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ЕЖЕМЕСЯЧНЫЙ НАУЧНЫЙ ЖУРНАЛ

Медицинские новости Грузии

საქართველოს სამედიცინო სიახლენი

GEORGIAN MEDICAL NEWS

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GMN: Georgian Medical News is peer-reviewed, published monthly journal committed to promoting the science and art of medicine and the betterment of public health, published by the GMN Editorial Board since 1994. GMN carries original scientific articles on medicine, biology and pharmacy, which are of experimental, theoretical and practical character; publishes original research, reviews, commentaries, editorials, essays, medical news, and correspondence in English and Russian.

GMN is indexed in MEDLINE, SCOPUS, PubMed and VINITI Russian Academy of Sciences. The full text content is available through EBSCO databases.

GMN: Медицинские новости Грузии - ежемесячный рецензируемый научный журнал, издаётся Редакционной коллегией с 1994 года на русском и английском языках в целях поддержки медицинской науки и улучшения здравоохранения. В журнале публикуются оригинальные научные статьи в области медицины, биологии и фармации, статьи обзорного характера, научные сообщения, новости медицины и здравоохранения. Журнал индексируется в MEDLINE, отражён в базе данных SCOPUS, PubMed и ВИНИТИ РАН. Полнотекстовые статьи журнала доступны через БД EBSCO.

GMN: Georgian Medical News – საქართველოს სამედიცინო სიახლენი – არის ყოველთვიური სამეცნიერო სამედიცინო რეცენზირებადი ჟურნალი, გამოიცემა 1994 წლიდან, წარმოადგენს სარედაქციო კოლეგიისა და აშშ-ის მეცნიერების, განათლების, ინდუსტრიის, ხელოვნებისა და ბუნებისმეტყველების საერთაშორისო აკადემიის ერთობლივ გამოცემას. GMN-ში რუსულ და ინგლისურ ენებზე ქვეყნდება ექსპერიმენტული, თეორიული და პრაქტიკული ხასიათის ორიგინალური სამეცნიერო სტატიები მედიცინის, ბიოლოგიისა და ფარმაციის სფეროში, მიმოხილვითი ხასიათის სტატიები.

ჟურნალი ინდექსირებულია MEDLINE-ის საერთაშორისო სისტემაში, ასახულია SCOPUS-ის, PubMed-ის და ВИНИТИ РАН-ის მონაცემთა ბაზებში. სტატიების სრული ტექსტი ხელმისაწვდომია EBSCO-ს მონაცემთა ბაზებიდან.

WEBSITE

www.geomednews.com

К СВЕДЕНИЮ АВТОРОВ!

При направлении статьи в редакцию необходимо соблюдать следующие правила:

1. Статья должна быть представлена в двух экземплярах, на русском или английском языках, напечатанная через **полтора интервала на одной стороне стандартного листа с шириной левого поля в три сантиметра**. Используемый компьютерный шрифт для текста на русском и английском языках - **Times New Roman** (**Кириллица**), для текста на грузинском языке следует использовать **AcadNusx.** Размер шрифта - **12**. К рукописи, напечатанной на компьютере, должен быть приложен CD со статьей.

2. Размер статьи должен быть не менее десяти и не более двадцати страниц машинописи, включая указатель литературы и резюме на английском, русском и грузинском языках.

3. В статье должны быть освещены актуальность данного материала, методы и результаты исследования и их обсуждение.

При представлении в печать научных экспериментальных работ авторы должны указывать вид и количество экспериментальных животных, применявшиеся методы обезболивания и усыпления (в ходе острых опытов).

4. К статье должны быть приложены краткое (на полстраницы) резюме на английском, русском и грузинском языках (включающее следующие разделы: цель исследования, материал и методы, результаты и заключение) и список ключевых слов (key words).

5. Таблицы необходимо представлять в печатной форме. Фотокопии не принимаются. **Все цифровые, итоговые и процентные данные в таблицах должны соответствовать таковым в тексте статьи**. Таблицы и графики должны быть озаглавлены.

6. Фотографии должны быть контрастными, фотокопии с рентгенограмм - в позитивном изображении. Рисунки, чертежи и диаграммы следует озаглавить, пронумеровать и вставить в соответствующее место текста **в tiff формате**.

В подписях к микрофотографиям следует указывать степень увеличения через окуляр или объектив и метод окраски или импрегнации срезов.

7. Фамилии отечественных авторов приводятся в оригинальной транскрипции.

8. При оформлении и направлении статей в журнал МНГ просим авторов соблюдать правила, изложенные в «Единых требованиях к рукописям, представляемым в биомедицинские журналы», принятых Международным комитетом редакторов медицинских журналов - http://www.spinesurgery.ru/files/publish.pdf и http://www.nlm.nih.gov/bsd/uniform_requirements.html
В конце каждой оригинальной статьи приводится библиографический список. В список литературы включаются все материалы, на которые имеются ссылки в тексте. Список составляется в алфавитном порядке и нумеруется. Литературный источник приводится на языке оригинала. В списке литературы сначала приводятся работы, написанные знаками грузинского алфавита, затем кириллицей и латиницей. Ссылки на цитируемые работы в тексте статьи даются в квадратных скобках в виде номера, соответствующего номеру данной работы в списке литературы. Большинство цитированных источников должны быть за последние 5-7 лет.

9. Для получения права на публикацию статья должна иметь от руководителя работы или учреждения визу и сопроводительное отношение, написанные или напечатанные на бланке и заверенные подписью и печатью.

10. В конце статьи должны быть подписи всех авторов, полностью приведены их фамилии, имена и отчества, указаны служебный и домашний номера телефонов и адреса или иные координаты. Количество авторов (соавторов) не должно превышать пяти человек.

11. Редакция оставляет за собой право сокращать и исправлять статьи. Корректура авторам не высылается, вся работа и сверка проводится по авторскому оригиналу.

12. Недопустимо направление в редакцию работ, представленных к печати в иных издательствах или опубликованных в других изданиях.

При нарушении указанных правил статьи не рассматриваются.

REQUIREMENTS

Please note, materials submitted to the Editorial Office Staff are supposed to meet the following requirements:

1. Articles must be provided with a double copy, in English or Russian languages and typed or compu-ter-printed on a single side of standard typing paper, with the left margin of **3** centimeters width, and **1.5** spacing between the lines, typeface - **Times New Roman** (**Cyrillic**), print size - **12** (referring to Georgian and Russian materials). With computer-printed texts please enclose a CD carrying the same file titled with Latin symbols.

2. Size of the article, including index and resume in English, Russian and Georgian languages must be at least 10 pages and not exceed the limit of 20 pages of typed or computer-printed text.

3. Submitted material must include a coverage of a topical subject, research methods, results, and review.

Authors of the scientific-research works must indicate the number of experimental biological species drawn in, list the employed methods of anesthetization and soporific means used during acute tests.

4. Articles must have a short (half page) abstract in English, Russian and Georgian (including the following sections: aim of study, material and methods, results and conclusions) and a list of key words.

5. Tables must be presented in an original typed or computer-printed form, instead of a photocopied version. **Numbers, totals, percentile data on the tables must coincide with those in the texts of the articles.** Tables and graphs must be headed.

6. Photographs are required to be contrasted and must be submitted with doubles. Please number each photograph with a pencil on its back, indicate author's name, title of the article (short version), and mark out its top and bottom parts. Drawings must be accurate, drafts and diagrams drawn in Indian ink (or black ink). Photocopies of the X-ray photographs must be presented in a positive image in **tiff format**.

Accurately numbered subtitles for each illustration must be listed on a separate sheet of paper. In the subtitles for the microphotographs please indicate the ocular and objective lens magnification power, method of coloring or impregnation of the microscopic sections (preparations).

7. Please indicate last names, first and middle initials of the native authors, present names and initials of the foreign authors in the transcription of the original language, enclose in parenthesis corresponding number under which the author is listed in the reference materials.

8. Please follow guidance offered to authors by The International Committee of Medical Journal Editors guidance in its Uniform Requirements for Manuscripts Submitted to Biomedical Journals publication available online at: http://www.nlm.nih.gov/bsd/uniform_requirements.html
http://www.icmje.org/urm_full.pdf
In GMN style for each work cited in the text, a bibliographic reference is given, and this is located at the end of the article under the title "References". All references cited in the text must be listed. The list of references should be arranged alphabetically and then numbered. References are numbered in the text [numbers in square brackets] and in the reference list and numbers are repeated throughout the text as needed. The bibliographic description is given in the language of publication (citations in Georgian script are followed by Cyrillic and Latin).

9. To obtain the rights of publication articles must be accompanied by a visa from the project instructor or the establishment, where the work has been performed, and a reference letter, both written or typed on a special signed form, certified by a stamp or a seal.

10. Articles must be signed by all of the authors at the end, and they must be provided with a list of full names, office and home phone numbers and addresses or other non-office locations where the authors could be reached. The number of the authors (co-authors) must not exceed the limit of 5 people.

11. Editorial Staff reserves the rights to cut down in size and correct the articles. Proof-sheets are not sent out to the authors. The entire editorial and collation work is performed according to the author's original text.

12. Sending in the works that have already been assigned to the press by other Editorial Staffs or have been printed by other publishers is not permissible.

Articles that Fail to Meet the Aforementioned Requirements are not Assigned to be Reviewed.

ავტორთა საყურადღებოდ!

რედაქციაში სტატიის წარმოდგენისას საჭიროა დავიცვათ შემდეგი წესები:

1. სტატია უნდა წარმოადგინოთ 2 ცალად, რუსულ ან ინგლისურ ენებზე,დაბეჭდილი სტანდარტული ფურცლის 1 გვერდზე, 3 სმ სიგანის მარცხენა ველისა და სტრიქონებს შორის 1,5 ინტერვალის დაცვით. გამოყენებული კომპიუტერული შრიფტი რუსულ და ინგლისურენოვან ტექსტებში - **Times New Roman (Кириллица)**, ხოლო ქართულენოვან ტექსტში საჭიროა გამოვიყენოთ **AcadNusx.** შრიფტის ზომა – 12. სტატიას თან უნდა ახლდეს CD სტატიით.

2. სტატიის მოცულობა არ უნდა შეადგენდეს 10 გვერდზე ნაკლებს და 20 გვერდზე მეტს ლიტერატურის სიის და რეზიუმეების (ინგლისურ, რუსულ და ქართულ ენებზე) ჩათვლით.

3. სტატიაში საჭიროა გაშუქდეს: საკითხის აქტუალობა; კვლევის მიზანი; საკვლევი მასალა და გამოყენებული მეთოდები; მიღებული შედეგები და მათი განსჯა. ექსპერიმენტული ხასიათის სტატიების წარმოდგენისას ავტორებმა უნდა მიუთითონ საექსპერიმენტო ცხოველების სახეობა და რაოდენობა; გაუტკივარებისა და დაძინების მეთოდები (მწვავე ცდების პირობებში).

4. სტატიას თან უნდა ახლდეს რეზიუმე ინგლისურ, რუსულ და ქართულ ენებზე არანაკლებ ნახევარი გვერდის მოცულობისა (სათაურის, ავტორების, დაწესებულების მითითებით და უნდა შეიცავდეს შემდეგ განყოფილებებს: მიზანი, მასალა და მეთოდები, შედეგები და დასკვნები; ტექსტუალური ნაწილი არ უნდა იყოს 15 სტრიქონზე ნაკლები) და საკვანძო სიტყვების ჩამონათვალი (key words).

5. ცხრილები საჭიროა წარმოადგინოთ ნაბეჭდი სახით. ყველა ციფრული, შემაჯამებელი და პროცენტული მონაცემები უნდა შეესაბამებოდეს ტექსტში მოყვანილს.

6. ფოტოსურათები უნდა იყოს კონტრასტული; სურათები, ნახაზები, დიაგრამები - დასათაურებული, დანომრილი და სათანადო ადგილას ჩასმული. რენტგენოგრამების ფოტოასლები წარმოადგინეთ პოზიტიური გამოსახულებით **tiff** ფორმატში. მიკროფოტოსურათების წარწერებში საჭიროა მიუთითოთ ოკულარის ან ობიექტივის საშუალებით გადიდების ხარისხი, ანათალების შეღებვის ან იმპრეგნაციის მეთოდი და აღნიშნოთ სურათის ზედა და ქვედა ნაწილები.

7. სამამულო ავტორების გვარები სტატიაში აღინიშნება ინიციალების თანდართვით, უცხოურისა – უცხოური ტრანსკრიპციით.

8. სტატიას თან უნდა ახლდეს ავტორის მიერ გამოყენებული სამამულო და უცხოური შრომების ბიბლიოგრაფიული სია (ბოლო 5-8 წლის სიღრმით). ანბანური წყობით წარმოდგენილ ბიბლიოგრაფიულ სიაში მიუთითეთ ჯერ სამამულო, შემდეგ უცხოელი ავტორები (გვარი, ინიციალები, სტატიის სათაური, ჟურნალის დასახელება, გამოცემის ადგილი, წელი, ჟურნალის №, პირველი და ბოლო გვერდები). მონოგრაფიის შემთხვევაში მიუთითეთ გამოცემის წელი, ადგილი და გვერდების საერთო რაოდენობა. ტექსტში კვადრატულ ფჩხილებში უნდა მიუთითოთ ავტორის შესაბამისი N ლიტერატურის სიის მიხედვით. მიზანშეწონილია, რომ ციტირებული წყაროების უმეტესი ნაწილი იყოს 5-6 წლის სიღრმის.

9. სტატიას თან უნდა ახლდეს: ა) დაწესებულების ან სამეცნიერო ხელმძღვანელის წარდგინება, დამოწმებული ხელმოწერითა და ბეჭდით; ბ) დარგის სპეციალისტის დამოწმებული რეცენზია, რომელშიც მითითებული იქნება საკითხის აქტუალობა, მასალის საკმაობა, მეთოდის სანდოობა, შედეგების სამეცნიერო-პრაქტიკული მნიშვნელობა.

10. სტატიის ბოლოს საჭიროა ყველა ავტორის ხელმოწერა, რომელთა რაოდენობა არ უნდა აღემატებოდეს 5-ს.

11. რედაქცია იტოვებს უფლებას შეასწოროს სტატია. ტექსტზე მუშაობა და შეჯერება ხდება საავტორო ორიგინალის მიხედვით.

12. დაუშვებელია რედაქციაში ისეთი სტატიის წარდგენა, რომელიც დასაბეჭდად წარდგენილი იყო სხვა რედაქციაში ან გამოქვეყნებული იყო სხვა გამოცემებში.

აღნიშნული წესების დარღვევის შემთხვევაში სტატიები არ განიხილება.

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EXAMINATION OF THE INCIDENCE OF POOR SLEEP QUALITY AND FACTORS ASSOCIATED FOR POOR SLEEP DURING THE VARIOUS PHASES OF PREGNANCIES

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Abstract.

Objective: To measure poor sleep quality, its components, and the variables that contribute to it in a cohort of pregnant women (PW) across time.

Study design: Four hundred and eighty-six strong singleton pregnancies were collected ahead of the fourteenth gestational week. Data on poor sleep quality were gathered before pregnancy and analyzed five distinct times in each trimester and six months after delivery. “Poor sleep quality (PSQ) was defined as a score of fewer than eight on the Athens Insomnia Scale (AIS), and for each trimester, adjusted odds ratios (aOR) with 95% confidence intervals (CI)”were acquired by use of multivariate logistic regression analysis.

Results: Pregnancy prevalence of poor SQ was 6.1 percent, followed by 44.2 percent in the first trimester (TR1), 46.3 percent in the second trimester (TR2), and 63.7 percent in the third trimester (TR3). Poor sleep quality after pregnancy was reported by 33.2 percent of women “(28.2-37.9) ($p < 0.001$ for pre-gestational versus TR1, TR2 vs. TR3, and TR3 vs. post-pregnancy).”Due to a decrease in the quality of their nocturnal sleep, TR3's mean AIS score went from 2.34 before pregnant to 9.87; in contrast, TR1's detrimental impact on daytime functioning was larger. Poor sleep during the previous trimester was linked to poor sleep in TR2 and TR3. Poor SQ during pregnancy was a factor in TR1's poor SQ, and obesity was linked to bad sleep in TR3. The risks of having poor sleep quality in TR3 were instead decreased by moderate physical activity.

Conclusions: Poor sleep throughout pregnancy was shown to be much more common than good sleep at any point in the pregnancy. In the latter stages of pregnancy, two out of every three expecting moms suffer poor SQ. Particular attention should be paid to pre-gestational poor SQ prevention and high body mass index (BMI).

Key words. Poor sleep quality, pregnancy, trimester, Athens Insomnia Scale (AIS), Body Mass Index (BMI).

Introduction.

Sleep is an essential part of overall health and well-being, and it becomes even more critical during pregnancy. Pregnancy is a unique physiological state that places significant demands on the body, including changes in hormone levels, weight gain, and alterations in sleep patterns. It seems that low sleep quality is a typical issue among expectant mothers; up to 78% of them report experiencing sleep problems during their pregnancy [1]. Numerous factors contribute to poor sleep quality during pregnancy, including physical discomforts, such as back pain, heartburn, and increased frequency of urination [2]. The three trimesters of pregnancy are distinguished by various physiological changes. Hormonal modifications, especially high progesterone levels, during the first trimester are possible asleep terrors and increased daytime lethargy. Physical pain brought on by weight gain, fetal movements, and hormonal fluctuations, such as enlarged abdomens and greater pressure on the bladder, increases throughout the next trimesters of pregnancy and exacerbates insomnia. Insights into possible treatments to improve sleep quality and overall health outcomes during pregnancy can be gained by understanding the elements that contribute to studying the occurrence of poor SQ during the different periods of pregnancy and the factors related with it [3]. Poor SQ during pregnancy is a prevalent issue that affects up to 78% of pregnant women. It can lead to various adverse maternal and fetal outcomes, such as gestational hypertension, preterm birth, and postpartum depression [4]. Several factors have been associated with poor SQ during pregnancy, including hormonal changes, physical discomfort, anxiety, and depression. However, the incidence and specific factors associated with poor SQ can vary depending on the different phases of pregnancy, such as the 1st, 2nd, and 3rd trimesters. Therefore, understanding the incidence and factors associated with poor SQ during each phase of pregnancy is crucial for healthcare providers to identify and address potential sleep disturbances early on in pregnancy. This can ultimately improve the overall health and well-being of pregnant women and their babies [5]. Poor SQ is a common concern during pregnancy, affecting a significant proportion of pregnant women. Sleep disturbances during pregnancy are attributed to a variety of factors, such as physiological changes, hormonal fluctuations, and psychological stressors. The incidence of poor SQ varies across the different phases of pregnancy. Studies have shown that sleep quality tends to decline as pregnancy progresses, with the highest incidence of sleep disturbances occurring in the 3rd TR [6]. Factors associated with poor sleep quality during pregnancy are multifactorial, including physical discomforts such as back pain, heartburn, and frequent urination, as well as psychological factors such as anxiety and depression [7].

Understanding the incidence and factors associated with poor SQ during pregnancy is essential for healthcare providers to provide appropriate interventions to progress tender sleep and overall health outcomes [8]. However, there is no conclusive evidence linking sociodemographic factors, physical exercise, and pregnancy insomnia. Our goal was to analyze characteristics related to poor SQ in a cohort of healthy pregnancies and poor sleep quality as well as throughout, and after pregnancy.

Related Works.

The research [9] was to look at changes in sleep patterns throughout each of the three trimesters of pregnancy and determine if these changes are correlated with vitamin D concentrations and other risk factors. Findings support earlier findings that a higher incidence of poor sleep is associated with low income, sitting; lower education & increased calorie consumption during pregnancy to discover a trend of gradually declining SQ throughout pregnancy. The research [10] was to identify the traits that are associated with poor SQ among pregnant patients who visit prenatal care units at the designated referral hospitals. The use of systematic random sampling, facts was obtained. Poor SQ has been demonstrated to be linked to depression, perceived anxiety, fetal age, and multiplicity. The article [11] was to determine how pregnancy affects drowsiness and sleeplessness, and to identify prenatal risk factors for such signs, particularly anxiety and depression symptoms, using basic nordic sleep (BNS) assessment, insomnia and somnolence sensations were assessed in the early, mid, and final stages of pregnancy. The article [12] was to determine if nocturnal behaviors were related to inadequate sleep during pregnancy time. Cross-sectional research was performed on a planned group of pregnant women between eighteen and twenty-four weeks gestation that they recruited. Study [13] examined 1152 PW from a probable group study to determine the relationships between second-trimester sleep quality and prenatal stress, antenatal depression, and postpartum depression. Stress and sadness symptoms are linked to poor SQ in the subsequent TR in pregnant women. To enhance women's mental health, SQ -improving techniques should be taken into account throughout prenatal care. In research [14], 133 women, including nulliparous and multiparous were evaluated for subjective SQ by utilizing the Pittsburgh SQ Index throughout each TR of pregnancy and at four to eleven weeks postpartum. Study [15] evaluated the relationship between dietary practices and adherence to the MD and pregnant SQ. The food frequency questionnaires were employed to evaluate food habits and MD adherence, respectively. It is important to conduct intervention studies to determine if plant-based eating patterns, such as the Mediterranean diet, may improve a woman's quality of sleep during pregnancy. Article [16] evaluated the connection between pregnant women's serum orexin-A (OXA) levels and SQ. OXA had been exposed to control the sleep-wake cycle & might be a key player in the etiology of sleep disorders, though it is still unknown how it affects sleep problems in pregnant women.

Materials and Methods.

Design and study population From February 2013 until March 2016, we conducted prospective cohort research. Women who willingly participated in the data collection at health care facilities with midwives qualified as eligible participants.

Selection criteria:

The following conditions for inclusion applied to women:

1) Uncomplicated and healthy pregnancy.

2) without a history of any conditions that might have affected nutrition or exercise, such as hypertension, respiratory failure, severe heart failure, diabetes, renal, or conditions affecting mobility caused by neurological or musculoskeletal conditions.

3) To register at the medical facility before the 14th week of pregnancy.

4) Without any cognitive or linguistic hurdles preventing communication.

5) Accept taking part in the research. Women who failed to achieve these requirements throughout the recruiting period or had a miscarriage during the follow-up were disqualified.

On their initial prenatal visit to the healthcare centers, midwives were able to determine which women were eligible. The necessary data was then collected by telephone or in-person interviews at three different points during pregnancy and around six months following delivery. Early gestational weeks and the pre-gestational stage were covered in the first interview. Information was initially gathered from five hundred and eighteen women, 486 of whom matched the inclusion criteria, and four hundred and sixty-three of whom were followed up through the 2nd and 3rd trimester.

Instruments and variables:

The following variables were measured:

(a) Socio-demographic variables: Educational level, socioeconomic class (I-V), Age, employment outside the house, and the number of prior children.

(b) BMI was calculated using the anthropometric data of height and weight during the first interview.

(c) Physical activity: Using the tiny International bodily exercise Questionnaire, we defined active women as those who engage in moderate to vigorous physical exercise, and inactive women as those who do not engage in any physical activity and

(d) The AIS is an eight-item scale that has been translated, validated in the inhabitants, & before utilized to PW. It follows the ICD-10 criteria for poor sleep quality. Each item is given a point value between 0 and 3, with 3 points being awarded for serious disruption. The final rating is the total of all of the eight scores assigned for each of the 8 elements, which range in value from 0 to 24. The first five sections address aspects of nighttime sleep, including: “difficulty falling asleep, difficulty keeping asleep, early morning wake-up, duration of sleep, and the perceived quality of sleep.” The final three questions measure different aspects of the impact of sleep loss during the day. The dependent variable was the AIS score. Both as a dichotomy scale, wherein a score of eight denoted the presence of low SQ, and as a quantifiable ordinal variable. “Education level, socioeconomic status, Age, number of children, physical activity, and BMI” were all taken into consideration as independent variables to assess risk factors for poor SQ in each TR of pregnancy.

Extraction:

Quantitative variables were measured using averages, standard deviations, and ranges; qualitative variables were approximated using absolute and relative frequencies. We calculated the mean

score, 95% confidence interval, standard deviation, and point rate of poor-quality sleep (AIS > 8) of the AIS both before and during each interview.

Statistical analysis:

The study employed the McNemar test and the Student's t-test for pairs of samples to compare the mean AIS scores and evaluate changes in the rate of poor sleep quality. A statistical tool used in logistic regression analysis to quantify the relationship among an exposure and an outcome while normalizing of different variables is the adjusted odds ratio (aOR).To calculates the probability of experiencing poor sleep quality at various stages of pregnancy and pinpoints risk factors. It provides information on the correlation between sleep problems and different phases of pregnancy by calculating the probability to experience difficulty sleeping in relation to certain factors. Risk factors are attributes or circumstances that raise the possibility of unfavorable results or incidents. It is used in a variety of situations to evaluate and control any risks or uncertainties. Hormonal changes, physical pain, frequent urination, worry, stress, prior sleep difficulties, fetal movements, and discomfort from the expanding belly are risk factors linked to inadequate sleep during pregnancy, risk factors analysis utilizing logistic regressions using the aforementioned variables was carried out. STATA 13.0 statistical software was utilized for all statistical analyses ($p < 0.001$).

Clinical implications:

Many of the negative consequences of insufficient sleep during pregnancy may be reduced with simple modifications to lifestyle and sleep hygiene. Using a simple to use and understanding measure to identify and address poor sleep quality early on may improve pregnancy outcomes and well-being. In the clinical guiding practice, an issue that affects more than 50 percent of PW should not be disregarded. Encouragement of modest physical exercise should be part of counseling on lifestyle modifications intended to enhance sleep hygiene. Since only around half of PW can be deemed active throughout pregnancy, this is a variable that can be changed and should be addressed.

Results.

Pregnant women who volunteered to participate and satisfied the inclusion criteria totalled five hundred and eighteen. Thirty-two women were later eliminated from the research because of early pregnancy disruption, leaving four hundred and eight six women overall who were enrolled in it. Four hundred and sixty-three women (95.2 percent of the sample) received follow-up to the 2nd and 3rd trimester of pregnancy; twenty-three women received follow-up to the first interview and were regarded as withdrawals. Both the second and third interviews are conducted with four hundred and two individuals (82.7 percent). Next, four hundred and one women were also questioned at 6 months postpartum (82.5 percent) (Figure 1).

The characteristics of the series under study are depicted in Table 1. The age ranged from 16- 47 years, with a mean age of 31.24 (standard deviation: 5.17). Who had completed secondary or higher education and were employed made up the majority of the sample.

Figure 2 displays the prevalence of poor sleep quality at every time point in the longitudinal cohort. Increases in prevalence

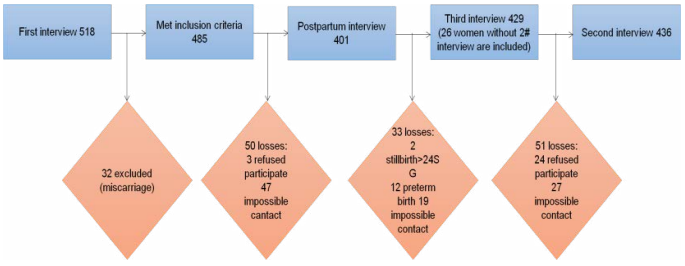

Figure 1. *Study flowchart (Source: Author).*

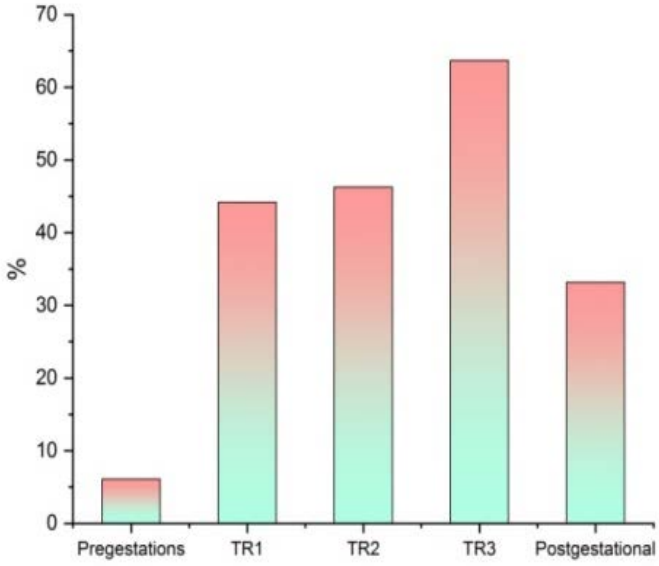

Figure 2. *Prevalence of poor-quality sleep and 95% confidence interval in the longitudinal cohort of gestating women.*

Table 1. *A description of the research population's demographics (n = Four hundred and sixty-three).*

Age (years) mean ± SD	**33.25**	**±4.15**
Educational level n percent		
Primary	81	17.0
Secondary	181	41.35
Social class n percent		
Middle (III)	91	18.42
Low/Middle-low(IV-V)	215	46.63
High/middle-low (I-II)	155	32.92
Number of children n percent		
0	234	51.63
1	195	43.99
≥2	24	5.31
BMI n percent		
Unknown	1	0.63
Obese	44	9.72
Overweight	122	27.62
Normal weight	281	62.95
Physical activity n percent		
Active	224	45.12
Inactive	241	52.84
Work outside home n percent		
No	132	28.36
Yes	325	71.63

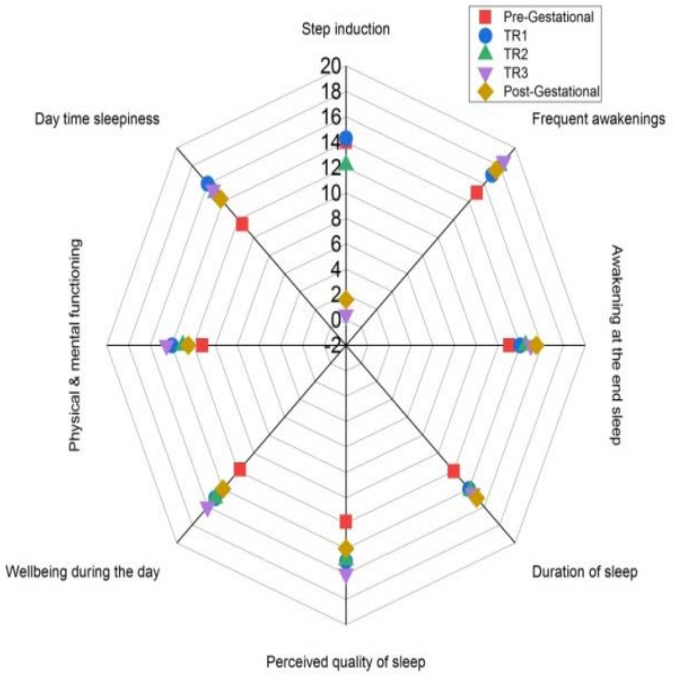

Figure 3. *Scores from the AIS for daytime force and nighttime sleep.*

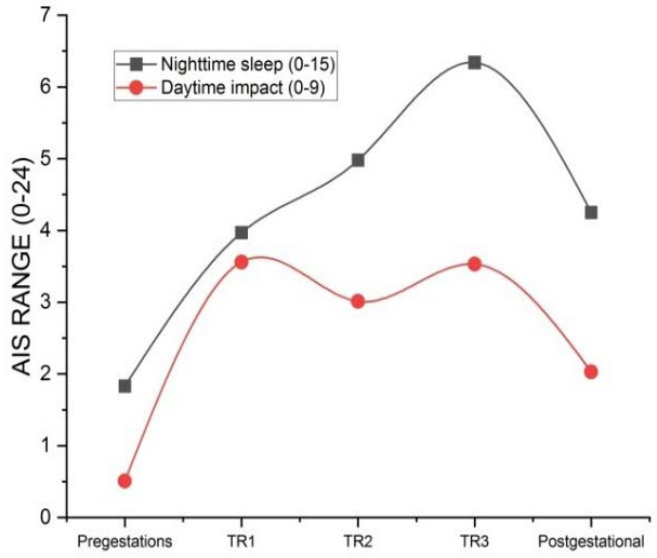

Figure 4. *World Athens Insomnia Scale components and score.*

in TR1 were sustainable in TR2, continued to rise in TR3, and then began to decline in the post-gestational period. Other than the difference between the first and second trimester, all changes were statistically important ($p < 0.001$).

The biggest increase was seen in daytime drowsiness when we compared each AIS item in the 1st TR to the pre-gestational time point (Figure 3). The findings revealed that tiredness persisted but diminished during pregnancy, whereas daytime well-being and physical and mental performance scores somewhat increased. The continued AIS growth in TR2 and TR3 was brought on by the gradual degradation of nocturnal sleep brought on by frequent awakenings.

Early in pregnancy, the overall AIS score significantly rose due to increases in all of the AIS component values (Figure 4). Throughout the whole pregnancy, the AIS score grew. When AIS is broken down into its two primary components, nocturnal SQ and daytime impact, the first TR of pregnancy saw an increase that was mostly brought on by a rise in daytime impact, which has since improved or been maintained, while nighttime sleep is becoming worse. After delivery, both AIS components become better.

Table 2-4 lists the elements that are connected to poor sleep throughout each trimester. The sole and biggest risk factor in TR1 and TR2 for present poor SQ was poor SQ in the preceding period. In the 3rd trimester, having more children doubles the chances of having poor sleep quality, but only for one kid (ORa = 1.98; CI ninety-five percent 1.21-3.22). In TR3, being obese before becoming pregnant increased the chance of poor sleep quality (ORa = 2.30; CI ninety-five percent 0.99–5.32), whereas moderate physical activity seemed to reduce the risk by almost a third (ORa = 0.65; CI ninety-five percent 0.4–1.03).

Discussion.

A significant incidence of poor sleep quality was seen in this prospective cohort research that followed women from the start of pregnancy until 6 months after giving birth. Throughout pregnancy, the incidence of poor SQ and the overall AIS score both gradually rose, and they both sharp decline following birth. The best indicator of present poor sleep quality was previous poor SQ. Poor SQ was prevalent in the study population at 44.2 percent in TR1, 46.3 percent in TR2, and 63.7 percent in TR3. A 61.9% prevalence of poor SQ in TR3 was identified among pregnant women using the Bergen Poor Sleep Quality Scale, AIS based on ICD-10 criteria. Additionally, the same scale yielded a 60.8% frequency. Using the Poor Sleep Quality Severity Index had high TR3 results (73.5 percent).

Although methodological variations may prevent a complete comparison of the results, pregnant women consistently report poor SQ. The severity of poor SQ was shown to rise when assessing the development of the AIS figures with pregnancy advancement. Further examination of the various AIS items reveals that, in TR2 and TR3, sleep fragmentation affects nighttime sleep, while in TR1 the mainly impacted AIS item were daytime crashes due to a decrease in daytime drowsiness.

Only one research that employed the sleepiness scale in a model of one hundred and ninety-five women and examined daytime sleepiness longitudinally has been discovered, and it reported prevalence rates for daily drowsiness of 53.4 percent, 38.0 percent, and 37.9perecent in TR1, TR2, and TR3, respectively. These statistics (52.7 percent, 32.5 percent, and 34.1 percent) were quite close to ours. One hundred and fifty-five pregnant women were included in the cohort, however, they only provide information on the prevalence of daytime drowsiness for TR2 (31 percent) and TR3 (40.8 percent). The incidence of daytime drowsiness is greater in TR1 than later in pregnancy. Our findings indicate that pre-gestationally obese women have increased chances of poor sleep quality in TR3 than non-obese women. The arm circumference, a proxy for obesity, and Epworth Sleepiness Scale scores had a strong correlation, according to other research. The job position of

Table 2. *Every pregnant TR's risk factors for poor sleep quality (1st TR).*

First TR (n = four hundred and sixty-three)				
Previous trimester insomnia	**cOR**	**Ninety-five percent CI**	***aOR*[a]**	**Ninety-five percent CI**
poor SQ (AIS≥8)	12.81	3.51-35.81	11.51	3.55-42.61
No poor SQ (AIS<8)	1	-	1	-
Physical activities (IPAQ)				
Light activity	1	-	1	-
Vigorous	2.25	0.93-5.63	2.63	0.94-7.41
Moderate	0.91	0.65-1.41	0.92	0.64-1.48
BMI[b]				
Normal weight	1	-	1	-
Obesity	1.44	0.77-2.71	1.73	0.86.3.42
Overweight	1.23	0.81-1.81	1.23	0.75-1.91
socioeconomic status				
I-II	1	-	1	-
III	1.41	0.83-2.41	1.16	0.61-2.32
IV	0.95	0.58-1.51	0.71	0.34-2.42
V	0.71	0.41-1.24	0.43	0.17-0.92
Another children's				
0	1	-	1	-
≥2	0.94	0.41-2.31	0.62	0.23-1.65
1	1.44	0.92-32	1.35	0.90-2.07

Table 3. *Every pregnant TR's risk factors for poor sleep quality (2nd TR).*

Second TR (n = four hundred and sixty-three)				
Previous trimester insomnia	**cOR**	**Ninety-five percent CI**	***aOR*[a]**	**Ninety-five percent CI**
poor SQ (AIS≥8)	5.22	2.85-6.41	4.22	2.71-6.39
No poor SQ (AIS<8)	1	-	1	-
Physical activities (IPAQ)				
Light activity	1	-	1	-
Vigorous	2.21	0.41-11.62	1.92	0.31-11.90
Moderate	0.93	0.63-1.34	1.03	0.67-1.53
BMI[b]				
Normal weight	1	-	1	-
Obesity	1.08	0.55-2.04	0.84	0.41-1.71
Overweight	1.04	0.66-1.55	0.91	0.55-1.32
socioeconomic status				
I-II	1	-	1	-
III	1.23	0.72-2.11	1.22	0.61-2.45
IV	1.15	0.71-1.85	1.28	0.48.274
V	0.74	0.44-1.31	0.92	0.42-2.21
Another children's				
0	1	-	1	-
≥2	0.94	0.41-2.33	0.94	0.33-2.52
1	1.61	1.06-2.33	1.38	0.88-2.14

mothers was similarly linked, according to these authors. Both the protecting impact of reasonable bodily exercise on poor sleep quality in pregnancy and the significant significance of prior poor SQ as a hazard issue for actual poor SQ in every TR of pregnancy are among the most intriguing and previously unreported discoveries.

Conclusion.

Our findings show that the biggest risk factors for present poor SQ are bad sleep antecedents. Therefore, early diagnosis and treatment of these conditions are crucial for the management of poor SQ. The quality of their sleep might significantly change with effortless interference, such as the encouragement of modest bodily exercise, especially in overweight PW. The prospective design and excellent follow-up rate in a group of PW were the study's key strengths. This made it possible to analyze the progression of the features of bad SQ and the severity of poor SQ using statistically robust methods. To minimize bias, only in-person or telephone interviews were used to collect all

Table 4. *Every pregnant TR's risk factors for poor sleep quality (3rd TR).*

Third TR (n = four hundred and twenty-nine)				
Previous trimester insomnia	**cOR**	**Ninety-five percent CI**	aOR^a	**Ninety-five percent CI**
poor SQ (AIS≥8)	4.41	2.81-6.84	4.42	2.77-7.05
No poor SQ (AIS<8)	1	-	1	-
Physical activities (IPAQ)				
Light activity	1	-	1	-
Vigorous	1.31	0.12-12.41	0.95	0.07-11.62
Moderate	0.61	0.42-0.93	0.64	0.41-1.04
BMI^b				
Normal weight	1	-	1	-
Obesity	2.00	0.93-4.26	2.31	0.98-5.31
Overweight	1.24	0.78-1.91	1.22	0.73-2.05
socioeconomic status				
I-II	1	-	1	-
III	0.89	0.53-1.48	0.81	0.33-1.81
IV	0.81	0.51-1.53	0.81	0.33-2.03
V	0.88	0.51-1.51	0.81	0.32-2.03
Another children's				
0	1	-	1	-
≥2	2.31	2.85-6.04	2.33	0.78-6.91
1	2.11	1.43-3.25	1.92	1.2-3.21

of the data, as opposed to self-administered questionnaires. This made it possible for women with various levels of education to participate. Additionally, just one observer performed every interview, which increased the homogeneity of the data that was gathered. Last but not least, AIS has been used in the past to assess poor postpartum sleep quality. We selected the AIS because it takes into account these DSMV criteria for poor sleep quality and has been shown effective in the population. The gold standard for measuring poor sleep quality, polysomnography, does not take daily effects into account and cannot be used systematically in epidemiological investigations.

The retroactive evaluation of poor SQ before pregnancy is one of our study's shortcomings. Due to the possibility of memory bias at this particular time period, this could have an impact on the statistics. This would be a non-differential bias, nevertheless. 6.3 percent was determined to be the pre-gestational prevalence of poor SQ, which is somewhat less than the prior figure for the general population. Secondly, the choice of the healthcare facility and the accessibility of professionals ready to assist in model assortment were also factors in the range process. Despite this, women still represented 4 distinct provinces in the southern region of India, including both urban and rural areas. This might be due to lifestyle variations, such as access to healthcare, which may have an impact on sleep patterns. Our findings must thus be confirmed in other populations.

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