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### Authors' Affiliation:

<sup>1</sup>Student of Faculty of Medicine, Collegium Medicum, University of Rzeszów, Rzeszów, Poland

<sup>2</sup>Medical Center ZOZ 2 in Rzeszów, Rzeszów, Poland

<sup>3</sup>Faculty of Medicine, Collegium Medicum, University of Rzeszów, Rzeszów, Poland

### \*Corresponding author:

Martyna Winiarska

Postal address: Świętej Kingi 24/44 Street, 35-614 Rzeszów, Poland

e-mail address: [martynawiniarska44@gmail.com](mailto:martynawiniarska44@gmail.com)

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# Assessment of quality of life in patients suffering from insomnia

Martyna Winiarska<sup>1\*</sup>, Dominika Wiśniewska<sup>1</sup>, Michał Klimas<sup>1</sup>, Dominik Jucha<sup>1</sup>, Arkadiusz Jamro<sup>2</sup>, Sabina Krupa-Nurcek<sup>3</sup>

## ABSTRACT

**Introduction:** Insomnia is a common sleep disorder characterized by persistent difficulties with sleep initiation, maintenance or early awakening despite adequate opportunity for sleep. Aim of the study. The objective of the study was to assess the subjective quality of life in individuals affected by insomnia, identify the most frequently reported symptoms and evaluate the disorder's impact on daily activity. **Material and methods:** The study included 114 adult participants suffering from insomnia. A diagnostic survey was conducted, using an original questionnaire that covered sociodemographic data, author-designed items, and the standardized Athens Insomnia Scale (AIS). Statistical analysis was performed using IBM SPSS, applying chi-square tests and Spearman's rank correlation coefficient. Statistical significance was set at  $p < 0.05$ . **Results:** It has been shown that the most common ailment occurring in connection with insomnia is fatigue (38,6%). It has been proven that the impact of insomnia on the functioning of the patients' body during the day is the most often assessed in a moderate degree (40,4%). The largest percentage of respondents rate their quality of life at an average or low level (30,7% and 32,5%). As the degree of insomnia increased, a decrease in satisfaction with the patients' daily lives was observed. **Conclusions:** The problem of insomnia and sleep disorders correlates with the deterioration of the quality of everyday life of patients and determines the appearance of specific, recurring ailments in the subjects.

**Keywords:** sleep, insomnia, patient, quality of life.

## 1. INTRODUCTION

The problem of sleep disorders is currently among the most common health problems among the population. Patients are increasingly reporting sleep problems to their doctors, or more precisely, a lack of it. The problem of insomnia is complex. It consists of both symptoms that occur at night, such as problems falling asleep, waking up during sleep, and waking up in the early morning hours. Regular sleep deprivation causes patients to be generally weak, irritable, depressed in concentration and depressed mood, which significantly affects their quality of life (Riemann et al., 2022). Insomnia is defined as a deficiency in the quantity or quality of sleep. It is diagnosed if the problem lasts at least a month and the weekly incidence is at least three times in seven days (Surma et al., 2023). Insomnia can

occur spontaneously, as well as co-occur with other clinical conditions, such as chronic pain or psychiatric disorders. Despite the increasing incidence, the etiology and pathophysiology of insomnia remain poorly understood, so the basis for the diagnosis of this disorder is an in-depth interview, results obtained in various scales dedicated to sleep disorders, analysis of an individual sleep diary, and interpretation of answers obtained in standardized questionnaires. If no unambiguous diagnosis is obtained, the diagnosis can be enhanced by objective methods, such as polysomnography. However, due to the difficulties in accessing these methods and their cost, these tests are not routinely performed (Morin et al., 2015). There is a suggestion that in people who are predisposed to develop insomnia, the locus coeruleus tends to over-perceive and respond to impulses coming from the neural networks of the entire body, even during the rapid eye movement (REM) phase of sleep. This susceptibility may result in the development of insufficient adaptation to deep sleep and the occurrence of excessive arousal, which disrupts and prevents high-quality night's rest (Van Someren, 2021). A significant relationship has also been shown between poor quality sleep and the development of lifestyle diseases such as diabetes, hypertension, and other cardiovascular diseases. In addition, many studies have shown that insomnia is an independent factor in the development of depression and its recurrence in patients of all ages. Therefore, it is crucial to quickly make a diagnosis and implement appropriate treatment to prevent their development (Fang et al., 2019; Khan et al., 2022).

## 2. MATERIALS AND METHODS

The subjects of the study were people suffering from insomnia. The examination was conducted in a specialized clinic. The study group consisted of 114 people suffering from insomnia. The method used is a diagnostic survey. The tool used to perform the study was a questionnaire covering the author's questions in the first sociodemographic part, such as gender, age, place of residence, marital status and professional activity. The second part contained detailed questions and consisted of four questions of my own construction. The third part contained four questions about the severity of the insomnia problem. Part four consisted of 8 questions of the standardized Athens Insomnia Scale (AIS), where the results were interpreted as follows:  $\leq 5$  points – normal, from 6 to 10 points – increase in the norm,  $\geq 11$  points – insomnia. The study was addressed to adults struggling with insomnia and was conducted in the period from 01/07/2023 to 30/11/2023. The questionnaire was prepared in paper form and distributed to patients during their visit to the Primary Health Care office and in their living environment, directly by the authors of the paper. The survey was anonymous, and filling in the questionnaire was at the same time an expression of consent to the study. The consent of the director of the facility and the consent of the bioethics committee KBE No. 09/05/2020. The collected questionnaires were grouped, counted, and then entered into Excel to perform the statistical analysis.

The calculations were performed in IBM SPSS. In order to assess the existence of relationships between nominal and ordinal variables, contingency tables and chi-square tests were used. The relationship between ordinal variables was studied using Spearman's correlation coefficient. The level of statistical significance was  $p < 0.05$ .

## 3. RESULTS

89 women (78.1% of respondents) and 25 men (21.9% of respondents) took part in the survey. A total of 114 people took part in the study. The average age of the respondents was 59.79 years. The youngest person in the study was 27 years old, and the oldest was 91 years old. The value of the center of age was 60.5 years. The majority of the respondents lived in the city – 84 people (73.7%). People living in rural areas account for 30 respondents (26.3%). The largest number of respondents had higher education (34 people – 29.8%), the least primary education (21 people – 18.4%). Secondary and vocational education were represented by 31 people (27.2%) and 28 people (24.6%), respectively. The largest group of respondents were professionally active (55 people - 48.2%) and pensioners (49 people - 43%). The lowest number of respondents were pensioners with a working capacity (97 people – 6.1%) and the unemployed/pupils/students (3 people – 2.6%). More than half of the respondents were married (66 people - 57.9%). The second largest group were single people (38 people - 33.3%). The fewest people declared a relationship (10 people - 8.8%).

The respondents considered ventilating the room (72 people – 21.5%) and avoiding stress before bedtime (59 people – 52.2%) to be the most familiar ways of dealing with insomnia. Other known ways to combat sleep deprivation were fixed-time sleep (51 people – 45.1%) and avoiding caffeinated foods (51 – people – 45.1%). Less than 10% of the respondents considered relaxation (32 people – 9.6%) and taking sleeping pills (31 people – 9.3%) as a way to help them fall asleep. On the other hand, the respondents decided that taking naps during the day (14 people – 4.2%), sleeping only when we feel tired (13 people – 3.9%), eating a hearty dinner before bed (5 people – 1.5%) are known ways to deal with insomnia. 7 people (2.1%) knew other ways. The results are presented in Table 1.

**Table 1.** Known ways to deal with insomnia (N- Multiplicity)

<i>What systems do you know for dealing with insomnia?</i>			
	Answers		
	N	Percent %	Percent %
Ventilating the Room	72	21.5	63.7
Avoiding Stress	59	17.6	52.2
Sleep at a Fixed Time	51	15.2	45.1
Product Avoidance Caffeine Containing	51	15.2	45.1
Relaxation	32	9.6	28.3
Taking Sleeping Pills	31	9.3	27.4
Naps During the Day	14	4.2	12.4
Sleep Only When We Feel Tired	13	3.9	11.5
Eating a Hearty Dinner	5	1.5	4.4
Other	7	2.1	6.2
All	33		296.5

The respondents most often coped with insomnia by ventilating the room (61 people – 27.5%), not overeating (60 people – 27%) and avoiding caffeine before bedtime (48 people – 21.6%). Walking before bedtime (28 people – 12.6%) and taking sleeping pills (22 people – 9.9%) turned out to be at an average level. 3 people (1.4%) dealt with insomnia in a different way.

The most common source of knowledge about insomnia prevention was a doctor (56 people - 30.4%) and the Internet (46 people - 5%). On average, 14.5% of respondents got their news in this area from friends of 927 people – 14.7%) and from television (26 people – 10.3%). Only 10.3% of the respondents (19 people) used professional literature. 10 people (5.4%) drew knowledge about insomnia prevention from other sources.

By far the most common complaint occurring in connection with insomnia was fatigue (83 people – 38.6%). In second and third place were irritability (50 people – 23.3%) and headache (37 people – 17.2%). Subsequently, the respondents indicated lower productivity at work (30 people – 14%). The least common symptoms resulting from insomnia were constipation (8 people – 3.7%) and increased appetite for sweets (7 people – 3.3%). The results are shown in Table 2.

**Table 2.** The most common symptoms associated with insomnia (N- Multiplicity)

<i>What ailments most often bother you as a result of insomnia?</i>			
	Answers		
	N	Percent %	Percent %
TIRING	83	38.6	72.8
IRRITABILITY	50	23.3	43.9
HEADACHE	37	17.2	32.5
LESS PRODUCTIVITY AT WORK	30	14.0	26.3
CONSTIPATION	8	3.7	7
INCREASED APPETITE FOR SWEETS	7	3.3	6.1
All	215	100	188.6

The level of satisfaction with the quality of their own sleep was most often described as rather satisfied (47 people – 41.2%) and satisfied (37 people – 32.5%). 8 people (7.0%) were dissatisfied with their quality of life, 21 people (18.4%) were dissatisfied with their quality of life, 1 person (0.9%) was very dissatisfied.

Most of the respondents believed that the impact of insomnia has a moderate (46 people – 40.4%) and insignificant (45 people – 39.5%) impact on the functioning of the body during the day. The lack of insomnia impact on quality of life was recognized by 10 individuals (8.8%) as well as the substantial impact of 13 individuals (11.4%).

Most of the respondents indicated that their level of worry related to sleep disorders is insignificant (45 people - 39.5%) and is at an average level (31 people - 27.2%). There were 22 people (19.3%) who were not worried about sleep disorders at all. 14 individuals

(12.3%) were significantly worried. On the other hand, 2 people (1.8%) were very concerned about this problem. The results are presented in Table 3.

**Table 3.** Degree of worry due to sleep disorders

<i>How worried are you because of your sleep disorder?</i>		
	<b>Frequency (n =114)</b>	<b>Percent %</b>
AT ALL	22	19.3
SLIGHTLY	45	39.5
TO SOME EXTENT	31	27.2
SUBSTANTIALLY	14	12.3
VERY CONCERNED	2	1.8
All	114	100

Most of the respondents believed that the impact of insomnia has a moderate (46 people – 40.4%) and insignificant (45 people – 39.5%) impact on the functioning of the body during the day. The lack of insomnia impact on quality of life was considered by 10 people (8.8%), and a significant impact by 13 people (11.4%).

Most respondents considered that their problem with sleep disorders is noticeable only to a certain extent by society (41 people - 36%) and almost not noticeable at all (37 people - 32.5%). 22 people (19.3%) considered the problem to be unnoticeable. On the other hand, as noticeable (13 people – 11.4%) and very noticeable (1 person – 0.9%). The results are shown in Table 4.

**Table 4.** Noticing sleep problems among the public

<i>How much do you think sleep problems are noticeable to others, given their impact on your quality of life?</i>		
	<b>Frequency</b>	<b>Percent %</b>
ALMOST NOT AT ALL	37	32.5
SEAMLESSLY	22	19.3
TO SOME EXTENT	41	36
NOTICEABLE	13	11.4
VERY NOTICEABLE	1	0.9
All	114	100

### The Athens Insomnia Scale

Analysis of the insomnia scale revealed an average result of 7, indicating an increase in the norm and suggesting the presence of sleep disorders, although not necessarily related to insomnia. The minimum score obtained by the respondents was 0, and the maximum was 16 points. The results are presented in Table 5.

**Table 5.** The Athens Insomnia Scale (N - Multiplicity)

<b>N</b>	<b>Important</b>	114
	<b>Data Gaps</b>	0
Average		7.00
Mediana		7.00
Standard deviation		3.85
Minimum		0
Maximum		16

The respondents usually had a low quality of life. In the range of quality of life from very low (16 people – 14%), low (37 people – 32.5%) to average (35 people – 30.7%), which accounted for over 77.2% of the respondents. A high (11 people – 9.6%) or very high (15

people – 13.2%) level of quality of life concerned less than one in four people. The hypothesis has not been confirmed. The results are presented in Table 6.

**Table 6.** Quality of life level (N = 114)

	Frequency	Percent %
Very low	16	14
Low	37	32.5
Average	35	30.7
High	11	9.6
Very high	15	13.2
All	114	100

#### 4. DISCUSSION

Insomnia generates clinically significant symptoms that negatively affect the quality of life of patients. The problem of insomnia is common and constantly growing. This condition predisposes to the occurrence of many somatic and psychiatric diseases. A study conducted by Lucena et al., (2020) showed that a deterioration in the quality of life was observed in the majority of patients. On the other hand, in the author's study, 1/3 of patients rated their quality of life as low and another 1/3 as average. A study found a link between sleep deprivation and fatigue, which in turn results in prolonged reaction times, irritability, mood swings, and an increased frequency of mistakes made at work (Kayser et al., 2022). Wook Cho and Duffy (2019), in their work, draw attention to another problem, which is sexual dysfunction in men, especially older men. A study also points to a direct link between insomnia and cognitive decline and mood swings. In the case of long-term sleep deprivation, there are also memory problems. According to Sealy (2022), there are various methods by which patients manage sleep deprivation. These methods are categorized into non-pharmacological and pharmacological approaches. Non-pharmacological therapy includes maintaining broadly understood sleep hygiene, avoiding excessive stimulation with stimuli, behavioral therapies or relaxation techniques (Dopheide, 2022). In our study, less than 10% of patients admitted that they take sleeping pills, so the vast majority of the respondents use non-pharmacological methods—most often airing the bedroom before bedtime and avoiding eating large meals shortly before bedtime. An earlier work has been proven that one component of sleep hygiene is avoiding caffeine in the afternoons and evenings (Pavlova and Latreille, 2019). According to the author's study, avoiding caffeine before bedtime as a way to cope with insomnia is practiced by 15% of respondents—it is one of the most commonly used practices in this area. In addition, according to a previous research, non-pharmacological treatment, including behavioral therapy, shows equal or better effects than pharmacological therapy, and its effects may last longer (Krystal et al., 2019). According to Krystal et al., (2019), women are more likely to report symptoms of insomnia and related symptoms during the day, while according to our results, there was no statistical relationship between gender and the declared level of quality of life. The author's research also did not confirm the relationship between the level of education and professional activity (the exceptions were the unemployed and students) and the incidence of insomnia, while in the study Assessment of the prevalence, risk factors of insomnia, and its effect on quality of life among young population of the North region A statistically significant relationship between the level of education and occupation and the occurrence of sleep disorders was demonstrated. On the other hand, no association was found with gender, age, material status, or place of residence (Shah et al., 2022).

#### 5. CONCLUSION

The study confirmed that insomnia is associated with a range of negative symptoms such as fatigue, irritability, and reduced productivity, which negatively affect quality of life. Although many respondents rated their sleep quality as satisfactory, AIS scores indicated an increased risk of insomnia in the majority. Most participants reported low to average quality of life, despite perceiving the daily impact of insomnia as moderate or minor. These findings suggest that even mild to moderate insomnia can lead to noticeable declines in well-being and productivity. However, the limited awareness of the problem within society and among individuals themselves may contribute to the underestimation of its effects. There is a need for greater public and medical attention to the early signs of insomnia, improved education on sleep hygiene, and targeted interventions to mitigate its consequences.

**Abbreviations:**

AIS – Athens Insomnia Scale

IBM SPSS – International Business Machines Statistical Package for the Social Sciences

REM – Rapid Eye Movement

KBE – Komisja Bioetyczna (Bioethics Committee – abbreviation used in relation to the number of Bioethical Consent: KBE No. 09/05/2020)

**Author's Contributions**

Conceptualization: Martyna Winiarska

Methodology: Dominika Wiśniewska, Michał Klimas

Formal analysis: Sabina Krupa-Nurcek

Data curation: Arkadiusz Jamro, Dominik Jucha

Visualisation: Dominika Wiśniewska, Dominik Jucha, Martyna Winiarska

Investigation: Arkadiusz Jamro, Michał Klimas

Writing - original draft: Martyna Winiarska

Writing – review and editing: Sabina Krupa Nurcek, Dominika Wiśniewska

All authors have read and agreed with the final published version of the manuscript.

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**Informed consent**

Written & Oral informed consent was obtained from participant included in the study.

**Ethical approval**

The work was approved by Bioethics Committee at the University of Rzeszów (KBE No. 09/05/2020).

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**Conflict of interest**

The authors declare that there is no conflict of interest.

**Data and materials availability**

All data associated with this study will be available based on the reasonable request to corresponding author.

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