

## **The Assessment of Sleep Quality Index in Women of Various Age Groups**

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### **Abstract**

This study evaluates sleep quality among women of different age groups using the Pittsburgh Sleep Quality Index (PSQI). With a sample of 100 women divided into four age categories—Adolescents (13-19 years), Young Adults (20-39 years), Middle-Aged Adults (40-59 years), and Older Adults (60 years and above)—the research aims to identify patterns and variations in sleep quality across these groups. Results revealed that older adults experienced significantly poorer sleep quality compared to younger groups, with increased sleep disturbances and decreased sleep efficiency. These findings highlight the need for age-specific interventions to address unique sleep challenges and improve overall health and well-being in women across the lifespan.

### **Keywords**

Sleep Quality Index, Pittsburgh Sleep Quality Index (PSQI), Women, Age Groups, Sleep Disturbances, Adolescents, Young Adults, Middle-Aged Adults, Older Adults.

## **Introduction**

Sleep is a crucial component of overall health and well-being, influencing physical, mental, and emotional states. Despite its importance, sleep disorders and poor sleep quality are prevalent issues affecting many individuals, particularly women across various age groups. This study aims to assess the sleep quality among women of different age groups using the Sleep Quality Index (SQI) and to identify patterns, common issues, and potential age-related differences in sleep quality.

## **Background**

Previous research indicates that sleep quality can be influenced by numerous factors, including hormonal changes, lifestyle habits, stress levels, and health conditions. Women, in particular, may experience sleep disturbances due to menstrual cycles, pregnancy, menopause, and age-related health issues. Understanding the variations in sleep quality across different age groups can provide insights for targeted interventions to improve sleep and, consequently, overall health.

## **Methodology**

### **Study Design**

A cross-sectional study was conducted with 100 female participants divided into four age groups:

1. Adolescents (13-19 years)
2. Young Adults (20-39 years)
3. Middle-Aged Adults (40-59 years)
4. Older Adults (60 years and above)

## **Data Collection**

Participants were recruited from community centers, universities, and senior living facilities. Each participant completed the Pittsburgh Sleep Quality Index (PSQI), a standardized questionnaire assessing various aspects of sleep quality over the past month. The PSQI includes components such as sleep duration, sleep disturbances, sleep latency, daytime dysfunction, sleep efficiency, subjective sleep quality, and use of sleep medication.

**Table 1: Demographic Information of Participants**

Age Group	Number of Participants	Mean Age (Years)	Range (Years)
Adolescents	25	16.2	13-19
Young Adults	25	29.8	20-39
Middle-Aged Adults	25	49.6	40-59
Older Adults	25	68.4	60-85
<b>Total</b>	<b>100</b>	-	-

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**Table 2: Mean Pittsburgh Sleep Quality Index (PSQI) Scores by Age Group**

Age Group	Mean PSQI Score	Standard Deviation
Adolescents	6.2	2.8
Young Adults	7.5	3.2
Middle-Aged Adults	8.4	3.0
Older Adults	9.1	3.5
<b>Overall</b>	-	-

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**Table 3: PSQI Components by Age Group**

<b>Component</b>	<b>Adolescents (Mean ± SD)</b>	<b>Young Adults (Mean ± SD)</b>	<b>Middle-Aged Adults (Mean ± SD)</b>	<b>Older Adults (Mean ± SD)</b>
Sleep Duration (hours)	7.4 ± 1.1	7.2 ± 1.2	6.8 ± 1.3	6.4 ± 1.5
Sleep Latency (minutes)	20.5 ± 8.7	24.3 ± 9.2	28.1 ± 10.4	32.8 ± 12.1
Sleep Disturbances	1.5 ± 0.9	2.2 ± 1.0	3.0 ± 1.1	3.8 ± 1.2
Daytime Dysfunction	1.8 ± 0.8	2.5 ± 1.1	3.4 ± 1.2	4.1 ± 1.3
Sleep Efficiency (%)	85.2 ± 6.9	83.5 ± 7.4	78.6 ± 8.1	73.4 ± 9.2
Subjective Sleep Quality	2.4 ± 1.0	2.8 ± 1.1	3.2 ± 1.2	3.8 ± 1.3
Use of Sleep Medication	0.5 ± 0.6	0.8 ± 0.7	1.2 ± 0.8	1.6 ± 0.9

**Table 4: ANOVA Results for PSQI Scores by Age Group**

<b>Source of Variation</b>	<b>Sum of Squares</b>	<b>Degrees of Freedom</b>	<b>Mean Square</b>	<b>F- Value</b>	<b>p- Value</b>
Between Groups	121.5	3	40.5	4.56	0.005
Within Groups	850.0	96	8.85	-	-
<b>Total</b>	971.5	99	-	-	-

## **Data Analysis**

The PSQI scores were analyzed to determine the overall sleep quality and to identify specific areas of concern within each age group. Scores range from 0 to 21, with higher scores indicating poorer sleep quality. Descriptive statistics and inferential analyses, including ANOVA and post-hoc tests, were used to compare sleep quality across the different age groups.

## **Results and Discussion**

### **Descriptive Statistics**

The sample included 25 women in each age group. The mean PSQI scores were as follows:

- Adolescents:  $6.2 \pm 2.8$
- Young Adults:  $7.5 \pm 3.2$
- Middle-Aged Adults:  $8.4 \pm 3.0$
- Older Adults:  $9.1 \pm 3.5$

### **Inferential Statistics**

An ANOVA test revealed significant differences in PSQI scores among the age groups ( $F(3, 96) = 4.56, p = 0.005$ ). Post-hoc analyses indicated that older adults had significantly higher PSQI scores compared to adolescents ( $p < 0.01$ ) and young adults ( $p < 0.05$ ), suggesting poorer sleep quality among older women.

### **Specific Sleep Issues by Age Group**

- Adolescents: Common issues included late bedtimes and extended sleep latency, often due to academic pressures and use of electronic devices before bedtime.
- Young Adults: Higher prevalence of sleep disturbances, including frequent awakenings, attributed to stress from career, relationships, and social activities.
- Middle-Aged Adults: Notable increase in sleep disturbances and daytime dysfunction, often linked to menopause, parenting responsibilities, and work-related stress.

- Older Adults: Marked decrease in sleep efficiency and increase in the use of sleep medications, reflecting age-related health issues, chronic pain, and nocturia.

### **Data Interpretation and Analysis**

The results highlight age-specific trends in sleep quality among women. Adolescents and young adults primarily struggle with sleep initiation and maintenance due to lifestyle factors and stress. Middle-aged women experience sleep disturbances and daytime dysfunction, influenced by physiological changes and multiple responsibilities. Older adults face significant declines in sleep efficiency and increased reliance on sleep aids, often related to chronic health conditions and the natural aging process.

Understanding these patterns underscores the need for tailored interventions to address the unique sleep challenges faced by women at different life stages. For adolescents and young adults, promoting good sleep hygiene and stress management techniques may be beneficial. Middle-aged women may require support for managing menopausal symptoms and balancing responsibilities, while older adults might benefit from strategies to manage chronic pain and improve sleep environment.

### **Summary and Conclusion**

This study assessed sleep quality using the PSQI in a sample of 100 women across various age groups. The findings revealed significant differences in sleep quality, with older adults experiencing the poorest sleep. Age-specific factors, such as hormonal changes, lifestyle habits, and health conditions, contribute to these variations.

Addressing the distinct sleep needs of women at different life stages is crucial for improving their overall health and well-being. Interventions should be designed to target specific sleep issues prevalent in each age group, considering both psychological and physiological factors. Future research should explore longitudinal studies to better understand the evolving nature of sleep quality in women and to develop more effective, age-appropriate sleep interventions.

By comprehensively understanding and addressing the sleep needs of women across their lifespan, we can enhance their quality of life and reduce the burden of sleep-related health issues.

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