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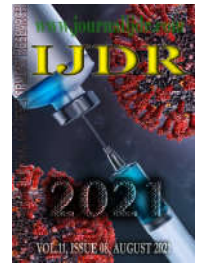
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ESCALAS PARA AVALIAÇÃO DA QUALIDADE DO SONO FEMININO: REVISÃO INTEGRATIVA

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ABSTRACT

O objetivo do estudo foi analisar as evidências na literatura nacional e internacional sobre escalas utilizadas para avaliação da qualidade do sono feminino. Tratou-se de uma revisão integrativa realizada nas bases de dados Medline/Pubmed, SCIELO, Lilacs, compreendendo o período de novembro de 2020 a janeiro de 2021 com o emprego dos descritores em Ciências da Saúde “Escala, Sono, Mulheres”, para responder à pergunta norteadora: “Quais as evidências disponíveis sobre o uso de escalas na avaliação da qualidade de sono de mulheres?” Os critérios de inclusão foram: artigos originais com texto completo, publicados no período compreendido entre 2011 e 2020 e redigidos nas línguas portuguesa, inglesa e espanhola, relativos a estudos primários. Foram selecionados 23 artigos para compor a revisão e encontradas 4 escalas para avaliar a qualidade do sono de mulheres com doenças crônicas e outros sintomas apresentados em percentuais e discussão centrada nos aspectos mais relevantes dos estudos. Concluiu-se que a escala mais utilizada foi o Índice de Qualidade do Sono de Pittsburgh, que é um instrumento validado e confiável internacionalmente e traduzido e validado no Brasil.

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INTRODUCTION

Frequent sleep alterations in women intervene in metabolic, endocrine, immunological, physical and mental well-being processes. Furthermore, they impair the homeostatic and repair functions¹. Adequate sleep is, therefore, a primordial human need, as it prevents impairments in cognitive performance, mood, daily activities, reduces fatigue and increases stamina. Poor sleep quality interferes with decision-making, speed and accuracy of task performance and post-exercise recovery^{2,3}. Some evidence shows that poor quality of rest is related to high prevalence of morbidity and mortality from metabolic syndrome, systemic arterial hypertension, diabetes, coronary artery disease and mental disorders³. Women's sleep differs in many ways from men's sleep. In general, women seem to need a greater amount of sleep time and have more subjective complaints of non-refreshing

sleep than men³. Women experience sleep in many ways different from men, as they have peculiar behavioral characteristics, including changes that occur with biological life cycles related to menstruation, pregnancy and menopause, and it is necessary to understand the implications of the quality of female sleep⁴. The total sleep time varies in each age group and gradually reduces over the years, varying on average eight hours. In newly operated or hospitalized women, there is a significant decrease in sleep efficiency, less than eight hours, due to the various nocturnal awakenings and daytime naps, which compromise the quality of life of these patients⁵. Sleep patterns and sleep disorders in women have gained magnitude in recent years, as researchers have begun to understand the repercussions of sex as a biological variable in pathology. In women, complaints about poor sleep quality show a prevalence of 47%, especially in relation to sleep duration being less than 6 hours per night⁶. Given the importance that sleep quality plays in the health of populations, it is essential to monitor the parameters in order to

recognize the most vulnerable segments of the population, such as women, allowing the development of more appropriate treatment strategies and initiatives to promote healthy sleep³. Every care that favors the maintenance of sleep will benefit health, preventing the onset of health problems. Health professionals can act to improve sleep in women through the use of instruments to measure sleep quality. Based on what has been exposed, this study aims to analyze the evidence available in the national and international literature on scales used to assess the quality of female sleep.

METHODS

It is an integrative review, carried out in the following steps: identification of the problem and formulation of the research question; procedures for search strategies; selection of articles; data evaluation and analysis; review presentation⁷. This investigation procedure is essential for the expansion of knowledge, which can be systematized in care contexts, as well as for the implementation of investigations. The research question was organized according to the PICO strategy (P – population; I – intervention/area of interest; C – Comparison; O – outcomes, adapted to PICO⁸. Thus, the following structure was considered: P – women; I – Sleep Scales; C – good sleepers and poor sleepers; O – Quality of sleep. The guiding question was: What evidence is available in the literature on the use of scales in the assessment of sleep quality in women?

The databases surveyed in the period between November and December/2020 were PubMed/Medline, SCIELO and Lilacs. The following Health Science Descriptors (HSDs) and Medical Subject Headings (MESH) were used: sleep, women, scales and the keywords: women, sleep scale and quality of sleep. The research was carried out by crossing them, using the Boolean operators “and” and “not”. The following crossings were used: sleep and women and scale, sleep and woman not man, sleep and quality of sleep and scale. In the databases, research delimiters were selected: original articles with full text, published in the period between 2011 and 2020 and written in Portuguese, English and Spanish, related to primary studies. Literature review articles, editorial notes, dissertations, theses and repeated articles were excluded. The decision to include the studies in the review with the inclusion criteria was made by reading the title and abstract of the studies. The articles selected to be analyzed in greater depth are represented in the flowchart of the selection of studies for the integrative review, which adopted the principles of the PRISMA model/diagram - Preferred Reporting Items for Systematic Reviews and Meta-Analyses⁹, through a scheme, the strategy of choice of articles, until reaching the final sample (Figure 1).

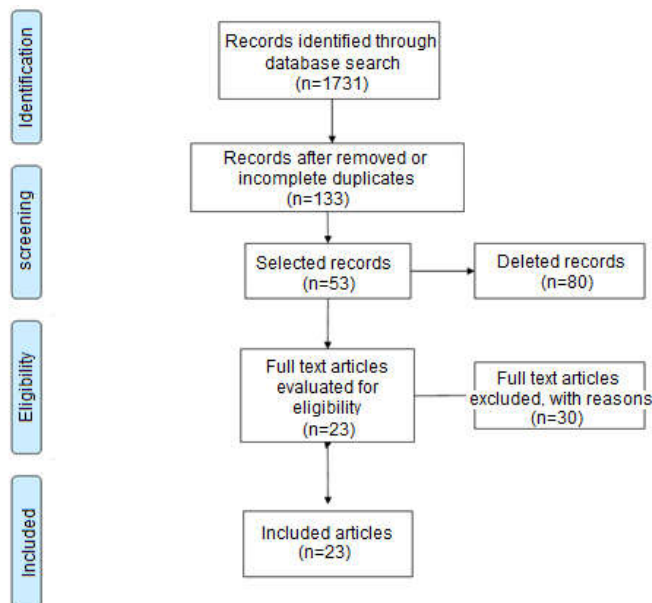


Figure 1. Selection of articles to determine the final sample by adapting the PRISMA⁹ flowchart

RESULTS

In the search carried out in the databases, with the selected health descriptors and considering the search delimiters, 1,731 articles resulted, 82 articles were from Lilacs, 1,615 from the Pubmed/Medline base and 34 articles were identified by SciELO. Exclusion of duplicate records showed 133 eligible studies, and after reading the titles and abstracts 53 were selected for full reading and 80 were excluded. After reading the studies in full, 30 were excluded for not meeting the inclusion criteria and methodological quality. Thus, the final review sample consisted of 23 articles. The integrative review sample involved primary studies, with 2011 and 2018 being the years with the highest number of publications (with four and five publications, respectively). Regarding the language, 11 were published in English (47%) and 12 in Portuguese. About the type of journal, 16 (69%) were published in scientific journals of medical specialties, while three (13%) were published in scientific journals of physical therapy. The scales used to assess the quality of sleep used in the studies totaled four, namely: (Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale, General Sleep Disorder Scale and Medical Outcomes Study Sleep Scale), however, most investigations, approximately 87%, used the Pittsburgh Sleep Quality Index scale. It was observed that 30% of scientific articles used two scales simultaneously, namely: the Pittsburgh Sleep Quality Index (PSQI) and the Epworth Sleepiness Scale. The assessment of the 23 selected studies provided a quantitative synthesis which corroborated, in addition to the scales that assess sleep, other instruments used to show characteristics involved in sleep quality, such as pain, anxiety, depression, stress, quality of life and sociodemographic situations. The scales used to assess sleep found in the selected studies and their description are shown in Figure 2.

Instrument Name	Description
Pittsburgh Sleep Quality Index (PSQI):	is a self-administered tool used to assess the quality of sleep and possible disorders in the past month. It was developed by Buysse et al. ¹⁰ and validated in Brazil, in an adult population, by Bertolazi et al. ¹¹ .
Epworth Sleepiness Scale:	is a tool used to measure the degree of daytime sleepiness. It was developed by Dr. Murray Johns and considers aspects of everyday life and recent way of life. It is a sleepiness scale with subjective assessment, but it is quick, free of charge and simple to apply.
General Sleep Disorders Scale:	This is a valid and reliable tool that can be completed in less than five minutes and is a non-invasive method for measuring sleep disturbances consistent with the DSM-V criteria for insomnia during a previous week.
Medical Outcomes Study sleep scale:	examines the amount of sleep, sleep disturbances, sleep adequacy, daytime sleepiness, snoring, shortness of breath, and overall sleep problems (sleep problem indices I and II).

Figure 2. Scales used to assess sleep in selected studies

The 23 articles were divided into two groups, shown below and summarized in table 1:

Group 1: Sleep assessment in women with chronic diseases.

Among the 23 studies analyzed, 12 related women's sleep to chronic diseases. Three of these articles assessed the impact of physical exercise on the sleep pattern of women with fibromyalgia syndrome (FMS), with an improvement in sleep quality with the practice of walking, Pilates or other physical activities being observed as a result¹²⁻¹⁴. Two articles focused on the impact of fibromyalgia syndrome on the sleep pattern of women, while another study showed an increase in the subjective quality of sleep in patients with FMS who received instructions on sleep hygiene^{15,16}. An article was also identified that related physical activity (yoga) with a significant improvement in several sleep pattern results in elderly women with osteoarthritis¹⁷. Five articles were identified that related unsatisfactory sleep quality in women with breast cancer, relating disease stage and treatment performed¹⁸⁻²⁰.

Chart 1. Main information extracted from the studies included in the integrative review

	Articletitle	Journal	Author	Year	Objective	Sleepscales
1.	Walking improves sleep quality and mood states in women with fibromyalgia syndrome.	Revista Dor (Pain magazine)	STEFFENS et al. ¹²	2011	To evaluate the effects of 32 guided walking sessions on sleep quality, mood states, depression and the impact of FMS on the quality of life of women with FMS.	Pittsburgh Sleep Quality Index (PSQI)
2.	Fibromyalgia: level of physical activity and sleep quality.	Rev. educ. fis. (Magazine PhD)	CAMPOS et al. ¹⁴	2011	To identify the level of physical activity and its relationship with excessive daytime sleepiness and sleep quality in 15 women with fibromyalgia, with a mean age of 58±7 years.	Pittsburgh Sleep Quality Index and the Epworth Sleepiness Scale.
3.	Changes in sleep quality but not hormones predict time to recurrence of postpartum depression	J AffectDisord.	OKUN et al. ²⁸	2011	To assess whether lack of sleep during postpartum contributes to the recurrence of MDPP (major depression with postpartum onset) and whether this relationship is affected by changes in hormones related to pregnancy.	Pittsburgh SleepQuality Index
4.	A pilot study of gentle yoga for sleep disorders in women with osteoarthritis.	Sleep Med	TAIBI; VITIELLO ¹⁷	2011	To test the feasibility and acceptability of a mild yoga intervention for sleep disorders in elderly women with osteoarthritis (OA) and collect initial intervention effectiveness data.	Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale
5.	Prevalence of excessive daytime sleepiness and associated factors in women aged 35 to 49 years from the "Pindamonhangaba Health Project" (PROSAPIN).	Rev. Assoc. Med. Bras (Assoc. Med. Bras Magazine)	PEREIRA et al. ²⁷	2012	Estimate the prevalence of excessive daytime sleepiness (EDS) and identify associated factors in women aged 35 to 49 years of the "Pindamonhangaba Health Project" (PROSAPIN).	EpworthSleepinessScale
6.	Improvement of pain, tiredness and subjective sleep quality through sleep hygiene guidelines in patients with fibromyalgia	Rev. bras. reumatol (bras. reumatol Magazine)	ORLANDI et al. ¹⁶	2012	To assess the effectiveness of sleep hygiene guidelines in women with fibromyalgia.	Pittsburgh Sleep Quality Index (PSQI)
7.	Trajectories of sleep disturbances and daytime sleepiness in women before and after breast cancer surgery.	J PainSymptomManage.	VAN ONSELEN et al. ¹⁸	2013	To assess how sleep disturbance and daytime sleepiness (DS) changed from before to six months after surgery and whether certain characteristics predicted baseline levels and/or trajectories of these parameters.	General SleepDisordersScale
8.	Decreased health-related quality of life in women with breast cancer is associated with poor sleep.	Sleep Med	LIU et al. ¹⁹	2013	To assess the longitudinal relationship between health-related quality of life (HR-QOL) and subjective and objective sleep quality in 166 women with newly diagnosed breast cancer in Stage 1 to Stage 3, who were scheduled to receive ≥ 4 cycles of adjuvant/neoadjuvant chemotherapy.	Pittsburgh SleepQuality Index
9.	Cognitive-behavioral therapy in combination with systemic family therapy improves mild to moderate postpartum depression.	Braz J Psychiatry.	HOU et al. ²²	2014	To explore the effect of cognitive-behavioral therapy (CBT) in combination with family systemic therapy (FTS) on mild to moderate postpartum depression and sleep quality.	Pittsburgh Sleep Quality Index (PSQI)
10.	Frequency of sleep disturbances in overweight/obese postmenopausal women.	Rev. Bras. Ginecol (Braz. Magazine Ginecol)	CORREA et al. ²³	2014	To assess the frequency of sleep disorders, such as obstructive sleep apnea, restless legs syndrome and insomnia, in overweight/obese postmenopausal patients in the climacteric sleep disorders clinic.	EpworthSleepinessScale Pittsburgh SleepQuality Index
11.	Electroacupuncture for fatigue, sleep and psychological distress in breast cancer patients with aromatase inhibitor-related arthralgia: a randomized trial.	CâncerCancer)	MAO et al. ²⁹	2014	To evaluate the effect of electroacupuncture (EA) on fatigue, sleep and psychological distress in breast cancer survivors who experience joint pain related to aromatase inhibitors (AIs).	Pittsburgh Sleep Quality Index (PSQI)
12.	Sleep quality in pregnant women with low back pain	Fisioter. mov.	SOUSA et al. ²⁶	2015	To compare the quality of sleep among pregnant women with and without gestational low back pain, analyzing the relationship between the two variables.	Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS)
13.	Benefit of the Pilates Method in Women with Fibromyalgia	Conscientia e saúde (Conscienceand Health)	KÜMPEL et al. ¹³	2016	Evaluate the effectiveness of the Pilates Method to improve pain in patients with Fibromyalgia	Pittsburgh Sleep Quality Index (IQSP)
14.	Longitudinal variation of sleep quality in women with breast cancer.	Acta paul. enferm	MANSANO-SCHLOSSER, CEOLIM ²⁰	2016	Compare sleep quality, depression and hope in women with breast cancer over approximately one year.	Pittsburgh SleepQuality Index
15.	Factors associated with poor sleep quality in women with breast cancer.	Rev. latinoam. enferm	MANSANO-SCHLOSSER, CEOLIM ²⁰	2016	To analyze the factors associated with poor sleep quality, its characteristics and components in women with breast cancer before tumor removal surgery and during follow-up	Pittsburgh SleepQuality Index

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16.	Clinical profile of patients with fibromyalgia syndrome.	Fisioter. mov.	PERNAMBUCO et al. ³⁰	2017	Measure levels of fatigue, sleep disturbances, anxiety and depression in FM patients and compare them to levels found in healthy controls	Pittsburgh SleepQuality Index
17.	Prevention of weight gain improves sleep quality among black women: results from an RCT.	Ann Behav Med	Steinberg et al. ²⁴	2017	See if a weight gain prevention intervention improved sleep among black women.	Medical Outcomes Study Sleep Scale
18.	Effect of GuizhiGancaoLongguMuli Tang on sleep disturbances in menopausal women.	JournalofTraditional Chinese Medicine	WANG et al. ²⁵	2017	To evaluate the effect of GGLMT on sleep disturbances in menopausal women.	Pittsburg Sleep Quality Index (PSQI)
19.	Sleep quality assessment in women with urinary incontinence before and after surgical correction.	Journal Einstein (São Paulo)	Freitas et al. ³¹	2018	To assess sleep quality in women with urinary incontinence before and after sling surgery.	Epworth Sleepiness Scale and Pittsburgh Sleep Quality Index.
20.	Study on factors associated with the impact of fibromyalgia on quality of life	Fisioter.bras.	OLIVEIRA et al. ¹⁵	2018	Evaluate the factors that are associated with the impact of FM on the quality of life of women with this condition	Pittsburgh SleepQuality Index
21.	Sleep quality and daytime sleepiness in women with predominant urge urinary incontinence.	Surg. Med Reconstr Pélvico Feminino (Med.Surg. Reconstr FemalePelvic)	WINKELMAN et al. ³²	2018	To examine the strength and direction of the association between urinary symptoms and poor quality sleep and daytime sleepiness in women with urge urinary incontinence.	Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale
22.	The effect of sleep pattern changes on postpartum depressive symptoms.	BMC Womens Health	LEWIS et al. ²¹	2018	To assess the relationship between changes in self-reported sleep patterns (from six weeks to seven months after delivery) and depressive symptoms at seven months after delivery among women at high risk for postpartum depression	Pittsburgh SleepQuality Index
23.	Association of the Pharmacological Treatment of Urgent Urinary Incontinence with Sleep Quality and Daytime Sleepiness.	ObstetGynecol	WARSI et al. ³³	2018	Evaluate the association between pharmacological therapy for Urge Urinary Incontinence (UI) and sleep quality	Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale

Group 2: Assessment of sleep in women related to other symptoms

In this group, 11 articles that associated the sleep of women with other symptoms were analyzed. Two articles were identified that related the poor quality of sleep in the first weeks after delivery to the increased risk of depression starting in the recurrent postpartum period among women²¹. Another study found that cognitive-behavioral therapy in combination with systemic family therapy can improve depression and sleep quality in patients with mild to moderate postpartum depression²². A study on postmenopausal women observed a high prevalence of sleep-disordered breathing, fragmented sleep and onset insomnia in the group with the highest BMI²³. The same relationship was also noted in black women in another investigation, where the prevention of weight gain can bring clinical benefits in improving the quality of sleep²⁴. Another study identified a significant improvement in sleep resulting from the GGLMT intervention in menopausal women²⁵. One of the scientific articles related decreased sleep quality in pregnant women with low back pain when compared to those without low back pain²⁶. Of the 11 selected articles, 3 evaluated women with a compromised sleep pattern and improvement in this pattern after interventions. It was found in another study that the prevalence of Excessive Daytime Sleepiness in women aged 35 to 49 years was high and associated with sociodemographic characteristics, the presence of comorbidities and lifestyle²⁷.

DISCUSSION

The results found four scales used to assess sleep patterns in women. These instruments must be valid and reliable, so that they can be used scientifically. Most articles (87%) mention the legitimacy and credibility of the instrument chosen for the study, and the most used instrument was the Pittsburgh Sleep Quality Index (PSQI).

The Pittsburgh Sleep Quality Index (PSQI) is a self-administered tool used to assess sleep quality and possible disorders in the past month. It was developed by Buysse et al.¹⁰ and validated in Brazil, in an adult population, by Bertolazi et al.¹¹. The questionnaire is widely used in different populations, translated and validated for different languages. Contains 19 questions regarding quality and sleep disorders in the last month. The questionnaire assesses seven elements of sleep: subjective quality, sleep latency, sleep duration, sleep efficiency, sleep disorders, medication use and daily dysfunction. For each element, the score can vary from 0 to 3, reaching a maximum score of 21 points. Scores above five points indicate poor quality of sleep for the individual.

In this review, a percentage of 30% of scientific articles was found that used two scales simultaneously, namely: the Pittsburgh Sleep Quality Index (PSQI) and the Epworth Sleepiness Scale (Epworth Sleepiness Scale). This scale was developed to assess the occurrence of excessive daytime sleepiness (EDS), such as the probability of falling asleep in everyday situations. It is also considered simple, easy to understand and quickly filled out, being widely used³⁴. The results indicated that women with chronic or symptomatic diseases may have a worsening of their sleep pattern, in addition to a worsening in their quality of life. The five articles presented that studied women with breast cancer showed similar results: significant impairment of sleep pattern resulting from the disease or side effects of its treatment. In four of the five articles related to breast cancer, sleep was assessed using the Pittsburgh Sleep Quality Index (PSQI) instrument. The evidence from these studies reinforces the need to monitor all the symptoms that can trigger the worsening of sleep quality, valuing the treatment linked to them. According to Amorim, Silva and Shimizu³⁵, sleep in people with cancer is affected by several factors, from changes resulting from anticancer treatments to symptoms that accompany cancer such as pain, fatigue and depression.

The evaluation of the studies selected in this research revealed that sleep disorders are related to other chronic diseases such as fibromyalgia (FM) (totaling six articles). However, playing sports is associated with improved sleep quality. The six articles used the Pittsburgh Sleep Quality Index (PSQI) as a sleep assessment scale. The results of this scale show in all articles that FM patients have significantly poorer sleep quality than healthy controls. Patients with this syndrome have impaired sleep quality and efficacy, being associated with the presence of pain and nocturnal awakening³⁶. Three studies also found that overweight and/or obesity may be associated with sleep disorders. Obese women have a lower quality of sleep than women with an adequate BMI and physical activity can contribute to better sleep³⁷. Ropke et al.³⁸ showed, through the analysis of studies, that physical activity enriches the subjective and objective perception of sleep quality and, consequently, the quality of life, enabling its use as a therapeutic treatment to improve sleep disorders. Three articles in this same study linked sleep disturbances with postpartum depression. Sleep problems commonly improve postpartum. However, it was evidenced in these articles that women who are at high risk for postpartum depression are at greater risk of experiencing depressive symptoms if their sleep problems worsen or have only negligible improvement over time.

Melo et al.³⁹ showed that pregnancy and postpartum are processes that can generate intense changes in women's lives, such as sociocultural, physiological and above all emotional changes. In this study, with regard to sleep disorders related to postpartum depression, the implications showed that a significant number of women had difficulty sleeping, which corroborates the articles in this study. Another pathology associated with worsening sleep was urinary incontinence (UI) present in three articles in this review. It is extremely important to realize that this disease significantly compromises the quality of life of women and it directly affects the sleep pattern and even psychological problems throughout life⁴⁰. One study negatively related the quality of sleep with the occurrence of UI, which presents itself as involuntary loss of urine, noting the increasing difficulty in maintaining sleep and falling asleep, as well as the increase in early awakening. Sleep disorders have increased their incidence and prevalence in recent decades, corroborating the increased demand by patients for medical advice, due to their important impact on the quality of life of affected people³⁸.

CONCLUSION

This study used for review 23 scientific articles published from 2011 to 2020 and related to the quality of sleep in women. With regard to language, half were in Portuguese. The most used scale to assess the quality of sleep in women was the Pittsburgh Sleep Quality Index, which is considered quite reliable in our reality, as it is translated and validated in Brazil. The review also showed that chronic and non-chronic diseases inadvertently compromise sleep in women, in addition to other symptoms that can also trigger sleep disturbances, such as pain, anxiety and increased weight gain. As a matter of fundamental importance for the quality of life of women, it is hoped that this study can direct attention to methods that improve better results in relation to sleep quality, such as the use of these instruments in understanding the occurrence of diseases and grievances.

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