UNDER PEER REVIEW

Study Protocol

Sleep disorders and quality of life of women in menopausal transition and postmenopausal assisted in Primary Health Care: a cross-sectional observational study protocol

ABSTRACT

Aims: The objective of the study will be to evaluate the presence of sleep disorders, sleep quality and life of women in the menopausal transition and postmenopausal assisted in primary health care (PHC) in Divinópolis/MG.
Study design: Cross-sectional observational.
Place and Duration of Study: PHC in the city of Divinópolis, Minas Gerais, Brazil, between January 2023 and December 2024.
Material and methods: The present study will be carried out by professors and students of the University of the State of Minas Gerais (UEMG), Divinópolis Unit, with women recruited from PHC in the municipality of Divinópolis/MG, after consenting to participate in the study, by signing the Informed Consent Form (ICF). The sample will be consecutive and of convenience and then stratified according to sociodemographic variables, presence or absence of sleep disorders, sleep quality, quality of life and other variables pertinent to the study.
Discussion: Due to the lack of professional performance in primary care for sleep disorders, it is necessary to study the concomitant changes between the menopausal transition and postmenopausal processes. In view of the aspects related to these disorders, there is a need for a more in-depth look at the factors that can interfere with sleep quality during this transition.

Keywords: Primary Health Care; Sleep Wake Disorders; Postmenopause; Climateric.

1. INTRODUCTION

According to the Brazilian Institute of Geography and Statistics, there has been a growing increase in population aging in Brazil, especially among women, in which life expectancy has shown an average of 80.5 years [1]. Women's health undergoes specific changes with aging, especially during the menopausal transition, the period that precedes menopause and the endocrinological, biological and clinical changes of the approach to menopause begin, varying according to the age and specificity of each woman [2]. Menopause is recognized as the loss of ovarian follicular activity and non-reproductive state and is recognized after twelve consecutive months of absence from menstrual cycles, without pathological or physiological causes [3].

During the menopausal transition, the final phase of the fertile period, where irregular menstrual cycles begin until menopause, various signs and symptoms of vasomotor, psychological and cognitive origin may manifest, such as hot flashes, palpitations, mood swings, depression, irritability, anxiety, sleep disorders, memory problems, concentration, and atrophic effects, such as vaginal atrophy and bladder irritability [4].

Women in the menopausal transition and postmenopausal are more likely to experience sleep disturbances, probably due to the physiological changes of these phases [5]. The prevalence of sleep disorders varies according to the stage: from 16% to 42% in premenopausal, from 39% to 47% in perimenopausal, and from 35% to 60% in postmenopausal [6]. The factors that cause these disorders are not completely clear and vary depending on the specific symptoms. However, some contributing factors may include menopause itself, vasomotor symptoms, depression, aging, anxiety, cardiovascular and endocrine diseases, medication use, and psychosocial factors [7].

Sleep is a state of minor sensorimotor activity, muscle relaxation, and a cyclical process with defined neurological and cardiorespiratory patterns. It is divided into two phases: NREM (non-rapid eye movement) sleep and REM (rapid eye movement) sleep. NREM sleep has subphases that vary according to the depth of sleep: stage 1 (falling asleep), stage 2 (light sleep), and stage 3 (deep sleep). REM sleep is the deepest phase, characterized by rapid eye movements, dreams, and information storage [8]. Good sleep quality is essential for human life, ensuring restorative, protective, immunological and energy-conserving functions. Sleep deprivation impairs mental and physical well-being by affecting functionality [9]. Sleep problems negatively impact quality of life, increasing the risk of accidents and decreasing productivity [10].

Insomnia is a sleep disorder characterized by difficulty in initiating or maintaining sleep, or in waking up earlier than desired, compromising the quality of the day. Globally, the prevalence of insomnia symptoms is approximately 30 to 35%, with an annual incidence between 7 and 15% [11,12,13]. Women are 1.41 times more likely to develop sleep disorders and 1.3 to 1.8 times more likely to have insomnia compared to men [14,15]. The incidence of insomnia increases in women in the transition from menopause to women in the reproductive phase, and worsens with age, with personal health perception being an important determinant of sleep quality [16,17].

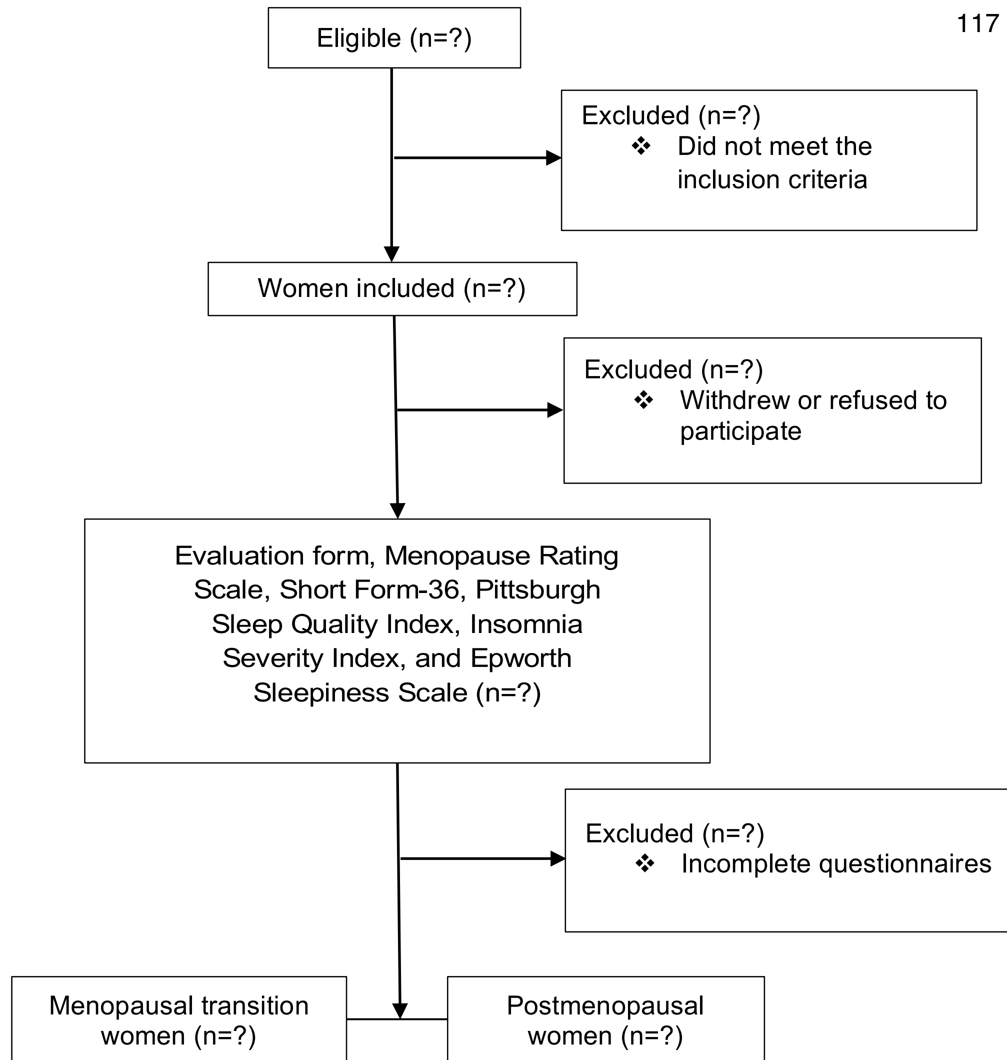
Obstructive sleep apnea (OSA) is a common public health disorder characterized by repeated episodes of upper airway collapse during sleep [18]. According to some studies, the incidence of OSA in women increases after menopause, and it is estimated that the prevalence of this condition among women in the sixth or seventh decade of life ranges from 4% to 22%, depending on the definition used and the population examined [19,20].

Excessive daytime sleepiness (EDS) is characterized by the inability to remain awake and/or alert during the day due to poor sleep quality, medication use and comorbidities [21]. It presents itself as a common complaint in the population, which has been associated with hypertension, diabetes, allergies, depression, anxiety, and muscle contractures. In addition to these factors, others such as lifestyle habits, alcoholism, sedentary lifestyle and insufficient sleep can predispose to such a framework [22,23]. Women tend to be more affected due to

81 the accumulation of domestic responsibilities directed at them, such as looking after the home
82 and children [24].
83 Among the levels of health care in Brazil, Primary Health Care (PHC) refers to the first
84 level of health care, which contributes to the care of the most common needs of individuals
85 [25]. According to the Pan American Health Organization/World Health Organization
86 (PAHO/WHO), PHC is defined as the patient's first contact, and this care is comprehensive
87 and of community standard. At this level of health care, if necessary, the patient's demand for
88 other areas is screened according to their complexity. Services are offered aimed at
89 promotion, prevention, protection, diagnosis, treatment, rehabilitation, harm reduction,
90 palliative care and health surveillance [26].
91 During the phases of menopause, it is essential that women receive adequate care
92 through PHC so that their complaints are attended to with attention and care, and their doubts
93 are clarified [27]. Considering that many women report changes in sleep and quality of life
94 during the menopausal transition and postmenopausal, qualified care by health professionals
95 is essential. These professionals should guide them in an understandable, objective and
96 competent manner about the common clinical implications in this period [28]. PHC enables
97 more humanized and informative care, offering comprehensive support to the needs of these
98 women.
99
100 ## 2. MATERIAL AND METHODS
101
102 ### 2.1 Study design and ethical considerations
103
104 The present study will be of the cross-sectional observational type, carried out by
105 professors and students at the University of the State of Minas Gerais (UEMG), Divinópolis
106 Unit, with women recruited from PHC in the municipality of Divinópolis/MG. The study design
107 follows the norms of the Strengthening the Reporting of Observational Studies in Epidemiology
108 (STROBE) statement [29,30] and is in accordance with the ethical standards established in
109 the Declaration of Helsinki 1961 and in the Guidelines and Regulatory Standards for research
110 involving human beings of the National Health Council of the Ministry of Health of Brazil,
111 resolutions 466/2012, 510/2016 and 580/2018 (Figure 1).
112 The present study was approved by the Human Research Ethics Committee of
113 UEMG, number 6.125.104/2023, together with the Term of Consent of the Municipal Health
114 Department of Divinópolis-MG. All patients involved will be given an Informed Consent Form
115 (ICF) and leave of absence will be allowed at any time without any charge.

116

117



118 **Figure 1.** Flowchart of the study.
119
120
2.2 Sample Description
121
122 Women assisted in PHC, through Basic Health Units and Family Health Strategy, in
123 the municipality of Divinópolis/MG, Brazil, will participate in the study, after consenting to
124 participate in the study, by signing the informed consent form. The sample will be consecutive
125 and convenience and then stratified according to the variables, sociodemographic, presence
126 or absence of sleep disorders, sleep quality, quality of life and other variables pertinent to the
127 study
128
129
2.3 Inclusion criteria
130
131 Women over 18 years of age in the menopausal transition or postmenopausal period
132 assisted at PHC in the city of Divinópolis/MG, agreed to participate in the study, signing the
133 informed consent form.
134

2.4 Exclusion Criteria

Women with a clinical diagnosis of cancer, using hormone replacement therapy, who have undergone surgical removal of the ovaries (oophorectomy) or total hysterectomy and presence of incomplete answers in the questionnaires.

2.5 Study protocol

2.5.1 Clinical Evaluation Form and sociodemographic questionnaire

The evaluation of the patients will be carried out at the PHC of Divinópolis-MG, where personal, clinical, sociodemographic data will be collected, and, through self-report, if the woman is in the menopausal transition or postmenopausal, presenting symptoms from the physiological changes of these phases. Systemic blood pressure will be measured after the individual remains seated at rest for 10 minutes, using the auscultatory method. The evaluation of weight and height will be carried out using an electronic scale (model 200/5, Welmy Indústria e Comércio Ltda, São Paulo, Brazil). Body mass index (BMI) calculation will be performed using the WHO BMI Classification [31]. Neck circumference will be measured with the individual in a sitting position, at the level of the anterior border of the cricoid cartilage, both using a non-elastic tape measure with an accuracy of 1 millimeter [32]. The waist circumference will also use a non-elastic tape measure for its measurement. It will be measured at the midpoint between the lower margin of the last rib and the iliac crest, in a frontal view, on the right or left side [33].

2.5.2 Pittsburgh Sleep Quality Index (PSQI)

The PSQI was developed in 1989 and is a self-administered questionnaire that evaluates sleep quality and possible disturbances in the last month [34], validated for the Brazilian population in 2011 [35]. The questionnaire aims at a possibility of reliable and standardized measurement, leading to the differentiation of individuals with restful sleep from those with disorders that affect sleep quality [36]. This questionnaire assesses sleep quality and the presence of sleep disturbances over a one-month period. The instrument contains nineteen self-report questions and five questions directed to the room companion. The questions are divided into seven components: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep changes, use of sleep medications, and daytime sleep dysfunction. Adding the values of the seven components, the total score can range from 0 (zero) to 21 (twenty-one), and the higher the number, the worse the quality of sleep. A total score higher than five suggests insufficient sleep [35].

2.5.3 Insomnia Severity Index (IGI)

To measure the presence and severity of insomnia, the IGI, developed in 2001, will be used [37]. This is a brief and simple questionnaire that assesses the presence and severity of insomnia observed by the individual in the last two weeks. Validated for the Brazilian population in 2011 [38], the GII is composed of seven items that investigate difficulty in initiating sleep, staying asleep and waking up, satisfaction with the current sleep pattern, interference with daily functioning, perception of impairment due to sleep problems, and degree of distress or worry caused by insomnia. The items are classified into five alternatives ranging from "not at all" to "very dissatisfied." The cut-off points for the classification of insomnia are: absence of significant insomnia (0 to 7), lower limit for insomnia (8 to 14), moderate clinical insomnia (15 to 21) and severe clinical insomnia (22 to 28).

2.5.4 Epworth Sleepiness Scale (ESS)

When assessing the propensity to daytime sleep, the ESS is a self-assessment instrument composed of eight items that refer to everyday situations. The responses for each item range from 0 (zero) to 3 (three), indicating the probability of falling asleep during a specific activity (0 = never, 1 = low probability, 2 = moderate probability, 3 = high probability) [39]. This scale has been validated for Brazilian culture [40], where a total score equal to or greater than 10 suggests the presence of EDS.

2.5.5 Berlin Quiz

To determine the risk for OSA, an individualized clinical questionnaire called the Berlin Questionnaire will be applied [41]. This questionnaire has 10 items organized into three categories as follows: apnea and snoring, daytime sleepiness and systemic arterial hypertension, and obesity. All positively marked responses are considered risk factors for OSA. Patients will be classified as either high-risk or low risk for OSA. A patient is considered at high risk for OSA if two or more of the three categories are positive.

2.5.6 Short Form (SF-36)

To assess quality of life, the use of the SF-36 questionnaire is recommended. This instrument, designed for clinical and research use in the United States of America, has demonstrated good sensitivity in several situations, eliminating problems of overdistribution in extreme scores such as "excellent" and "very poor" [42]. In 1999, the translated version of the SF-36 was published and adapted to the Portuguese, adapted to the Brazilian culture. This instrument, which is easy and quick to apply, is administered through interviews and considers its measurement properties [43]. The SF-36 contains 36 items, of which 35 are grouped into eight dimensions: functional capacity, pain, physical aspects, emotional aspects, social aspects, mental health, vitality and general health status. The last item evaluates the change in health over time. Each dimension has its items encoded and transformed on a scale from zero (worst health status) to 100 (best health status).

2.5.7 Menopause Rating Scale (MRS)

Quality of life related to climacteric symptoms will be assessed using the Menopause Rating Scale (MRS). It is a scale that has been validated and translated into 9 languages, one of them in the Brazilian version in Portuguese [44,45,46]. It has 11 items on a scale of 0 (zero) to 4 (four), indicating absence of symptoms to severe symptoms, respectively. The score is obtained through the sum of the score, the higher it is, the worse the patient's symptoms and quality of life. It can be divided into MRS domains: score of 0-4 points, indicating absent symptoms, 5-8 points mild symptoms, 9-15 points moderate symptoms, greater than or equal to 16 points severe symptoms [46]. The time to answer the questionnaires and the evaluation form will be approximately 15 minutes.

2.6 Quality Control

The researchers responsible for data acquisition in this study will receive specific training to ensure data quality. Periodic external monitoring will be carried out to verify the correct application of the methodology for the acquisition of information and performance of the different tests.

2.7Statistical analysis

240 First, a pilot study will be carried out to determine the sample size calculation. The
241 Kolmogorov-Smirnov normality test will be implemented to determine the presence or absence
242 of normality of the data. Numerical data will be presented as mean and standard deviation for
243 variables with normal distribution, and median and interquartile range for those with
244 asymmetric distribution. Categorical data will be described as a percentage of the total and as
245 an absolute number. In the stratification of the sample, the student's t-test will be performed
246 when it is necessary to compare paired samples. For comparisons between quantitative
247 variables, the student's t-test or the non-parametric Mann-Whitney test will be used. When the
248 variables were qualitative, the Chi-square test or Fisher's exact test will be used. Correlations
249 between continuous variables will be performed with Pearson's correlation test or
250 Spearman's correlation test. For the statistical treatment, the statistical software (Statistical
251 Package for Social Sciences SPSS 13.0® (Chicago, IL, USA) will be used. The level of
252 statistical significance will be set at 5% for all tests ($p<0.05$), for a 95% confidence interval.
253
254 ## 3. RESULTS
255
256 It is expected to find changes in sleep quality and the presence of sleep disorders in
257 both menopausal and postmenopausal women assisted in PHC, which may influence their
258 quality of life. It is pertinent to quantify and analyze the difference of these changes in both
259 groups. This issue is decisive in the inclusion of intervention and treatment programs for sleep
260 disorders. In addition, basal nocturnal polysomnography, the gold standard test to assess
261 sleep, is expensive and difficult to access for patients assisted in PHC, justifying the use of
262 subjective tools such as questionnaires to assess sleep in this population.
263
264 ## 4. DISCUSSION
265
266 Due to the increase in life expectancy in the world population, and especially the
267 greater predominance of females, it is necessary to understand the phases that these women
268 experience in different periods of their lives. Menopause is a complex period of major changes
269 in a woman's body and understanding its relationship with sleep quality is important to
270 contribute to improving the quality of life for this specific population. And although there are
271 few studies that compare sleep disorders and quality of life of women in the menopausal
272 transition and postmenopausal, it is an important topic, considering the prevalence of these
273 disorders, which are now considered a public health problem. In addition, complete nocturnal
274 polysomnography and actigraphy have a higher cost. Therefore, the use of subjective tools
275 such as questionnaires to assess sleep in this population is justified.
276

CONSENT (WHEREVER APPLICABLE)

All patients involved will be informed consent and leave will be allowed at any time at no cost.

ETHICAL APPROVAL (WHERE EVER APPLICABLE)

The present study was approved by the Human Research Ethics Committee of UEMG, under opinion number 6.125.104/2023, together with the Term of Consent of the Municipal Health Department of Divinópolis-MG. All patients involved will be informed consent and leave will be allowed at any time at no cost.

5. REFERENCES

1. Instituto Brasileiro de Geografia e Estatística. Estatísticas Sociais, 26 de novembro de 2020. Disponível em: https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/29502-em-2019-expectativa-de-vida-era-de-76-6-anos. Acesso em 19 de julho de 2022.
2. Warren MP. Missed symptoms of menopause. Int J Clin Pract. 2007;61(12):12.
3. Mustafa MM, Souza EPP, Sena AB. Menopausa precoce no Brasil: uma revisão bibliográfica integrativa. Res Soc Dev. 2021;10(14):1-8.
4. Stojanovska L, Apostolopoulos V, Polman R, Borkoles E. To exercise, or, not to exercise, during menopause and beyond. Maturitas. 2014;77(4):318-23.
5. Kravitz HM, Ganz PA, Bromberger J. Sleep difficulty in women at midlife: a community survey of sleep and the menopausal transition. Menopause. 2003;10(1):19-28.
6. Kravitz HM, Joffe H. Sleep during the perimenopause: a SWAN story. Obstet Gynecol Clin North Am. 2011;38(3):567-86.
7. Lee J, Han Y, Cho HH, Kim MR. Sleep Disorders and Menopause. J Menopausal Med. 2019;25(2):83-7.
8. Dement WC. A personal history of sleep disorders medicine. J Neurophysiol Clin. 1990;7(1):17-48.

335 9. Neves GSML, Macedo P, Gomes MMG. Transtornos do sono: atualização (1/2). Rev
336 Bras Neurol. 2017;53(3):19-30.
337
338 10. Buckworth J, Dishman RK. Exercise psychology. 2nd ed. Champaign: Human
339 Kinetics; 2002. p. 1-528.
340
341 11. Morphy H, Dunn KM, Lewis M, Boardman HF, Croft PR. Epidemiology of insomnia: a
342 longitudinal study in a UK population. Sleep. 2007;30(3):274-80.
343
344 12. Ohayon MM, Reynolds CF. Epidemiological and clinical relevance of insomnia
345 diagnosis algorithms according to the DSM-IV and the International Classification of
346 Sleep Disorders (ICSD). Sleep Med. 2009;10(9):952-60.
347
348 13. Leblanc M, Mérette C, Savard J, Ivers H, Baillargeon L, Morin CM. Incidence, and
349 risk factors of insomnia in a population-based sample. Sleep. 2009;32(8):1027-37.
350
351 14. Krystal AD, et al. Sustained efficacy of eszopiclone over 6 months of nightly
352 treatment: results of a randomized, double-blind, placebo-controlled study in adults
353 with chronic insomnia. Sleep. 2003;26(7):793-9.
354
355 15. Zhang B, Wing YK. Sex Differences in Insomnia: A Meta-Analysis. Sleep.
356 2006;29(1):85-93.
357
358 16. Ballot O, Ivers H, Morin JCM. Sleep Disturbances During the Menopausal Transition:
359 The Role of Sleep Reactivity and Arousal Predisposition. Behav Sleep Med.
360 2021;20(4):500-12.
361
362 17. Souza CL, Aldrighi JM, Filho GL. Qualidade do sono em mulheres paulistanas no
363 climatério. Rev Assoc Med Bras. 2005;51(3):3.
364
365 18. Sánchez-de-la-Torre M, Campos-Rodriguez F, Barbé F. Obstructive sleep apnea and
366 cardiovascular disease. Lancet Respir Med. 2013;1(1):61-72.
367
368 19. Peppard TE, Young T, Barnet JH, Palta M, Hagen EW, Hla KM. Increased
369 prevalence of sleep-disordered breathing in adults. Am J Epidemiol.
370 2013;177(9):1006-14.
371
372 20. Koo SK, et al. Obstructive sleep apnea in postmenopausal women: a
373 comparative study using drug induced sleep endoscopy. Braz J
374 Otorhinolaryngol. 2017;83(3):285-91.
375
376 21. Silva K, Cattani AN, Hirt MC, Peserico A, Silva RM, Beck CLC. Somnolencia diurna
377 excesiva y los efectos del trabajo en la salud de trabajadores de enfermería. Enferm
378 Glob. 2020;58(58):276-88.
379
380 22. Gooneratne NS, et al. Functional outcomes of excessive daytime sleepiness in older
381 adults. J Am Geriatr Soc. 2003;51(5):642-9.
382
383 23. Guimarães CLH, Carvalho LB, Yanaguibashi G, Prado GF. Physically active
384 elderly women sleep more and better than sedentary women. Sleep Med.
385 2008;9(5):94-488.

24. Spindola T, Santos RS. Mujer y trabajo–La historia de vida de madres trabajadoras en enfermería. Rev Lat Am Enfermagem. 2003;11(5):593-600.

25. Portela GZ. Atenção Primária à Saúde: um ensaio sobre conceitos aplicados aos estudos nacionais. Physis. 2017;27(2):255-76.

26. Brasil. Portaria nº 2.436, de 21 de setembro de 2017. Consolidação das normas sobre as políticas nacionais de saúde do Sistema Único de Saúde. Política Nacional de Atenção Básica (PNAB). Diário Oficial da República Federativa do Brasil. Brasília DF, art. 2., 21 de setembro de 2017.

27. Vieira TMM, et al. Vivenciando o climatério: percepções e vivências de mulheres atendidas na atenção básica. Enferm Foco. 2018;9(2):40-5.

28. Pimenta FAP, et al. Avaliação da qualidade de vida de aposentados com a utilização do questionário SF-36. Rev Assoc Med Bras. 2008;54(1):55-60.

29. Von EE, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vandenbroucke JP. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. BMJ. 2007;335(4):806-8.

30. Malta M, Cardoso LO, Bastos FI, Magnanini MMF, Silva CMF. STROBE initiative: guidelines on reporting observational studies. Rev Saude Publica. 2010;44(3):559-65.

31. World Health Organization (WHO). Obesity: preventing and managing the global epidemic. Report of a WHO Consultation. WHO Tech Rep Ser. 2000;894(1):1-253.

32. Zen V, Fuchs FD, Wainstein MV. Neck circumference and central obesity are independent predictors of coronary artery disease in patients undergoing coronary angiography. Am J Cardiovasc Dis. 2012;2(4):323-30.

33. World Health Organization (WHO). Obesity: preventing and managing the global epidemic. Report of a WHO Consultation. WHO Tech Rep Ser. 2000;894(1):1-253.

34. Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. Psychiatry Res. 1989;28(2):193-213.

35. Bertolazi NA, Fagondes SC, Hoff LS, Dartora EG, Miozzo IC, Barba ME. Validation of the Brazilian Portuguese version of the Pittsburgh Sleep Quality Index. Sleep Med. 2011;5(1):12-70.

36. Ribeiro HL, et al. Perfil clínico-epidemiológico da sonolência diurna excessiva quanto a sua avaliação por intermédio da aplicação de escalas subjetivas do sono: Escala de Sonolência de Epworth e Índice de Qualidade do Sono de Pittsburgh. Rev Uningá. 2020;57(1):39-50.

37. Bastien CH, Vallieres A, Morin CM. Validation of the Insomnia Severity Index as an outcome measure for insomnia research. Sleep Med. 2001;2(4):297-307.

437 38. Castro LS. Adaptação e validação do Índice de Gravidade de Insônia (IGI):
438 caracterização populacional, valores normativos e aspectos associados.
439 [dissertation]. São Paulo; 2011. p. 1-104.
440
441 39. Johns MW. A new method for measuring daytime sleepiness: the Epworth
442 sleepiness scale. Sleep. 1991;14(6):540-5.
443
444 40. Bertolazi AN, Fagondes SC, Hoff LS, Pedro D, Barreto SSM, Johns MW.
445 Portuguese-language version of the Epworth sleepiness scale: validation for
446 use in Brazil. J Bras Pneumol. 2009;35(1):877-83.
447
448 41. Netzer NC, Stoohs RA, Netzer CM, Clark K, Strohl KP. Using the Berlin
449 Questionnaire to identify patients at risk for the sleep apnea syndrome. Ann Intern
450 Med. 1999;131(7):485-91.
451
452 42. Ware JJ, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I.
453 Conceptual framework and item selection. Med Care. 1992;30(6):83-473.
454
455 43. Ciconelli RM, Ferraz MB, Santos W, Meinão I, Quaresma MR. Tradução para a
456 língua portuguesa e validação do questionário genérico de avaliação de qualidade
457 de vida SF-36 (Brasil SF-36). Rev Bras Reumatol. 1999;39(3):143-50.
458
459 44. Potthoff P, Heinemann LAJ, Schneider HPG, Rosemeier HP, Hauser GA.
460 Menopause-Rating Skala (MRS): Methodische Standardisierung in der deutschen
461 Bevölkerung. Zentralbl Gynakol. 2000;122(5):280-6.
462
463 45. Heinemann K, Assmann A, Möhner S, Schneider HPG, Heinemann LAJ. Reliabilität
464 der Menopause-Rating-Skala (MRS). Untersuchung für die Deutsche Bevölkerung.
465 Zentralbl Gynakol. 2002;124(3):161-3.
466
467 46. Heinemann LA, Potthoff P, Schneider HPG. International versions of the Menopause
468 Rating Scale (MRS). Health Qual Life Outcomes. 2003;30(1):28.