile		
Climacteric Symptomatology Mild	1	
Moderate	1,715 (1,395-2,109)	<0,001
Intense	2,285 (1,849-2,824)	<0,001

PR: adjusted prevalence ratio; 95% CI: confidence interval

The symptoms of anxiety and depression are common in the climacteric period (Hickey; Bryant; Judd, 2012; Llaneza *et al.*, 2012). In this phase, women may experience peculiar changes during this period, such as decreases in the synaptic levels of monoamines, greater variation in ovarian hormone levels that leads to mood disturbance, which can cause impairment in their mental health (Llaneza *et al.*, 2012). A population-based study (Hunt-II) on depression and anxiety in Norwegian women during the climacteric period revealed a higher prevalence in the peri- and post-menopausal period than in the pre-menopausal period. The level of depression was somewhat higher in the post-menopausal period and the level of anxiety was somewhat higher in the peri-menopausal period, probably due to fluctuations in the level of gonadal hormones (Soares, 2017). The prevalence of anxiety symptoms in the present investigation was higher than in Chinese (12,62%) (Li *et al.*, 2016) and Italian (38,5%) (Anniverno *et al.*, 2017) climacteric women, and lower than in Indian and (88,9%) (Bansal *et al.*, 2015) and Latin American (59,7%) (Blümel *et al.*, 2015) women.

In the Brazilian scenario, studies conducted in this female population showed lower prevalence of 53,7%, 35,8% e 33,9% in Juiz de Fora (MG) (Polisseni *et al.*, 2009), Campinas (SP) (Amaral *et al.*, 2018) and São Luís (MA) (Nogueira *et al.*, 2018), respectively. In women surveyed, depressive symptoms were lower than in international studies conducted in India (86,7%) (Bansal *et al.*, 2015), Iran (59,7%) (Delavar; Hajiahmadi, 2011), Italy (44,2%) (Anniverno *et al.*, 2017), Turkey (41,8%) (Timur; Şahin, 2010) and Latin American countries (46,5%) (Blümel *et al.*, 2015) and higher than in China (25,99%) (Li *et al.*, 2016). Inferior results were found in national investigations carried out in a city of the Zona da Mata Mineira (19,7%) (Dennerstein; Smith; Morse, 1994) and in the Metropolitan Region of Campinas (35,8%) (Amaral *et al.*, 2018) and superior in a city in the interior of Rio Grande do Sul (66,1%) (Berlezi *et al.*, 2013).The variation in the prevalence of anxiety and depression in different populations can be attributed to local specificities. The national and international literature show that depression and anxiety indices in primary health care present considerable frequencies (American Psychiatric Association, 2014). In Brazil, there are gaps in assistance and public policies and little investment in research in this area. The symptoms of anxiety and depression in climacteric women should be systematically investigated in view of the increase in life expectancy of women worldwide (Delavar; Hajiahmadi, 2011), which implies a longer period of coexistence with symptoms, which is considered a period of vulnerability for their development. Because they are multifactorial disorders that have complex pathogenesis (Duman, 2014), there may be difficulty in diagnosis (Fernandes *et al.*, 2018). In addition there is the difficulty caused by the overlap between some symptoms of these disorders with the symptoms of menopause. In this sense, the symptoms related to anxiety and depression should be investigated in each consultation of women with health professionals in this phase of life (Hickey; Bryant; Judd, 2012) with special attention to the identification of factors related to these changes in the world (Polisseni *et al.*, 2009). Episodes of anxiety and depression in the climacteric phase may have social, family, financial, occupational repercussions (Polisseni *et al.*, 2009; Bromberger *et al.*, 2011), as well as increased morbidity and mortality. Given the potential compromising of these conditions in the quality of life of climacteric women, early diagnosis, treatment and follow-up are essential, with the need for greater dialogue between women´s health care and mental health (Polisseni*et al.*, 2009). In this study, after adjusted analysis, lower education remained associated with symptoms of anxiety and depression.

North American longitudinal study verified the most intense depressive symptoms in climacteric women with less education (Senicato; Azevedo; Barros, 2018). Among adult women living in Campinas, those with up to 8 years of schooling had a higher prevalence of Common Mental Disorders (Amaral *et al.*, 2018). Women with higher levels of education tend to cope better with changes in the menstrual cycle, as they are more informed and have regular medical consultations and treatments (Pereira *et al.*, 2009). Among lifestyle factors, smoke and impaired sleep were associated with symptoms of anxiety and depression. The association between tobacco use and anxiety and depression symptoms were also verified in a study conducted in Pindamonhagaba, Brazil (Gonçalves *et al.*, 2018) and American cohort (Senicato; Azevedo; Barros, 2018). Differently, the association between smoking and depressive symptoms was not observed in the national survey of women assisted by the Family Health Strategy conducted in the city of Zona da Mata Mineira (Terauchi *et al.*, 2012). Women with sleep disorder, in this study, presented higher prevalence of anxiety and depression episodes investigated. This finding is in line with a study conducted in Tokyo, Japan (Xu; Lang; Rooney, 2014) a survey conducted in Juís de Fora found that depression was more frequent in climacteric women with insomnia (Polisseni*et al.*, 2009). A study with adult women showed that the duration of sleep was associated with the presence of common mental disorders, and those who reported sleeping six hours or less daily had higher prevalence ratios (Pereira *et al.*, 2009).

It is noteworthy that the presence of vasomotor symptoms in the climacteric period may be associated with sleep disorders (Fabrini *et al.*, 2015) because they cause repeated awakening, fragmentation of sleep and impair daytime welfare, which may increase the symptoms of anxiety and depression (Hickey; Bryant; Judd, 2012). However, the detailed pathophysiological mechanisms are still unclear, as sleep disorders are frequent in women at this stage, so it is important to address sleep problems and investigate them correctly. In addition, strategies aimed at improving the sleep of these women are needed (Martínez-Domínguez *et al.*, 2017). Active or very active physical activity was associated with anxiety, which differs from previous studies (Blümel*et al.*, 2015; Mikkelsen *et al.*, 2017). However, review studies found that there is no absolute evidence that exercise would improve the treatment of anxiety disorders, whose benefits are influenced by type, duration, frequency and intensity (Molina *et al.*, 2012). In addition, the IPAQ used considers occupational and habitual activities in the evaluation of physical activity practice, which differs from physical exercise, which consists of planned, structured, repetitive and intentional activity (Molina *et al.*, 2012). Anxiety symptoms were associated with health conditions related to sel-reported heart and spine problems. A population-based survey of adult women found that those with a medical diagnosis of cardiovascular problems and self-reported back pain had a higher prevalence of Common Mental Disorder (CMD) (Martínez-Domínguez *et al.*, 2017).

The association between mental disorders somatic complaints is known (Serpa*et al.*, 2016), but the somatic symptoms of chronic diseases tend to mask emotional disorders (Pereira *et al.*, 2009). The fact that chronic diseases affect women´s quality of life may explain their association with the occurrence of mental disorders. A study with climacteric women from OuroPreto found that the presence of chronic diseases interferes in the quality of life negatively in the

domain of mental health. Generally, such disease requires the continuous use of medication which also affects this area (Melo *et al.*, 2018). It is also emphasized that the climacteric period increases the risk for cardiovascular disease and osteoporosis, due to the hypoestrogenism that sets in (Lin *et al.*, 2012). In this study, climacteric symptoms were associated with anxiety and depression symptoms. Similar results were observed in research conducted in Shanghai, China (Li *et al.*, 2016) in a city of Minas Gerais, Brazil (Polisseni *et al.*, 2009). A population-based study conducted in Taiwan found that increased depressive symptoms were associated with menopausal symptoms (Molina *et al.*, 2012). Authors point out that the severity of symptoms may increase susceptibility to these emotional disorders (Li *et al.*, 2016).

Therefore, it is important that women have adequate knowledge about this symptomatology, their empowerment and their proactive posture to prevent or restrict its occurrence (Li *et al.*, 2016). The presence of anxiety symptoms was shown to be related to depression in this study. Similar results were found in a study of women attending a climacteric service (Polisseni*et al.*, 2009) and primary care users (Serpa*et al.*, 2016). Anxiety can negatively impact quality of life indicators in climacteric women (Siegel; Mathewa, 2015). Although the literature points to factors that affect the climacteric period, such as metabolic syndrome (Yu *et al.*, 2020), cancer (La Vecchia, 2017), cardiovascular diseases (Muka *et al.*, 2016), number of children (Yu *et al.*, 2020) and age of last pregnancy (Bojar *et al.*, 2020), in the present study these variables have not been shown to be associated with anxiety and depression. It cannot be ignored either that the cross-sectional design of the studies pointed out in this article may imply reverse causality between the outcome and the exposure variables, especially with regard to smoking and physical activity, which does not allow for the precise establishment of these conditions, needing further studies that use more accurate measuring instruments. The results of the present investigation show the need for mental health care of women in the climacteric period and in an interdisciplinary manner, involving measures that promote the improvement of lifestyle, health conditions and climacteric symptoms. In this sense, it is essential to rethink the assistance offered to women at this stage of the life cycle. Measures that included women´s literacy about the climacteric period and its repercussions, the overcoming of the technical, normative and biologics model of care for biopsychosocial care, with encouragement for the adoption of healthy lifestyle habits (Hickey; Bryant; Judd, 2012; Llaneza *et al.*, 2012) are fundamental to prevent the occurrence of these emotional disorders and improve mental health. Screening of anxiety and depression disorders in this population by health professionals is necessary to favor early diagnosis, treatment and more accurate monitoring and, therefore, reduce the compromise of women´s quality of life and negative impacts on their family relationships and minimize costs for health services and society (Pereira *et al.*, 2009). This study was limited by the use of self-report to assess behavioral aspects such as physical activity, food consumption, leisure and sleep, health conditions (hypertension, diabetes mellitus, hypercholesterolemia, heart problems, bone and joint problems, cancer) and obstetric characteristics. Because it is a population-based study, with a probabilistic and representative sample of the population it reinforces the results and associations found. The results of this research are expected to support the development of other

studies on the subject, with longitudinal design, in order to establish a causal relationship.

CONCLUSION

The present study showed a high prevalence of anxiety and depression in climacteric women assisted in primary care. Anxiety and depression were associated with low education, being a smoker, having sleep disorders and moderate and intense climacteric symptoms. Being irregularly active, sedentary, having heart and spine problems remained associated only with anxiety. Depression has been associated with anxiety symptoms. Diagnosis of mental health of climacteric women assisted in primary care can be a preventive marker of future diseases and enable the systematization of health in the climacteric population.

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