

Research Paper

## Assessment of Prevalence of Insomnia in Adolescents and Young Adults in Kenya

Priscillah Ndiangui<sup>1\*</sup>

### ABSTRACT

Insomnia, a pervasive sleep disturbance, is marked by problems falling or staying asleep, poor-quality sleep, significant distress, and daytime functioning impairment. Adolescence and early adulthood are sensitive developmental phases where adolescents and young adults are more prone to sleep disturbances. Adolescents and young adults in Kenya are significantly endangered by insomnia, lethargy and daytime impairments that it often accompanies it. This constitutes a serious risk to the public's health. The current sought to gauge the incidence of insomnia in adolescents and young adults in St. Paul's Catholic University Chapel, Nairobi County, Kenya. A correlational research design was used. The study's target demographic consisted of 4000 teenagers and young adults from St. Paul's University Chapel in Nairobi, Kenya. A sample of 101 respondents was used. Data was collected through self-administered questionnaires. Insomnia was assessed using the Insomnia Severity Index. Descriptive and chi-square analysis were used to analyse data with the aid of Statistical Package for the Social Sciences. Results were presented in form of tables. A majority of the respondents (43%) struggle to fall or stay asleep most of the time, 22.2% had mild difficulty in falling asleep, 16.7% had a moderate problem falling asleep, and 3.3% experienced severe and very severe problems falling asleep. Gender was significantly associated ( $p=0.006$ ) with insomnia whereby female adolescents were 2.4 times more likely to experience insomnia compared with male respondents. These results underscore the need for targeted interventions, particularly for female adolescents, to address this sleep disorder, which may have far-reaching effects on mental health, academic performance, and overall well-being. It is recommended that healthcare providers, educators, and policymakers prioritize sleep health in this demographic by incorporating sleep education into school curriculums.

**Keywords:** *Insomnia, sleep quality, sleep disorders, adolescents, young adults*

According to Khadka et al. (2019), one can gauge an individual's gratification with sleep by considering sleep initiation, sustenance, quality, quantity, and waking up reinvigorated. Well-regulated sleep studies on robust individuals ascertained that satisfying sleep corresponds to the execution of higher-level cognitive functions, such as learning and memory (Okano et al., 2019). McArdle et al. (2020) asserted that the effects of insomnia on human beings cannot be embellished. He posited that sleep disorders affect

<sup>1</sup>Scholar

\*Corresponding Author

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sleep quality, amount, and timing and cause functional deterioration. The ubiquity of sleep disorders varies from 1.66% to 56.0%, based on numerous research studies from diverse nations in all corners of the world (Panda et al., 2021). There exists an array of sleep-related disorders ranging from Insomnia, Hypersomnolence, Narcolepsy, Sleep Apnea, to Restless Legs syndrome. Insomnia, topping the list as the most prevalent of the sleep disorders, is delineated by struggles initiating or sustaining sleep. Comprehensive research studies reveal that close to one-third of adults experience symptoms related to insomnia, and a staggering 15% report struggling to function profitably during the day. Similarly, 6-10% encounter symptoms severe enough to qualify for a formal diagnosis of insomnia disorder (Pavlova & Latreille, 2019).

Insomnia, a tenacious sleep disturbance, is marked by problems falling or staying asleep, poor-quality sleep, significant distress, and daytime functioning impairment. Likewise, it is distinguished by frequent waking, early morning awakening, and the inability to fall back asleep (Seow et al., 2018). It not only affects men and women regardless of age or ethnicity, but also depreciates the quality of their lives (Hossain et al., 2020). Khatib et al. (2018), asserted that worries about the implications of insufficient sleep on mental health in adolescents and young adults have increased owing to their excessive usage of electronic media.

Insomnia is classified as a sleep disorder by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) fifth edition, and is delineated by experiencing dissatisfaction with sleep quality and duration that is associated with severe discomfort and impairment of daily functioning (American Psychiatric Association [APA], 2013). On March 11, 2020, the WHO classified the coronavirus (COVID-19) illness outbreak as a pandemic (Cellini et al., 2021). Following this announcement, the Italian government imposed a statewide curfew to combat the viral spread of the infection in a more dramatic manner than in other nations. The lockdown-initiated actions such as home confinement, movement limitation, encouraging people to telecommute from home, and temporarily closing non-essential businesses and schools of every kind and level. This required instructors, adolescents, and young adults to solely rely on electronic media devices for instruction and learning, thus leading to a steep rise in their use. (Cellini et al., 2021).

Liu et al. (2019b) posited that adolescence and early adulthood are sensitive developmental phases where adolescents and young adults are more prone to sleep disturbances. However, according to Inderkum and Tarokh (2018), adolescents suffer from chronic sleep deprivation the most in today's culture and get considerably fewer hours of sleep than the seven to nine suggested by experts. Similar findings were revealed by Moulin and Chung (2016), who discovered a strong correlation between internet use and recurrent awakenings during sleep in women while frequently using cell phones and texting is associated with latent sleep initiation in men. As one can see, the link between electronic media and insomnia spans the spectrum of gender. Globally, insomnia in adolescents and young adults poses a serious problem with major risks for psychological diseases such as anxiety, depression, and suicide. According to Liu et al. (2019b), sleep disruptions, early awakening, restlessness, and other symptoms of insomnia are prevalent conditions affecting 23.8% to 7.8% of young adults and teenagers respectively. The needs of adolescents and young adults with respect to sleep hygiene have been disregarded in low- and middle-income nations, creating a critical mental health gap. Young people's needs for mental health care are not recognized, and when they are, there are not enough qualified experts available to meet their needs. It is

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well-recognized that insomnia is a precursor to depression and schizophrenia. According to WHO (2021), the range of children and adolescents battling mental challenges is 10-20%.

Adolescents and young adults in Kenya are significantly endangered by insomnia, culminating in lethargy and daytime impairment. This constitutes a serious risk to the public's health. Adolescents and young adults who struggle with sleep problems particularly insomnia and sleep deprivation report having poorer-quality sleep. Failure and poor academic examination grades were evident in adolescents and young adults who displayed sleep-related symptoms such as anxiety, tension, tiredness, and daytime sleepiness. However, similar to many other nations in sub-Saharan Africa, Kenya has failed to compile critical statistics on insomnia disorder and the effects of electronic media. In as much as it has become customary for adolescents and young adults to utilize electronic media in Kenya, there are no studies in regard to their role in insomnia disorder. Insomnia and other sleep dysfunctions such as daytime sleepiness (hypersomnia) and sleep apnea have been strongly linked to many negative physiological and psychological factors such as obesity, distress, anxiety irritability, poor academic performance, and reduced productivity (Levenson et al., 2016). Therefore, this study proved imperative as it aimed not only to seal this gap and shed light on the incidence of insomnia in Kenya but also to discover viable therapies and remedies

### MATERIALS AND METHODS

#### *Research Design*

In this study, a correlational research design was used. In a correlational research design, relationships between two or more variables are examined without any of the variables being under the researcher's direct control or manipulation (Curtis et al., 2016).

#### *Target Population and Sampling*

The study's target demographic consisted of 4000 teenagers and young adults from St. Paul's University Chapel in Nairobi, Kenya. The respondents comprised 101 adolescents and young adults aged between 13-23 years who had internet connectivity and either owned or had access to technological gadgets. As a result, communication with the respondents allowed the researcher to gather the necessary data in an efficient and effective manner. To obtain a representative sample, the sample size was determined by using a modified version of the formula created by Fisher et al. (2003) and adjusted using Cochran's formula (Barlett et al., 2001):

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where  $z$  = is the Z value for the corresponding confidence level (1.96 for 95% confidence),  $d$  = is the margin of error (0.05 = ± 5%) &  $p$  = is the estimated value for prevalence of insomnia = 7.1% (Peltzer & Pengpid, 2019)

$$n = \frac{1.96^2 p(1-p)}{d^2 + \frac{N(e)^2}{N}}$$

$$n = \frac{1.96 \times 1.96 \times 0.071 (1 - 0.071)}{0.05 \times 0.05} = 101.35$$

For small populations (<10,000) such as in this study, Cochran came up with a correction formula to calculate the final sample size as follows:

$$n = \left\{ \frac{n_0}{1 + (n_0 - 1) / N} \right\}$$

$$N_f = n / (1 + n/N)$$

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Where  $N_f$  = desired sample,  $n$  = is the required sample size,  $n_0$  = is the sample size derived earlier,  $N$  = is the population size

$$n = \{101 / 1 + (101-1)/4000\} = 100.99$$

The study, therefore, had a sample of 101 respondents, which translated to 2.5% of the sample which was then divided by gender by 2.5%. A Random Number Generator was used to select respondents for the study in accordance with the principles of simple random sampling, which state that every component of the population has an equal chance and likelihood of being chosen for the sample (Cohen, 2019). For this study, the researcher acquired a numbered list of all 4000 adolescents and young adults from St. Paul's Youth Group (SPY) and the Young Christian Association (YCA). The researcher instructed the Random Number Generator to pick out 101 numbers at random from a pool of 4,000. The subjects corresponding to the numbers picked were included in the sample which was then used to create a list of respondents.

### **Data Collection**

Data was collected through self-administered questionnaires. Insomnia was assessed using the “Insomnia Severity Index” (ISI), a 7-item measure that was once called the Sleep Impairment Index. Its original components were developed due to concerns of clinical relevance and validity raised by patients seeking treatment for insomnia within a sleep disorder clinic (Bai et al., 2018). The seven answers are integrated to obtain a final score ranging from 0 to 28 that is based on a 5-point Likert scale, with 0 denoting no difficulty and 4 denoting extremely severe. The entire score is then translated into the following categories: zero (0), sub-threshold (8), moderate (15), and severe (22-28) insomnia (Veqar & Hussain, 2020). Studies by Bai et al. (2018) and Veqar and Hussain (2020) found that the ISI has a sufficient level of internal consistency and is a valid self-report measure for assessing reported sleep difficulties. Moreover, it has been used in South Africa and Nigeria. A pretest of the questionnaire was done before data collection. The goal of the pretest was to ascertain whether the respondents understood the questions and could correctly answer them. Assessing the strength of the self-administered questionnaires was also helpful. Ten percent of the target population was used. The pretest study was carried out on The Holy Family Basilica youth group which comprised adolescents and young adults between 13-23 years.

### **Data Analysis**

The SPSS program, version 27 for Windows, was used to compile and analyze the data obtained. There were two levels of data analysis. Creating descriptive statistics was done at the first level, and inferential analysis was done at the second level. The prevalence of insomnia disorder was revealed by descriptive statistics. The association between sociodemographic traits and insomnia disorder among adolescents and young adults was examined using the chi-square test. Tables and figures were used to present the results.

### **Ethical Considerations**

Permission to undertake research was sought from the National Commission for Science, Technology, and Innovation (NACOSTI). The St Paul's University Chapel SPY and YCA moderator were contacted for permission to collect data. Parents and guardians of respondents under the age of 18 were asked for their written informed consent. Respondents' confidentiality was guarded by ensuring anonymity in the study. The researcher ensured that the respondents' information was handled with uttermost confidentiality. Only the

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researcher and research assistants had access to the data during the data collection process. The respondents were also allowed to opt-out if they no longer wanted to participate in the study. Furthermore, there were no monetary benefits to the respondents; although those found to have severe levels of insomnia were provided psychological help. Lastly, respondents were counselled after data collection to handle any psychological harm that might have arisen in the process of data collection.

### RESULTS

#### *Demographic Information*

A total of 90 out of 101 questionnaires were adequately filled and returned, giving a response rate of 89%. This section presents the respondents' demographic characteristics and background information. The demographic characteristics analysed and presented include the respondent's age and gender distribution. The study sought to establish information on the gender of the respondents. Gender was considered a key factor for achieving gender balance and representativeness in the wider population, increasing generalizability. Table 1 shows the findings. Findings showed that 54(60%) of the respondents were female, while 36(40%) were males, showing active involvement of both genders in the study. This gender balance was imperative, allowing responses to be obtained, especially regarding insomnia disorder among adolescents and young adults. As demonstrated in Table 1, 46 (51.1%) of the respondents were 16-18 years old, 27 (30%) were 13-15 years old, and 17 (18.9%) respondents were 19-23 years old. This indicated that the age group more influenced by parents' style of parenting and consequent insomnia disorder among adolescents was between 13 years and 18 years.

*Table 1 Respondents' Demographic Characteristics*

		Frequency	Percent
<b>Gender</b>	Male	36	40.0
	Female	54	60.0
	Total	90	100.0
<b>Age</b>	13-15 years	27	30.0
	16-18 years	46	51.1
	19- 23Years	17	18.9
	Total	90	100.0

#### *Prevalence of Insomnia*

The study sought to establish the severity of Kenyan adolescents and young adults' insomnia. The respondents were asked to rate their struggles with insomnia and the results are depicted in Table 2. From the study findings, 13(14.4%) of the respondents indicated that they had no difficulty falling asleep, 20(22.2%) had mild difficulty falling asleep, 15(16.7%) had a moderate problem falling asleep, and 39(43.3%) experienced severe and 3(3.3%) experienced very severe problems falling asleep. This implies that the majority of the sampled adolescents and young adults struggled to fall asleep due to their internet addiction. Furthermore, 18(20%) respondents stated that they did not experience difficulty staying asleep, 21(23.3%) experienced mild difficulty staying asleep, and 17(18.9%) experienced moderate difficulty in staying asleep. Nonetheless, 34(37.8%) experienced severe difficulties staying asleep. This implied that addiction to the internet had influenced adolescents' sleep patterns, giving them sleepless nights. On the metric of waking up too early, 17(18.9%) respondents had a moderate problem with waking up too early, while 34(37.8%) had a severe and very severe problem of waking up early, whilst only a few of

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the respondents, 18(20%), had no challenge waking up too early, while 21(23.3%) had mild difficulty waking up early in the morning.

**Table 2 Severity of the Adolescent and Young Adult Insomnia Problem**

	N/%	None	Mild	Moderate	Severe	Very severe	Total
<b>Difficulty falling asleep</b>	N	13	20	15	39	3	90
	%	14.4	22.2	16.7	43.3	3.3	100
<b>Difficulty staying asleep</b>	N	18	21	17	25	9	90
	%	20.0	23.3	18.9	27.8	10.0	100
<b>Problems waking up too early</b>	N	9	8	24	33	16	90
	%	10.0	8.9	26.7	36.7	17.8	100

### *Severity of Sleeping Problems*

This study aimed to establish the level of adolescents and young adults' satisfaction with current sleeping patterns. From the findings, majority of the respondents 34(37.8%) indicated they are moderately satisfied with their sleeping pattern, while 13(14.4%) and 14(15.6%) were very satisfied and satisfied respectively with their sleeping pattern. However, some respondents were dissatisfied and very dissatisfied with their sleeping patterns, which was presented by 22(24.4%) and 7(7.8%) respectively. The study was interested to know the extent to which respondents think the sleeping problem is noticeable to others with regard to impairing the quality of their life. From the study findings, 26(28.9%) of the respondents indicated that their sleeping problem has not been noticed as a big issue by other people, 23(25.6%) revealed it was noticed a little by a few people, 20(22.2%) indicated it was somewhat noticeable to the people surrounding them, and 21(23.3%) indicated their sleeping problems were greatly noticeable by other people.

The study aimed to determine the extent to which the sleeping problem distressed/worried adolescents and young adults. As shown in Table 3, the study found that the sleeping problem did not distress/worry the adolescents and young adults at all, represented by 29(32.2%). Of the respondents, 24(26.7%) were worried to a little extent about their sleeping problem, while 21(23.3%) were somewhat worried about their sleeping problem. However, 14(15.6%) and 2(2.2) of the respondents were much worried and very much worried about their sleep problems respectively. The respondents were asked to indicate the extent to which they think their sleeping problem interferes with their daily functioning (daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, and mood, among others). From the study findings, 24(26.7%) respondents indicated that their sleeping problem did not interfere with their daily activities, 24(26.7%) said that their sleeping problems affected their daily activities a little bit, and 23(25.6%) said it somewhat affected their daily activities. Of the respondents, 17(18.9%) said their sleeping problems affected their daily function to much extent and 2(2.2%) indicated it interfered very much with their daily activities.

**Table 3 Severity of Sleeping Problems**

		Frequency	Percent
<b>Satisfied/dissatisfied with sleeping pattern</b>	Very satisfied	13	14.4
	Satisfied	14	15.6
	Moderate satisfied	34	37.8
	Dissatisfied	22	22.4
	Very dissatisfied	7	7.8
	Total	90	100.0
<b>Extent to Which the Sleep Problem is Noticeable to Others</b>	Not at all noticeable	26	28.9
	A little	23	25.6
	Somewhat	20	22.2
	Much	12	13.3
	Very much noticeable	9	10.0
	Total	90	100.0
<b>Extent of Respondents' Worry/Distress about their Current Sleep Problem</b>	Not at all worried	29	32.2
	A little	24	26.7
	Somewhat	21	23.3
	Much	14	15.6
	Very much worried	2	2.2
	Total	90	100.0
<b>Extent to Which Sleeping Problem Interferes with Respondents' Daily Functioning</b>	Not at all interfering	24	26.7
	A little	24	26.7
	Somewhat	23	25.6
	Much	17	18.9
	Very much interfering	2	2.2
	Total	90	100.0

**Association of Demographic Characteristics and Insomnia**

Chi-square tests were used to compare gender, age with prevalence of insomnia. Results in Table 4 shows that gender was significant (p=0.006). Risk analysis showed that female respondents were 2.4 times more likely to experience insomnia compared with male respondents. However, age was not significant (p=0.0200).

**Table 4 Association of Demographic Characteristics and Insomnia**

	$\chi^2$	df	p
<b>Gender</b>	10.804	1	0.006
<b>Age</b>	4.505	2	0.200

**DISCUSSION**

From the study results, a majority of the respondents (43%) struggle to fall or stay asleep most of the time, 22.2% had mild difficulty in falling asleep, 16.7% had a moderate problem falling asleep, and 3.3% experienced severe and very severe problems falling asleep. Gender was significantly associated (p=0.006) with insomnia whereby female adolescents were 2.4 times more likely to experience insomnia compared with male respondents. These results are in line with findings from the Canadian community health survey (CCHS), which was conducted in 2005 (Tjepkema, 2005). The prevalence of insomnia among Canadians aged 15 and older was reported to be 13%. (Tjepkema, 2005). Likewise, Morin et al. (2020) sampled French-speaking Canadians from the province of Quebec, Canada, who were 18 years of age and older. A third of the participants said they had had at least one insomnia symptom, and

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9.5% had symptoms qualifying them for a diagnosis of Insomnia disorder. In the 2007 research by LeBlanc et al., 15.4% of the respondents (of ages 18 and older) were identified as suffering from insomnia disorder whilst 32.3% of respondents reported symptoms of insomnia. Moreover, there is a high incidence of insomnia in teenagers. Of all the adolescent respondents, 22.3% fit the requirements for persistent clinical insomnia, according to Roberts, Roberts, & Duong (2008b). During reassessment, more than 20% of the respondents matched the criteria for clinical insomnia, and one in four of their 14 participants said they had experienced one or more insomnia symptoms nearly every day for the previous four weeks. Several studies have shown that the rates of insomnia that fulfilled the DSM-IV criteria were comparable with rates of its prevalence; ranging from roughly 4% to 10.7% in the studies (Johnson, Roth, & Breslau, 2006; Roberts, Ramsay Roberts, & Chan, 2008a). Likewise, in research by Ohayon, Roberts, Zully, Smirne, & Priest (2000), 50% of adolescents diagnosed with a sleep disorder had primary insomnia.

### CONCLUSION

The study reveals a concerning prevalence of insomnia among adolescents and young adults, with 43% of respondents experiencing significant difficulty falling or staying asleep. The findings also indicate that gender plays a critical role in the incidence of insomnia, with female adolescents being 2.4 times more likely to suffer from the condition compared to their male counterparts. These results underscore the need for targeted interventions, particularly for female adolescents, to address this sleep disorder, which may have far-reaching effects on mental health, academic performance, and overall well-being. It is recommended that healthcare providers, educators, and policymakers prioritize sleep health in this demographic by incorporating sleep education into school curriculums and developing gender-sensitive support programs, including counselling and cognitive behavioural therapy for insomnia. Further research should explore the underlying causes of this gender disparity and evaluate the effectiveness of specific interventions to mitigate insomnia in both adolescents and young adults.

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