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Prevalence and factors associated with chronic back problem in women of childbearing age

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Abstract *Chronic Back Problem (CBP) is a public health concern. In Brazil, data from the National Health Survey (PNS) estimated 27.0 million people (18.5%) who reported CBP, affecting more women than men. This study aims to identify the factors associated with CBP among women of childbearing age. It is a cross-sectional study carried out with data from the PNS, where the dependent variable was the prevalence of CBP, and associated factors included socio-demographic items, life habits, reproductive history, nutritional status, diagnosis of depression and health perception. A total of 22,621 women aged 18 to 49 years were interviewed. Of these, 14.8% reported having CBP. The risk factors studied were: increased age; living with spouse; multiparity; smoking; overweight or obese, having Waist Circumference (WC) above 80cm and Circumference/Height (C/E) index above 0.5; negative self-perception of health; and depression. The only protective factor associated with CBP risk reduction was education level. We conclude that age, living with a spouse/partner, smoking, multiparity, being overweight or obese, increased risk for cardiovascular diseases, depression and negative self-perceived health are associated with the development of CBP in women of childbearing age.*

Key words *Chronic back pain, Spine, Women*

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Introduction

Although not fatal, Chronic Back Problem (CBP) constitutes an important public health[1-3], economic and social problem[4,5]. Also known as chronic back pain, chronic back problems encompass neck pain, thoracic pain, sciatica, intervertebral disc disorders, spondylosis, radiculopathy, and general back pain[6].

According to data from the National Health Survey (*PNS*, 2013) in Brazil[7], approximately 27.0 million people aged 18 years or older (18.5%) were estimated to have reported CBP, similar to that observed in other countries[8], being more prevalent among women and among individuals over 60 years of age. According to Romero et al.[9], the mean age of onset of CBP complaints in Brazil is at 35 years of age and reaches up to 28.1% of the population aged 60 years[9].

Considered as one of the commonly reported complaints by the adult population, CBP can lead to disability, reduced functionality, and absenteeism from work[10]. Therefore, it compromises quality of life, entails a greater search for medical attention[3,11], and has been one of the main causes of disability retirement[12].

The literature indicates a set of factors associated with CBP such as sociodemographic factors including age, gender, income and education level; behavioral factors referring to smoking, sedentary lifestyle, exposures occurring in daily activities such as strenuous physical work, vibration, awkward position, repetitive movements; in addition to other factors such as obesity[13].

According to the *PNS* data, several international studies[14-17] point to gender inequality in CBP, with a higher prevalence among women due to the musculoskeletal constitution and the daily activities performed by them[18]. Osteoporosis, menstruation, pregnancy and cultural aspects are also factors that may be related to the higher prevalence of CBP among women[19].

It is important to note that a woman's life is marked by specific anatomical-physiological changes in puberty, gestation and climacteric[20] periods that may favor the onset of CBP. In addition, women of childbearing age usually have a double working day, having to simultaneously respond to the demands of paid and domestic-family work[21], which generates health effects[22] such as a higher prevalence of Chronic Non-Communicable Diseases (CNCD), with hypertension, CBP, depression, arthritis or rheumatism and diabetes among them[7].

Although the topic of CBP is relevant, there are still no representative studies for the Brazilian population regarding the use of treatments for this morbidity[9]. According to Frasson[23], conservative treatment of low back pain should preferably address drug treatment, exercise, manual therapy, education, a biopsychosocial approach, and cognitive-behavioral therapy.

Treatments for CBP generate a burden on the public health system, since there is a need for exams, medications, physiotherapy, hospitalizations and surgeries[24,25], and on the economy, specifically related to Social Security, since there are high insurance fees for health due to work remission[26] and disability pension related to back pain in Brazil[12].

Thus, CBP represents a public health problem[1-3] that has an impact on the professional lives of people with this diagnosis[12], and especially in women due to the genetic, physical and cultural factors[19] that predispose them to morbidity. Thus, considering the relevance of this topic and a lack of studies in Brazil on the subject, this work aims to identify the factors associated with CBP among women of childbearing age.

Methods

This is a cross-sectional study carried out with data from the National Health Survey (*PNS*) of the Lifestyles module of *PNS* (2013)[7]. The *PNS* was developed by the Brazilian Institute of Geography and Statistics (*IBGE*) in partnership with the Ministry of Health. The study population was composed of residents of private households in Brazil, except those located in the special census tracts (barracks, military bases, camps, boats, penitentiaries, penal colonies, prisons, jails, asylums, orphanages, convents and hospitals).

The sampling of the *PNS* is characterized by a sub-sample of the master sample of the *IBGE* Integrated System of Household Surveys (*IBGE*), whose geographic coverage is made up of the census tracts of the Geographical Operational Base of the 2010 Demographic Census, except for those with very small numbers of households and special sectors.

The *PNS* had a total sample of 60,202 people over 18 years of age, and the employed sampling plan was that of sampling by conglomerate in three selection stages (sectors, families and individuals)[27].

In the first stage, selection of the primary analysis units was obtained by simple random sampling previously selected in the master sample. In the second, a fixed number of permanent households was selected by simple random sam-

pling in each of the primary analysis units selected in the first stage. In the third stage, within each domicile of the sample, a resident aged 18 years or more was selected - also by simple random sampling - to respond to the 3rd (individual) part of the questionnaire. This selection was made based on a list of eligible residents, conducted at the time of the interview[27].

The applied questionnaire was divided into three parts; the first two for questions on household characteristics, socioeconomic and health status of the residents, while the third was individual and directed to the previously selected resident of 18 years or more, in which questions about morbidity and lifestyle were answered[28].

Women aged 18 to 101 years were evaluated in the *PNS*. In the present study, women of childbearing age in the age group of 18 to 49 years were considered, since the *PNS* did not evaluate women under 18 years old, being a higher limit than the classification of women of childbearing age in Brazil, which is 10 to 49 years old[29]. Thus a total of 22,621 women of childbearing age were evaluated in Brazil.

The analyzed dependent variable was the prevalence of CBP, investigated through the question: "Do you (a) have a chronic back problem, such as chronic back or neck pain, low back pain, sciatic, vertebral or disk pain?", which had two options: yes or no.

The independent variables included socio-demographic items, life habits, reproductive history, nutritional status and diagnosis of diseases, being categorized as follows: a) Age, in years, 18-26, 27-32, 33-39, 40-49; b) Education level: without education, up to complete elementary school, incomplete high school, incomplete higher education or more; c) Race or color of skin: white for women who self-declared white, and black, yellow, brown or other indigenous for women who self-declared black, yellow, brown or indigenous; d) Marital status: living or not with spouse/partner; e) Occupation: to be employed or not.

Regarding life habits as risk and protection factors: a) Physical activity: to have practiced or not physical activity in the last three months, and in addition a weekly physical activity practice score was constructed, in which the time spent in the activities was multiplied by the number of days and the cut-off point was practice or not of 150 minutes or more per week[30]; b) Treatment for CBP: whether or not they have had physiotherapy because of CBP and whether or not they have taken CBP injection/medication; c) Smoking: smoking or not; d) Watching television: less than 2 hours and equal to or more than 2 hours.

Regarding reproductive history, the number of births was considered: none, up to two, and three or more.

Regarding metabolic risk factors: a) classifying body mass via the Body Mass Index (BMI): leanness and eutrophy (≤ 24.9 kg/m²), overweight (> 24.99 and ≤ 29.99 kg/m²), obesity grade I ($>$ 29.99 and ≤ 34.99 kg/m²), obesity grade II and III (> 34.99 kg/m²); b) waist circumference (WC)[31]; c) Waist-to-height ratio (WC/H)[32]: < 0.5 reduced risk for cardiovascular disease and > 0.5 increasead risk for cardiovascular disease.

Depression was used as a parameter for the diagnosis of diseases: a) diagnosis or not of depression performed by the physician.

For the self-perceived state of health, a stratified health self-assessment was used as follows: very good and good for women who self-rated their health as very good and good, and regular, bad and very bad for women who self-rated their health as regular, bad and very bad.

The *PNS* was approved by the National Commission of Ethics in Research (*CONEP*) of the National Health Council (*CNS*). All interviewed individuals were consulted, clarified and accepted to participate in the study by signing a clear and Informed Consent Form.

A descriptive analysis was performed in which simple and relative frequencies of the independent variables were estimated and dependent according to the covariates of the study. The variables were described by proportions. The prevalence and prevalence ratios of presenting chronic back problem according to the covariables were estimated through logistic regression.

The analysis was performed in the survey module for complex samples of the Stata version 9.0 program (*StataCorp., College Station*, USA).

Results

A total of 22,621 women aged 18-49 years were evaluated, of which 3,355 (14.8%) reported having CBP. Most of the women declared themselves as black, yellow, brown or indigenous and 62.7%, lived with their spouse or partner (61%), studied until high school (40.5%) and worked (59.9%) (Table 1).

In terms of life habits, the majority were non-smokers (90.2%) and 80.6% were sedentary because they practiced less than 150 minutes of physical activity per week (Table 1). Regard-

Table 1. Sociodemographic characteristics, life habits, reproductive history, nutritional status, diagnosis of depression and self-perception of health of women of childbearing age who reported Chronic Back Problems. National Health Survey, Brazil, 2013.

Variable	N	%
Chronic back problem		
No	19.266	85.2
Yes	3.355	14.8
Age (years)		
18-26	5.033	22.3
27-32	5.648	25.0
33-39	5.614	24.8
40 or more	6.326	27.9
Race/skin color		
White	8.443	37.3
Black. brown and others	14.178	62.7
Living with spouse or partner		
No	8.830	39.0
Yes	13.791	61.0
Education level		
No schooling	2.027	9.0
Until complete elementary school	8.096	35.8
Complete high school	9.173	40.5
Complete higher education or more	3.325	14.7
Employed		
No	9.074	40.1
Yes	13.547	59.9
Physical activity in the last 3 months		
No	16.738	74.0
Yes	5.883	26.0
Practice 150 minutes of physical activity per week		
No	18.226	80.6
Yes	4.395	19.4
Exercise or physiotherapy for CBP		
No	2.792	83.2
Yes	563	16.8
Injection or other medication for CBP		
No	2.022	60.3
Yes	1.333	39.7
Smoking		
No	20.392	90.2
Yes	2.229	9.8
Watching TV		
< 2 hours	9.418	41.6
≥ 2 hours	13.203	58.4
Number of births		
0	636	2.8
≤ 2	10.616	46.9
≥ 3	11.369	50.3
BMI		
≤ 24.99	10.117	44.7
> 24.99 ≤ 29.99	7.087	31.3
> 29.99 ≤ 34.99	3.086	13.6
> 34.99	2.331	10.3
Waist circumference		
<80	7.026	31.1
80-88	5.734	25.3
Waist-to-height ratio		
≤ 0.5	6.958	30.8
> 0.5	15.663	69.2
Medical diagnosis of depression		
No	20.752	91.7
Yes	1.869	8.3
Self-reported health		
Very good, good	21.659	95.7
Bad, very bad, or regular	962	4.3

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Table 1. Sociodemographic characteristics, life habits, reproductive history, nutritional status, diagnosis of depression and self-perception of health of women of childbearing age who reported Chronic Back Problems. National Health Survey, Brazil, 2013.

ing nutritional status, it was verified that 44.7% were eutrophic and 31.3% were overweight. Most women (69.2%) had a high risk for cardiovascular disease according to the waist-to-height ratio[32] (Table 1).

Regarding health conditions such as reproductive history, it was verified that the majority of the women were multiparous (50.3%); for the question of health perception, it was observed that most of the interviewees reported having very good or good health (95.7%); and 91.7% of the interviewees reported not having a medical diagnosis of depression (Table 1).

Among the studied variables, it was verified that age group (all age groups above 27 years, being highest in the range of 40 to 49 years); living with spouse/partner (OR = 1.13; 95% CI = 1.04-1.22); being a smoker (OR = 1.63, 95% CI = 1.46-1.81); multiparous, especially more than three births (OR = 1.37, 95% CI = 1.07–1.75); being overweight (OR = 1.33, 95% CI = 1.22–1.45) or obese, mainly obesite grade I (OR = 1.53, 95% CI = 1.37 - 1.70), having WC above 80cm and Waist-

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to-height ratio above 0.5 (OR = 1.51, 95% CI = 1.39-1.65); bad perception of health (OR = 3.58, 95% CI = 3.13-4.11); or diagnosis of depression (OR = 95% CI =) are risk factors for CBP in women of childbearing age. The only protection factor for CBP was schooling (OR = 0.69, 95% CI = 0.60-0.80) (Table 2).

The variables race/color, employment, practice of physical activity in the last 3 months, practice of weekly physical activity equal to or greater than 150 minutes, or watching TV for more than two hours were not associated with the outcome (Table 2).

Discussion

From the *PNS* data it was verified that of the 22,621 evaluated women of childbearing age, 3,355 (14.8%) reported having CBP. The characteristics associated to the higher prevalence of CBP with logistic regression were: increased age; living with a spouse or partner; being a smoker; multiparity; being overweight or obese; have WC above 80cm and waist-to-height ratio above 0.5, both indicating an increased risk of cardiovascular disease; self-referred health as bad, very bad or regular when compared to very good and good evaluation; and diagnosis of depression.

Table 2. Associated factors (OR and respective 95% CI) in women who reported Chronic Back Problems, according to selected variables. National Health Survey, Brazil, 2013.

Variable	OR	95% CI*
Age (years)		
18-26	1	
27-32	1.39	1.22 – 1.57
33-39	1.78	1.57 – 2.00
40 -49	2.70	2.42 – 3.03
Race/skin color		
White	1	
Black, brown and others	0.95	0.88 – 1.02
Living with spouse or partner		
No	1	
Yes	1.13	1.04 – 1.22
Education		
No education	1	
Complete until elementary school	0.84	0.74 – 0.95
Complete high school	0.65	0.57 – 0.74
Complete higher education or more	0.69	0.60 – 0.80
Employment		
No	1	
Yes	1.08	1.00 – 1.16
Physical activity in the last 3 months		
No	1	
Yes	1.03	0.94 – 1.12
Practice 150 minutes of physical activity per week		
No	1	
Yes	0.93	0.84 – 1.02
Smoking		
No	1	
Yes	1.63	1.46 – 1.81
Watching TV		
< 2 hours	1	
≥ 2 hours	0.93	0.86 – 1.00
Number of births		
0	1	
Up to 2	1.34	1.04 – 1.72
3 or more	1.37	1. 07 – 1.75
BMI		
≤ 24.99	1	
> 24.99 ≤ 29.99	1.33	1.22 – 1.45
> 29.99 ≤ 34.99	1.53	1.37 – 1.70
> 34.99	1.21	1.07 – 1.38
Waist circumference		
< 80	1	
80-88	1.24	1.12 – 1.37
> 80	1.46	1.33 – 1.59
Waist/Height ratio		
≤ 0.5	1	
> 0.5	1.51	1.39 – 1.65
Self-perception of health		
Very good, good	1	
Bad, very bad or regular	3.58	3.13 – 4.11
Medical diagnosis of depression		
No	1	
Yes	3.07	2.76 – 3.41

Legend: CI95%: Confidence Interval of 95%.

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In the present study, the increase in the age group, especially in the 40-49 age group (OR = 2.70, 95% CI = 2.42-3.03), indicated a greater chance of developing CBP, which was also observed in studies with data from the National Household Sample Survey (*PNAD*) in 2003 and 2008[33,34]. This fact may be due to changes in the body due to the aging process, such as reduced flexibility, postural problems, increased musculoskeletal degeneration, and consequently an aggravation of pain[35].

Another risk factor for developing CBP was the relationship with spouse or partner (OR = 1.13, 95% CI = 1.04-1.22). No studies were found that directly address the relationship between CBP and relationship with spouse or partner. In a study by Dutra et al.[36], it is suggested that this relationship may be due to the double burden of professional work and care with the family and household chores that women are often submitted to, especially when they have a stable relationship.

Regarding smoking, it was found that women who smoke are more likely to develop CBP than those who do not smoke; a result similar to that found by Malta et al.[35] (OR = 1.59, 95% CI = 1.38-1.84). Smoking is currently recognized as a risk factor for cardiovascular diseases[37] and has also been identified as a factor associated with negative health perception[37]. In addition, there is evidence that smokers and ex-smokers have a greater predisposition to develop chronic pain, since nicotine would activate the immune system, predisposing them to low back pain and rheumatic diseases, among other conditions[38-40].

Concerning reproductive history, it was observed that the higher the number of births, the chance of presenting CBP increases by 37%. This association has also been found in other studies that consider pregnancy and postpartum as explanatory factors for higher prevalence of back pain among women[25,41,42]. This can be explained by pregnancy hormones such as relaxin, estrogen, and progesterone, which are responsible for increasing flexibility of the spinal and hip ligaments and lumbar lordosis increase, increased muscle contractions due to increased weight and posture caused by fetal growth. In the puerperium, CBP can be attributed to inadequacies in breastfeeding, the child's weight and other factors[25,41].

Regarding BMI, WC and waist-to-height ratio, it was observed that the higher the body mass and central adiposity, the greater the chance of developing CBP; a result similar to that found in other studies, since women of reproductive age and with obesity presented more complaints of low back pain when compared to eutrophic women[43]. According to Malta et al.[35], the increase in body mass causes muscle overload, inflammatory processes in the bones and wear in the vertebral disc, favoring the onset of low back pain and herniated disc, among other diseases in the spine that are associated with CBP[35].

Regarding self-perception of health, it was observed that women who reported bad, very bad or regular self-perception of health were 3 times more likely (OR = 3.58, 95% CI = 3.13-4.11) to develop CBP when compared to women who referred to their health as good and very good. It is worth noting that there is a shortage of studies on the subject with women of childbearing age, but a similar result to that found in this study was pointed out in the literature[44] with women in the climacteric phase, where it was verified that 54% of climacteric women evaluated in the study who had CBP referred to negative self-perceived health when compared to those who indicated having a positive self-perception of health[44].

The diagnosis of depression was associated with 3 times more chances of having CBP, which can be explained by the limitations that this dysfunction can cause. A study of patients suffering from a spinal disorder revealed that 12% had depression due to morbidity, and that most of them expected to improve with treatment[45].

Education was associated as a protective factor, in which the women who studied until completing elementary school had an 84% protection factor for CBP, followed by those who completed high school (65%) and completed higher education or higher (69%). Data from the National Household Sample Survey[34] and in a study conducted in Southern Brazil[46] found that less educated individuals had more chronic pain. According to Plouvier et al.[47], one explanation for this is that people with low education are more exposed to poor working conditions and therefore have more CBP complaints when compared to those with higher education. According to data from the Surveillance System for Chronic Diseases by Telephone Inquiry (Vigitel)[48] in a national survey conducted in all Brazilian capitals and in the Federal District, there was a significant reduction in the frequency of negative self-assessment of health with increased education[48].

The present study presents some limitations because it is a cross-sectional study, since it does not allow cause-effect inferences to be made regarding CBP and the studied variables. In addi-

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tion, there is still a relative scarcity of studies on this subject in women, both in the childbearing age and in the climacteric period.

It is worth mentioning that the generic term of Chronic Back Problems used in the *PNS* made it difficult to discuss the results found in this study, since most of the studies in foreign literature refer to chronic low back pain. A similar perception was observed in Romero et al.[9].

Through the study, it can be concluded that CBP affects 14.8% of women of childbearing age and is associated with negative self-perception of health, as well as the advancement of age, relationship with spouse/partner, smoking, multiparity, overweight and obesity and diagnosis of depression. Education was the only protective factor for CBP in women of childbearing age.

Therefore, since the factors associated with CBP can be controlled, the results presented in this study can contribute to preventing the development of CBP, thus reducing costs for the treatment of patients under the unified public health system, as well as for social security by reducing the incidence of work absenteeism and disability retirement.

Collaborations

CVA Oliviera, DE Souza, JPC Silva and GN Correia participated in all stages of construction and conduct of research and writing of the article, AG Magalhães assisted in the discussion and final revision of the article.

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References

1. Andersson GB. Epidemiological features of chronic low-back pain. *Lancet* 1999; 354(9178):581-585.
2. Dionne CE, Dunn KM, Croft PR. Does back pain prevalence really decrease with increasing age? A systematic review. *Age Ageing* 2006; 35(3):229-234.
3. Hoy D, Brooks P, Blyth F, Buchbinder R. The epidemiology of low back pain. *Best Pract Res Clin Rheumatol* 2010; 24(6):769-781.
4. Dagenais S, Caro J, Haldeman S. A systematic review of low back pain cost of illness studies in the United States and internationally. *Spine J* 2008; 8(1):8-20.
5. Deyo RA, Cherkin D, Conrad D, Volinn E. Cost, controversy, crisis: low back pain and the health of the public. *Annu Rev Public Health* 1991; 12:141-156.
6. Hagen KB, Tambs K, Bjerkedal T. A prospective cohort study of risk factors for disability retirement because of back pain in the general working population. *Spine* 2002; 27(16):1790-1786.
7. Instituto Brasileiro de Geografia e Estatística (IBGE). *Pesquisa Nacional de Saúde*. Rio de Janeiro: IBGE; 2014.
8. Meucci RD, Fassa AG, Faria NMX. Prevalence of chronic low back pain: systematic review. *Rev Saude Publica* 2015; 49.
9. Romero DE, Santana D, Borges P, Marques A, Castanheira D, Rodrigues JM, Sabbadini L. Prevalência, fatores associados e limitações relacionados ao problema crônico de coluna entre adultos e idosos no Brasil. *Cad Saude Publica* 2018; 34(2):e00012817.
10. Reis RJ, Pinheiro TMM, Navarro A, Martin MM. Perfil da demanda atendida em ambulatório de doenças profissionais e a presença de lesões por esforços repetitivos. *Rev Saude Publica* 2000; 34(3):292-298.
11. Manek NJ, MacGregor AJ. Epidemiology of back disorders: prevalence, risk factors, and prognosis. *Curr Opin Intern Med* 2005; 17(2):324-330.
12. Meziat Filho N, Silva GA. Invalidez por dor nas costas entre segurados da Previdência Social do Brasil. *Rev Saude Publica* 2011; 45(3):494-502.
13. National Institute for Occupational Safety and Health (NIOSH). *Musculoskeletal disorders and workplace factors*. Cincinnati: NIOSH; 1997.
14. Deyo RA, Weinstein JN. Low back pain. *N Engl J Med* 2001; 344(5):363-370.
15. Andersson GBJ. Epidemiology of low back pain. *Acta Orthop Scand* 1998; 281(Supl.):28-31.
16. Kwon M, Shim WS, Kim MH, Gwak MS, Hahm TS, Kim GS, Kim CS, Choi YH, Park JH, Cho HS, Kim TH. A correlation between low back pain and associated factors: a study involving 772 patients who had undergone general physical examination. *J Korean Med Sci* 2006; 21(6):1086-1091.
17. Wong EY, Deyo RA. Acute low back pain. *Primary Care Update for OB/GYNS* 2001; 8:171-174.
18. Garcia JBS, Hernandez-Castro JJ, Nunez RG, Pazos MA, Aguirre JO, Jreige A, Delgado W, Serpentegui M, Berenguel M, Cantemir C. Prevalence of low back pain in Latin America: a systematic literature review. *Pain Physician* 2014; 17(5):379-391.
19. Hoy D, March L, Brooks P, Blyth F, Woolf A, Bain C, Williams G, Smith E, Vos T, Barendregt J, Murray C, Burstein R, Buchbinder R. The global burden of low back pain: estimates from the Global Burden of Disease 2010 study. *Ann Rheum Dis* 2014; 73(6):968-974.
20. Speroff L. Clinical guidelines for contraception at different ages: early and late. In: Speroff L, Darney PD, editors. *A clinical guide for contraception*. Philadelphia: Lippincott Williams & Wilkins; 2011. p. 351-379.
21. Moreno N, Moncada S, Llorens C, Carrasquer P. Double presence, paid work, and domestic-family work. *New Solutions* 2010; 20(4):511-526.
22. Brasil. Ministério da Saúde (MS). *Política Nacional de Atenção Integral à Saúde da Mulher: princípios e Diretrizes*. Brasília: MS; 2011. (Série C. Projetos, Programas e Relatórios).
23. Frasson VB. *Uso Racional de Medicamentos: fundamentação em condutas terapêuticas e nos macroprocessos da Assistência Farmacêutica. Dor lombar: como tratar?* Brasília: OPAS/OMS; 2016.
24. Hansson TH, Hansson EK. The effects of common medical interventions on pain, back function, and work resumption in patients with chronic low back pain: A prospective 2-year cohort study in six countries. *Spine (Phila Pa 1976)* 2000; 25(23):3055-3064.
25. Ferreira GD, Silva MC, Rombaldi AJ, Wrege ED, Siqueira FV, Hallal PC. Prevalência de dor nas costas e fatores associados em adultos do Sul do Brasil: estudo de base populacional. *Rev Bras Fisioter* 2011; 15(1):31-36.
26. Mata MS, Costa FA, Souza TO, Mata ANS, Pontes JF. Dor e funcionalidade na atenção básica à saúde. *Cien Saude Colet* 2011; 16(1):221-230.
27. Souza-Júnior PRB, Freitas MPS, Antonaci GDA, Szwarcwald CL. Desenho da amostra da Pesquisa Nacional de Saúde 2013. *Epidemiol Serv Saúde* 2015; 24(2):207-216.
28. Szwarcwald CL, Malta DC, Pereira CA, Vieira MLFP, Conde WL, Souza Junior PRB, Damacena GN, Azevedo LO, Azevedo e Silva G, Theme Filha MM, Lopes CS, Romero DE, Almeida VS, Monteiro CA. Pesquisa Nacional de Saúde no Brasil: concepção e metodologia de aplicação. *Cien Saude Colet* 2014; 19(2):333-342.
29. Brasil. Ministério da Saúde (MS). Portaria nº 1.119, de 05 de junho de 2008. Regulamenta a Vigilância de Óbitos Maternos. *Diário Oficial da União* 2008; 5 jun.
30. World Health Organization (WHO). Global Strategy on Diet, Physical Activity and Health. [acessado 2018 Maio 27]. Disponível em: http://www.who.int/dietphysicalactivity/publications/recommendations18_64yearsold/en/

31. World Health Organization (WHO). *Obesity: Preventing and managing the global epidemic. – Report of a WHO consultation on obesity*. Geneva: WHO; 2000. [WHO Technical Report Series nº 894].
32. Schisterman EF, Faraggi D, Reiser B, Trevisan M. Statistical inference for the area under the receiver operating characteristic curve in the presence of random measurement error. *Am J Epidemiol* 2001; 154(2):174-179.
33. Barros MBA, Cesar CLG, Carandina LT, Graciella D. Desigualdades sociais na prevalência de doenças crônicas no Brasil, PNAD-2003. *Cien Saude Colet* 2006; 11(4):911-926.
34. Barros MBA, Francisco PMSB, Zanchetta LM, Cesar CLG. Tendências das desigualdades sociais e demográficas na prevalência de doenças crônicas no Brasil, PNAD: 2003-2008. *Cien Saude Colet* 2011; 16(9):3755-3768.
35. Malta DC, Oliveira MM, Andrade SSCA, Caiaffa WT, Souza MFM, Bernal RTI. Fatores associados à dor crônica na coluna em adultos no Brasil. *Rev Saude Publica* 2017; 51(Supl. 1):9s.
36. Dutra ML, Prates PL, Nakamura E, Villela WV. A configuração da rede social de mulheres em situação de violência doméstica. *Cien Saude Colet* 2013; 18(5):1293-1304.
37. Pavão ALB, Werneck GL, Campos MR. Autoavaliação do estado de saúde e a associação com fatores sociodemográficos, hábitos de vida e morbidade na população: um inquérito nacional. *Cad Saude Publica* 2013; 29(4):723-734.
38. Sá K, Baptista AF, Matos MA, Lessa I. Prevalência de dor crônica e fatores associados na população de Salvador, Bahia. *Rev Saude Publica* 2009; 43(4):622-630.
39. Webb R, Brammah T, Lunt M, Urwin M, Allison T, Symmons D. Prevalence and predictors of intense, chronic, and disabling neck and back pain in the UK general population. *Spine* 2003; 28(11):1195-1202.
40. Wijhoven HA, Vet HC, Picavet HS. Explaining sex differences in chronic musculoskeletal pain in general population. *Pain* 2006; 124(1-2):158-166.
41. Machado GPM, Barreto SM, Passos VMA, Lima-Costa MFF. Projeto Bambuí: prevalência de sintomas articulares crônicos em idosos. *Rev Assoc Med Bras* 2004; 50(4):367-372.
42. Firmento BS, Moccellin AS, Albino MAS, Driusso P. Avaliação da lordose lombar e sua relação com a dor lombopélvica em gestantes. *Fisioter Pesq* 2012; 19(2):128-134.
43. Goel S, Mani P, Mangla D, Goel JK. Low back ache in working women of reproductive age group. *Journal of South Asian Federation of Obstetrics and ginaecology* 2015; 7(1):33-36.
44. Silva VH, Rocha JSB, Caldeira AP. Fatores associados à autopercepção negativa de saúde em mulheres climatéricas. *Cien Saude Colet* 2018; 23(5):1611-1620.
45. Pacola LM, Nepomuceno E, Dantas RAS, Costa HRT, Cunha DCPT, Herrero CFPS, Defino HLA. Health-related quality of life and expectations of patients before surgical treatment of lumbar stenosis. *Coluna/Columna* 2014; 13(1):35-38.
46. Silva MC, Fassa AG, Valle NCJ. Dor lombar crônica em uma população adulta no Sul do Brasil: prevalência de fatores associados. *Cad Saude Publica* 2004; 20(2):377-385.
47. Plouvier S, Leclerc A, Chastang JF, Bonenfant S, Goldberg MS. Socioeconomic position and low-back pain – the role of biomechanical strains and psychosocial work factors in the GAZEL cohort. *Scand J Work Environ Health* 2009; 35(6):429-436.
48. Brasil. Ministério da Saúde (MS). *Vigitel Brasil 2014: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico*. Brasília: MS; 2015.

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