



DETERMINANTS OF SLEEP PATTERN IN ADULT

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Abstract

Adult's sleep patterns are impacted by a wide range of variables, including biological, environmental, and psychosocial ones. This abstract aims to highlight important factors found in recent research, giving a brief summary of the complex control of sleep-in adulthood. The term "biological determinants" refers to inherent variables including age, heredity, and underlying medical issues, especially sleep problems. The circadian rhythm and melatonin release are two examples of chronobiological factors that have a major impact on sleep-wake cycles. Stress, anxiety, and sadness are examples of psychosocial variables that have a significant impact on sleep quality and may cause persistent sleep disruptions. Different people's attitudes and habits about sleep are further influenced by socioeconomic position and cultural norms. Comprehending the complex interactions among these factors is crucial in creating customized therapies meant to enhance adult sleep health. Longitudinal studies should be given priority in future research attempts in order to clarify the dynamic nature of sleep patterns and provide targeted solutions for enhancing general well-being in adult populations. Even though sleep is an essential physiological activity for general health and wellbeing, there are many complex factors that influence how well human's sleep. This abstract provides an extensive overview of the various elements affecting adult population sleep patterns. Hormonal variations, age-related changes in sleep architecture, and genetic predispositions are examples of biological determinants. Sleep start, maintenance, and quality are significantly influenced by the complex interactions between neurotransmitters, including dopamine and serotonin, and the hypothalamic-pituitary-adrenal axis.

Keywords: Determinants, Psychosocial, Circadian cycle, Neurotransmitter

1. INTRODUCTION

A vital component of human existence, sleep is necessary for preserving one's physical and mental health as well as one's emotional stability and general quality of life. The advantages and precise mechanisms of sleep are still being studied, although it is generally accepted that adequate, high-quality sleep is essential for good health and functioning.¹

Allowing the body to rest and heal itself is one of sleep's primary purposes. The body goes through a number of procedures that aid in physical healing as you sleep, including immune system fortification, muscular growth, and tissue restoration. Chronic sleep deprivation has been associated with a higher chance of developing a number of illnesses, such as diabetes, obesity, cardiovascular disease, and weaker immune systems.²

In addition to its physical benefits, sleep plays a critical role in cognitive function and emotional regulation. Adequate sleep is essential for learning, memory consolidation, problem-solving, and creativity. It also helps regulate mood and emotional well-being, with sleep deprivation often leading to irritability, mood swings, and difficulty coping with stress.

Furthermore, sleep is closely linked to hormone regulation, including hormones that control appetite, metabolism, and stress response.⁴ Disruptions in sleep patterns can lead to imbalances in these hormones, contributing to weight gain, metabolic disorders, and increased stress levels.

Overall, prioritizing sleep quality is essential for maintaining optimal health and well-being. Developing good sleep habits, such as maintaining a consistent sleep schedule, creating a comfortable sleep environment, and practicing relaxation techniques before bed, can help improve sleep quality and promote better overall health.⁵

1. Physical Health:⁶

- For body's repair and rejuvenation sleep is important. During deep sleep stages, the body releases growth hormones that promote muscle repair and growth, bone building, and cell regeneration.
- Extended periods of sleep deprivation have been associated with a higher risk of heart disease, stroke, hypertension, and type 2 diabetes, among other illnesses. Insulin resistance, inflammation, and cardiovascular dysregulation can all be attributed to sleep deprivation.
- Furthermore, getting too little sleep can impair immunity, leaving people more vulnerable to diseases and infections. By encouraging the synthesis of cytokines, which are proteins that aid in the body's defense against infection and inflammation, adequate sleep strengthens the immune system.

2. Cognitive Function:⁷

- Cognitive functions including attention, focus, problem-solving, and decision-making depend critically on sleep. The brain organizes memories and analyses information learned during waking hours when we sleep.
- Frequent awakenings or irregular sleep cycles are signs of poor sleep quality, which can affect cognitive function and make it harder to learn, remember things, and think clearly.
- Chronic sleep deprivation has been linked to memory loss and a higher chance of developing neurodegenerative illnesses including dementia and Alzheimer's disease. Sleep disorders interfere with the removal of amyloid-beta protein, which is a pathological hallmark of Alzheimer's disease.

3. Emotional Well-being:

- Sleep and mood are intricately connected, with sleep playing a crucial role in emotional regulation and resilience. Adequate sleep promotes positive mood, emotional stability, and stress resilience.
- On the other hand, a lack of sleep can make depressive, anxious, and irritable feelings worse. The balance of neurotransmitters involved in mood regulation, such as dopamine and serotonin, is upset by sleep disorders.
- Managing sleep issues is frequently a crucial part of treating those with chronic insomnia, as they have an increased risk of developing mood disorders.

4. Hormonal Regulation:

- Sleep influences the production and release of various hormones that regulate metabolism, appetite, and stress response.
- Hormones that regulate hunger and satiety, such as ghrelin and leptin, are out of balance when there is little sleep. Increased hunger, cravings for high-calorie foods, and weight gain might result from this imbalance.

- Lack of sleep also causes the body's main stress hormone, cortisol, to rise. Abdominal obesity, insulin resistance, and metabolic dysfunction can all be attributed to a persistent increase in cortisol.

5. Performance and Productivity:

- Quality sleep is essential for optimal performance in both cognitive and physical tasks. Adequate rest improves reaction times, decision-making, problem-solving abilities, and creativity.
- Sleep deprivation, on the other hand, impairs cognitive function, motor coordination, and reaction times, leading to decreased productivity and increased risk of accidents and errors.
- Getting enough sleep is essential for safety and performance in occupations like healthcare, aviation, and transportation that need high levels of focus and awareness.

DETERMINANTS OF SLEEP

Comprehending the factors that influence the quality of sleep is essential for creating focused and efficient interventions that enhance sleep hygiene and general welfare. Numerous factors, including biological, psychological, environmental, and behavioural ones, can affect the quality of one's sleep.⁸ Healthcare providers, researchers, and people can all apply tailored tactics to improve sleep quality and lessen sleep-related issues by recognizing and treating these variables. This all-encompassing strategy enhances general health and quality of life in addition to improving sleep outcomes.⁹

1. Biological Determinants:

Biological factors play a significant role in determining sleep quality. These include genetic predispositions, neurochemical processes, and circadian rhythms.

- **Genetic Predispositions:** Genetics plays a role in individual differences in sleep patterns and preferences. Variations in genes associated with circadian rhythms, such as the PER3 gene, can influence sleep-wake timing and susceptibility to sleep disorders.
- **Neurochemical Processes:** Neurotransmitters and hormones regulate sleep-wake cycles and sleep architecture. For example, serotonin, dopamine, and norepinephrine are involved in arousal and wakefulness, while melatonin regulates sleep onset and maintenance.
- **Circadian Rhythms:** The body's internal clock, regulated by the suprachiasmatic nucleus (SCN) in the brain, dictates the timing of sleep and wakefulness. Disruptions to circadian rhythms, such as shift work or jet lag, can negatively impact sleep quality.

Understanding how these biological determinants influence sleep quality can inform interventions such as chronotherapy, which involves manipulating sleep-wake schedules to align with circadian rhythms, and pharmacological treatments targeting specific neurochemical pathways.¹⁰

2. Psychological Determinants:

Psychological factors, including stress, anxiety, mood disorders, and cognitive processes, significantly impact sleep quality.

- **Stress and Anxiety:** Psychological stressors can disrupt sleep onset and maintenance, leading to increased arousal and hyperarousal during sleep. Chronic stress and anxiety contribute to conditions such as insomnia and sleep-related anxiety disorders.¹¹
- **Mood Disorders:** Depression and bipolar disorder are associated with alterations in sleep architecture, including reduced REM sleep and increased awakenings. Addressing underlying mood disorders is essential for improving sleep quality in affected individuals.
- **Cognitive Processes:** The onset and maintenance of sleep might be hampered by rumination, anxiety, and bothersome thoughts. By reducing cognitive arousal and pre-sleep cognitive activity, cognitive-behavioural therapies that target maladaptive thought. The goal of interventions like cognitive-behavioural therapy for insomnia (CBT-I) is to alter the cognitive and behavioural components that lead to sleep disruptions, therefore improving the quality and length of sleep over time.¹²
- **Environmental Determinants:** Environmental factors, including sleep environment, noise, light exposure, and temperature, influence sleep quality and duration.

- **Sleep Environment:** Creating a comfortable and conducive sleep environment involves optimizing factors such as mattress quality, bedding, room temperature, and noise levels. Minimizing disruptions and distractions in the sleep environment can promote restful sleep.
- **Light Exposure:** Artificial light exposure, especially blue light from electronics, can inhibit the generation of melatonin and postpone the onset of sleep. The quality of sleep can be enhanced by putting tactics in place to limit exposure to artificial light before bed, such as dimming screens or utilizing blue light filters.
- **Noise:** Noise disturbances, such as traffic noise or snoring, can disrupt sleep and impair sleep continuity. Soundproofing measures or white noise machines may help mask external noise and promote uninterrupted sleep.

Addressing environmental determinants of sleep quality involves modifying the sleep environment and implementing behavioural strategies to minimize disruptions, thereby enhancing sleep continuity and depth.

4. **Lifestyle Determinants:**

Lifestyle factors, including sleep hygiene practices, physical activity, diet, caffeine intake, and substance use, play a crucial role in sleep quality and overall health.

- **Sleep Hygiene Practices:** Sleep quality can be enhanced and restful sleep can be encouraged by practicing relaxation techniques, avoiding stimulants prior to bedtime, and creating regular sleep-wake routines.
- **Physical Activity:** Frequent exercise has been demonstrated to increase sleep efficiency and decrease sleep latency, thereby improving the quality of sleep. Exercise of a moderate level early in the day can help improve the onset and maintenance of sleep.
- **Dietary Habits:** Diet has an impact on the length and timing of sleep, with some foods and drinks having a greater effect than others. Sleep disruptions can be minimized and improved sleep quality can be encouraged by avoiding large meals, coffee, and alcohol close to bed time. Sleep quality and general well-being can be enhanced by teaching people the value of leading healthy lifestyles and offering advice on how to put these behaviours into practice.

5. **Medical and Sleep Disorders:**

The quality of sleep and daytime functioning can be greatly impacted by medical diseases and sleep disorders such as parasomnias, insomnia, obstructive sleep apnea, and restless legs syndrome.

- **Obstructive Sleep Apnea (OSA):** OSA is defined by recurring episodes of upper airway blockage during sleep, which cause drowsiness during the day and fragmented sleep. The main treatment for OSA is continuous positive airway pressure (CPAP) therapy, which can enhance sleep quality and lower related health risks.¹⁴
- **Restless Legs Syndrome (RLS):** RLS frequently interferes with the beginning and maintenance of sleep by producing painful leg sensations and an overwhelming desire to move the legs. Treatments for RLS patients, both pharmaceutical and non-pharmacological, can reduce symptoms and enhance sleep quality.
- **Insomnia:** Chronic insomnia is defined by trouble falling asleep or staying asleep, even when there are plenty of opportunities to do so. The first-line treatment for insomnia is cognitive-behavioral therapy for insomnia (CBT-I), which can produce long-lasting gains in the quantity and quality of sleep.¹³

Identifying and treating underlying medical conditions and sleep disorders is essential for improving sleep quality and addressing associated daytime impairments.

6. **Social Determinants:**¹⁵

Social factors, such as interpersonal relationships, social support, socioeconomic status, and work-life balance, can significantly impact sleep quality.

- **Interpersonal Relationships:** Positive social connections and support networks can enhance sleep quality by providing emotional reassurance and reducing stress levels. Conversely, conflicts or strained relationships may contribute to sleep disturbances and poorer sleep quality.
- **Socioeconomic Status (SES):** Socioeconomic factors, including income, education, and employment status, influence access to resources that promote healthy sleep habits. Individuals with lower SES

may experience higher levels of stress, financial insecurity, and environmental challenges that negatively affect sleep quality.

- **Work-Life Balance:** Balancing work demands with personal and family responsibilities is essential for promoting healthy sleep habits. Flexible work schedules, adequate time off, and supportive workplace policies can facilitate better work-life balance and improve sleep quality. Interventions targeting social determinants of sleep quality may involve promoting supportive relationships, advocating for workplace policies that prioritize employee well-being, and addressing socioeconomic disparities that impact access to sleep-promoting resources.

7. **Technology and Digital Media:**¹⁷

The widespread use of technology and digital media has transformed the way we sleep, often contributing to sleep disturbances and poor sleep quality.

- **Screen Time:** Overusing screens can interfere with sleep patterns by inhibiting the generation of melatonin and postponing the onset of sleep, especially right before bed. Electronic device blue light disrupts circadian cycles and is a contributing factor to sleep disorders.
- **Digital Engagement:** Constant connectivity and engagement with digital media may lead to information overload, cognitive arousal, and difficulty disengaging from electronic devices before bedtime. The 24/7 availability of entertainment and communication platforms can encroach upon sleep time and negatively impact sleep quality.
- **Sleep Technology:** While technology can exacerbate sleep problems, it also offers potential solutions for monitoring and improving sleep quality. Wearable devices, smartphone applications, and sleep tracking tools can provide valuable insights into sleep patterns and facilitate behavior change interventions.

Interventions targeting technology-related determinants of sleep quality may involve promoting digital wellness strategies, implementing screen time guidelines, and leveraging sleep technology for monitoring and optimizing sleep habits.

8. **Cultural and Societal Norms:**

Cultural beliefs, societal expectations, and norms surrounding sleep can influence individual sleep behaviors and perceptions of sleep quality.

- **Cultural Beliefs:** Cultural attitudes toward sleep vary widely, with some cultures emphasizing the importance of rest and relaxation, while others prioritize productivity and work ethic. Cultural norms regarding sleep duration, sleep timing, and sleep environment shape individual sleep practices and preferences.
- **Societal Expectations:** Societal pressures, such as academic demands, work expectations, and social obligations, can conflict with optimal sleep habits. Individuals may sacrifice sleep in pursuit of academic or professional success, leading to chronic sleep deprivation and poorer sleep quality.
- **Sleep Practices:** Cultural rituals and traditions surrounding sleep, such as bedtime routines, sleep hygiene practices, and sleep environment customs, influence sleep quality and satisfaction. Adherence to cultural sleep practices may vary within and across populations, impacting overall sleep outcomes. Interventions addressing cultural and societal determinants of sleep quality may involve promoting cultural competence among healthcare providers, advocating for policy changes that support work-life balance, and raising awareness about the importance of culturally sensitive sleep practices.¹⁸

9. **Life Transitions and Stressful Events:**

Life transitions, such as pregnancy, parenthood, retirement, relocation, and bereavement, can disrupt sleep patterns and contribute to changes in sleep quality.

- **Pregnancy and Parenthood:** Pregnancy-related discomfort, hormonal fluctuations, and childcare responsibilities can disrupt sleep during pregnancy and early parenthood. Supportive interventions, such as prenatal education, postnatal support groups, and parenting resources, can help individuals navigate sleep challenges during these transitions.
- **Retirement:** Retirement often brings changes in daily routines, social interactions, and stress levels, which can impact sleep quality and sleep patterns. Engaging in meaningful activities, maintaining social connections, and establishing a consistent sleep schedule can promote healthy sleep habits in retirement.

- **Relocation and Bereavement:** Major life events, such as relocation to a new environment or the loss of a loved one, can trigger stress and emotional upheaval, leading to sleep disturbances. Coping strategies, social support networks, and grief counseling may be beneficial for managing sleep difficulties during times of transition and loss.

Interventions targeting life transitions and stressful events may involve providing psychoeducation, counseling support, and coping skills training to help individuals adapt to changes and cope with stressors that impact sleep quality.

10. **Environmental Stressors and Disruptions:**¹⁹

Environmental stressors, such as natural disasters, environmental pollution, and disruptions to daily routines, can negatively impact sleep quality and contribute to sleep disturbances.

- **Natural Disasters:** Experiencing natural disasters, such as earthquakes, hurricanes, or wildfires, can disrupt sleep patterns due to fear, uncertainty, and displacement. Providing psychosocial support, temporary housing, and access to safe sleeping environments can mitigate sleep disruptions in affected communities.
- **Environmental Pollution:** Exposure to environmental pollutants, such as air pollution, noise pollution, and light pollution, can interfere with sleep quality and exacerbate sleep-related problems. Implementing environmental regulations, soundproofing measures, and urban planning strategies can minimize environmental stressors and promote healthier sleep environments.
- **Disruptions to Daily Routines:** Sudden changes in daily routines, such as shift work schedules, travel across time zones, or irregular sleep-wake patterns, can disrupt circadian rhythms and lead to sleep disturbances. Implementing strategies to adapt to shift work, such as strategic napping, light therapy, and sleep hygiene practices, can help mitigate the negative effects of disrupted schedules on sleep quality.

Interventions addressing environmental stressors and disruptions may involve community-based initiatives, public health interventions, and policy changes aimed at creating safer, healthier, and more sleep-friendly environments.²⁰

Benefits of good sleep²¹⁻²³

The benefits of good sleep extend across various aspects of physical, cognitive, emotional, and social well-being. Prioritizing quality sleep contributes to overall health, performance, and quality of life. Here are some key benefits:²¹

1. Enhanced Cognitive Function:

- Good sleep is crucial for optimal cognitive function, including attention, concentration, memory, and problem-solving abilities.
- Adequate sleep supports learning and memory consolidation, helping individuals retain and recall information more effectively.
- Restorative sleep promotes mental clarity, creativity, and higher-order cognitive processes, such as decision-making and critical thinking.

2. Improved Physical Health:

- Quality sleep is essential for physical health and well-being, contributing to various physiological processes that support overall health.
- Adequate sleep promotes immune function, reducing the risk of infections and illnesses.
- Good sleep is associated with a lower risk of chronic health conditions, including cardiovascular disease, obesity, diabetes, and hypertension.

3. Enhanced Mood and Emotional Well-being:

- Quality sleep plays a vital role in emotional regulation and psychological resilience.

- Adequate sleep improves mood stability, reducing the risk of mood disorders such as depression and anxiety.
 - Restorative sleep enhances emotional processing and coping mechanisms, helping individuals better manage stress and navigate challenging situations.
4. Optimized Physical Performance:
- Good sleep is essential for physical performance and athletic recovery.
 - Adequate sleep improves motor coordination, reaction times, and athletic performance.
 - Restorative sleep supports muscle repair, growth, and recovery, enhancing overall physical strength and endurance.
5. Healthy Weight Management:
- Quality sleep plays a critical role in regulating appetite, metabolism, and energy balance.
 - Adequate sleep helps maintain a healthy weight by supporting hormonal balance and reducing cravings for high-calorie foods.
 - Restorative sleep improves insulin sensitivity and glucose metabolism, reducing the risk of obesity and metabolic disorders.
6. Enhanced Immune Function:
- Quality sleep strengthens the immune system, helping the body defend against infections and pathogens.
 - Adequate sleep promotes the production of cytokines and immune cells that target and eliminate pathogens.
 - Restorative sleep enhances immune surveillance and response, reducing the duration and severity of illnesses.
7. Improved Social and Interpersonal Relationships:
- Good sleep contributes to better interpersonal interactions and social functioning.
 - Adequate sleep improves communication skills, empathy, and emotional intelligence, fostering positive relationships with others.
 - Restorative sleep reduces irritability, mood swings, and interpersonal conflicts, enhancing social well-being and connection.
8. Reduced Risk of Accidents and Injuries:
- Quality sleep reduces the risk of accidents, injuries, and errors by improving alertness and reaction times.
 - Adequate sleep minimizes the risk of drowsy driving, workplace accidents, and falls associated with impaired cognitive function.
 - Restorative sleep supports safety and risk management in various settings, promoting overall well-being and injury prevention.

Effects of bad sleep²¹⁻²³

The effects of bad sleep, whether due to insufficient sleep duration, poor sleep quality, or sleep disorders, can have profound impacts on various aspects of physical, cognitive, emotional, and social well-being. Consistently experiencing poor sleep can lead to a range of negative consequences that affect overall health, performance, and quality of life. Here are some key effects of bad sleep:

1. Impaired Cognitive Function:

- Bad sleep is associated with cognitive deficits, including difficulties with attention, concentration, memory, and problem-solving.
- Sleep deprivation can impair cognitive performance to a similar extent as alcohol intoxication, leading to decreased alertness, slowed reaction times, and impaired decision-making abilities.
- Chronic sleep disturbances can contribute to cognitive decline over time, increasing the risk of age-related cognitive disorders such as dementia and Alzheimer's disease.

2. Decreased Physical Health:

- Insufficient or poor-quality sleep is linked to an increased risk of various physical health problems.
- Bad sleep has been associated with cardiovascular issues such as hypertension, heart disease, and stroke.
- Sleep disturbances can disrupt immune function, increasing susceptibility to infections, illnesses, and slower recovery times from injuries or illnesses.
- Chronic sleep deprivation is also associated with metabolic disturbances, including weight gain, insulin resistance, and an increased risk of obesity and type 2 diabetes.

3. Negative Emotional Well-being:

- Bad sleep can have significant effects on emotional regulation and mental health.
- Sleep disturbances are linked to mood disorders such as depression and anxiety, with poor sleep often exacerbating symptoms of these conditions.
- Chronic sleep problems can lead to irritability, mood swings, and emotional instability, affecting relationships and overall quality of life.

4. Reduced Performance and Productivity:

- Poor sleep compromises cognitive and physical performance, leading to decreased productivity and efficiency.
- Sleep-deprived individuals may struggle with tasks that require sustained attention, problem-solving, and critical thinking skills.
- Bad sleep can impair motor coordination, reaction times, and decision-making abilities, increasing the risk of accidents, errors, and workplace injuries.

5. Impaired Immune Function:

- Sleep disturbances weaken the immune system, making individuals more susceptible to infections and illnesses.
- Bad sleep can disrupt the production of immune cells and cytokines, reducing the body's ability to mount an effective immune response against pathogens.
- Chronic sleep deprivation has been associated with increased susceptibility to respiratory infections, colds, flu, and other infectious diseases.

6. Risk of Chronic Health Conditions:

- Consistently experiencing bad sleep is a risk factor for developing chronic health conditions.
- Sleep disturbances are associated with an increased risk of metabolic disorders such as obesity, type 2 diabetes, and metabolic syndrome.

- Chronic sleep problems have been linked to cardiovascular diseases, including hypertension, coronary artery disease, and irregular heart rhythms.

7. Psychosocial Impacts:

- Bad sleep can have negative effects on interpersonal relationships and social functioning.
- Sleep disturbances may lead to irritability, moodiness, and difficulty regulating emotions, straining relationships with family, friends, and colleagues.
- Chronic sleep problems can contribute to social withdrawal, isolation, and decreased participation in social activities, impacting overall well-being and quality of life.

8. Increased Risk of Accidents and Injuries:

- Sleep deprivation and poor sleep quality impair alertness, coordination, and judgment, increasing the risk of accidents and injuries.
- Fatigue-related accidents are common in various settings, including motor vehicle accidents, workplace accidents, and falls.
- Bad sleep can compromise safety and performance in critical occupations such as healthcare, transportation, and emergency services.

4. OBSERVATION AND RESULT

Sleep is an important part of our lives specially for the adults as they have to deal with many things in their day to day lives. So, we have to understand the healthy and unhealthy patterns of sleep to keep us mentally, physically, and emotionally stable.

Through this survey I'm trying to highlight the good and bad practices which is done by us in our day-to-day life which have strong impact on our sleep pattern.

4.1. DEMOGRAPHICS

The study included a total of 101 participants, comprising 76.5% male and 23.5% female.

-Most of the participants fell within the age range of 18-26 years, indicating a young adult population

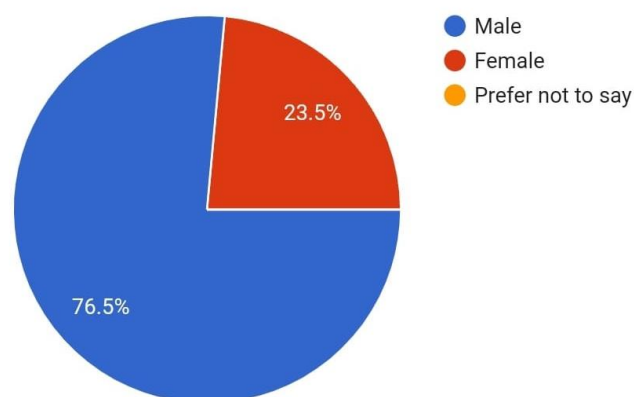


FIG.--1(GENDER)

FIG.—2(AGE)

Consistent sleep schedule

Study having data of about 48% people Have consistent sleep and rest 52% gets inconsistent sleep.

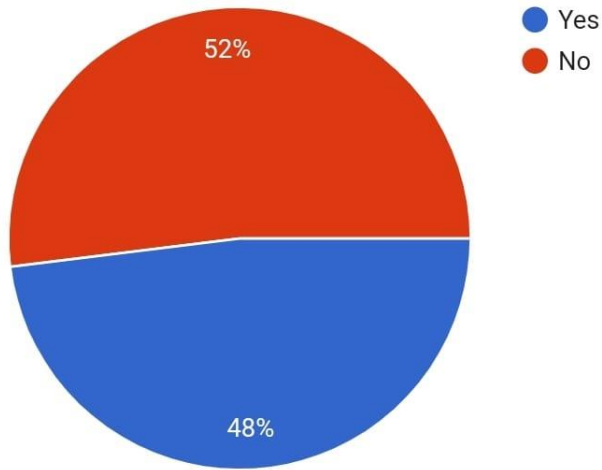


FIG.-3(consistent sleep)

Use of electronic devices before bed time

Study having data of About 92% people uses electronic devices before bed time.

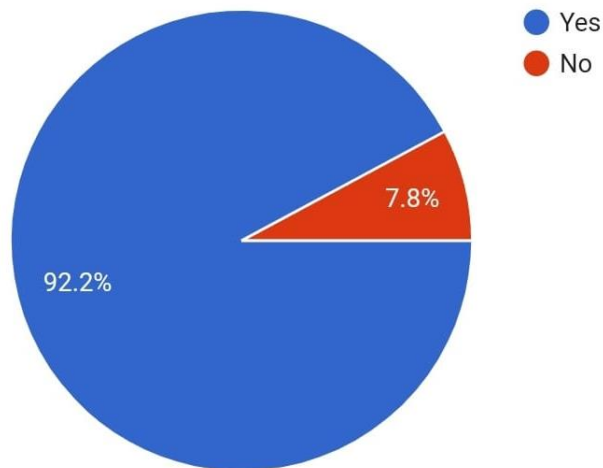


FIG.—4(electronic device)

Difficulty falling asleep

Study having data of about 48% people who doesn't feel difficulty in falling asleep and rest 52% people having issue of not getting asleep easily.

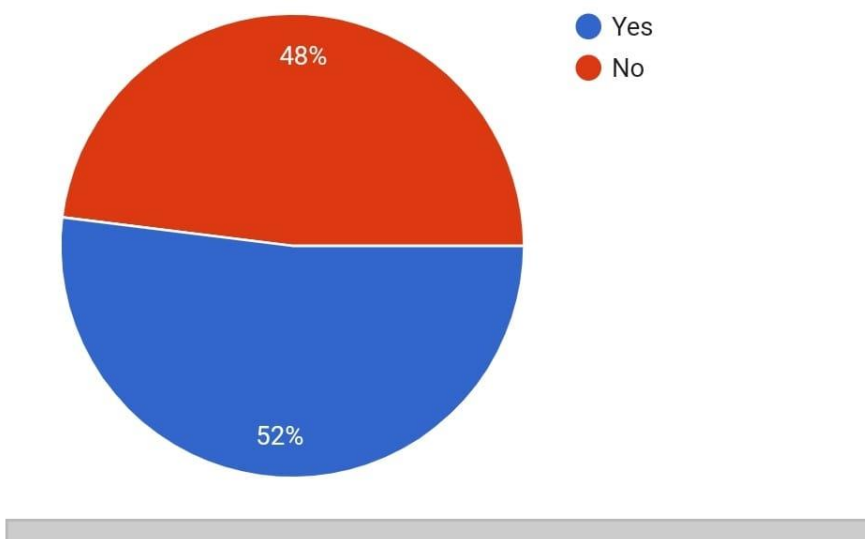


FIG.--5 (difficulty falling asleep)

Wake up frequently during night

Study having data of about 50% people who wake up frequently during their sleep.

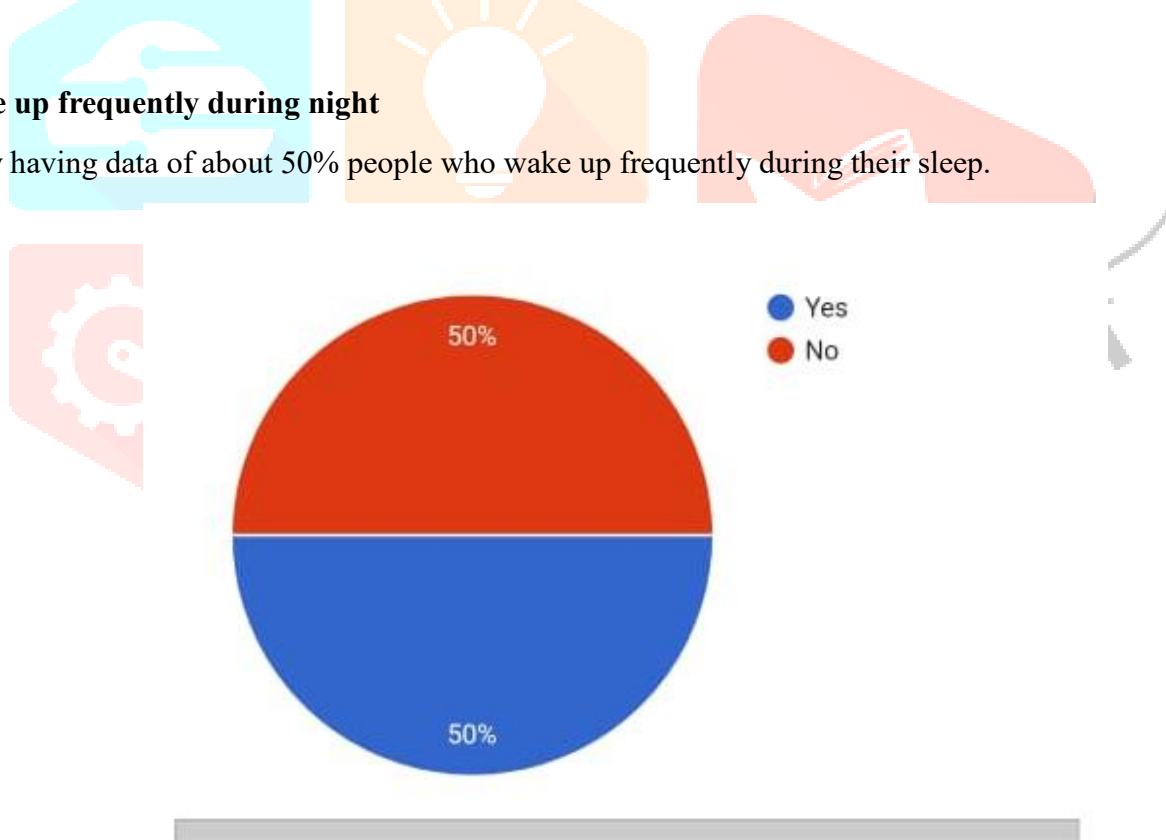


FIG.—6(wake up frequently)

Consumption of caffeinated drinks

Study having data of about 52% people drinks caffeinated drinks daily.

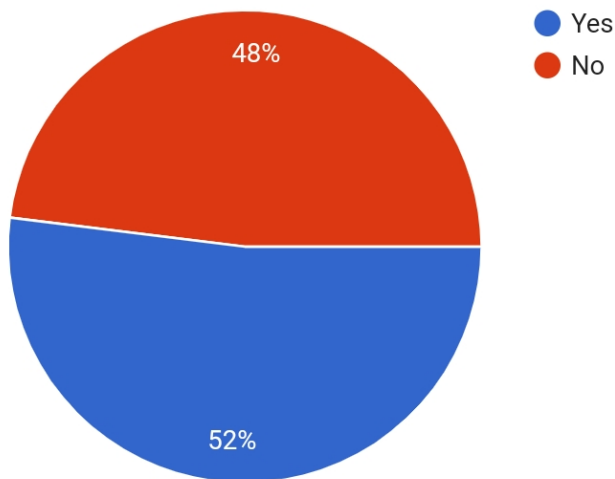


FIG.—7(caffeinated drinks)

Regular physical exercise

study having data of about 46% people involve in regular physical exercise.

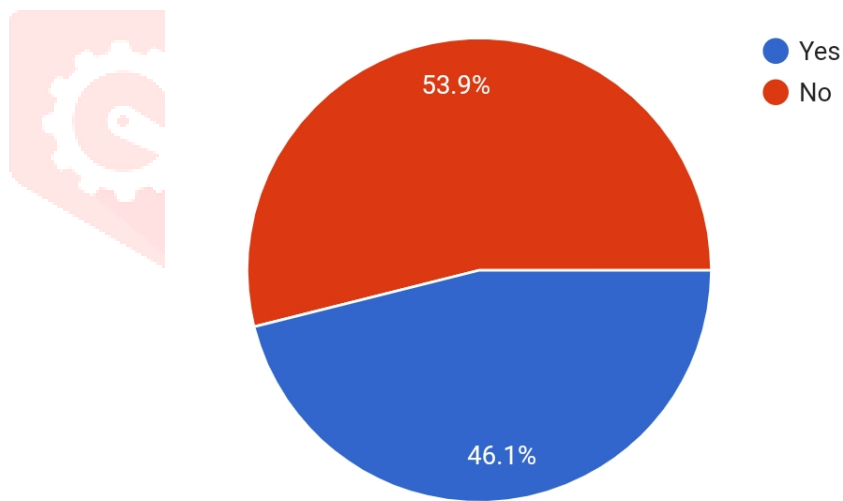


FIG.—8(regular physical exercise)

Heavy meals/snacks before bed time affects sleep quality

Study having data of about 63.7% people having average sleep that night 29.4% people having good sleep that night and 6.9% people having bad sleep that night.

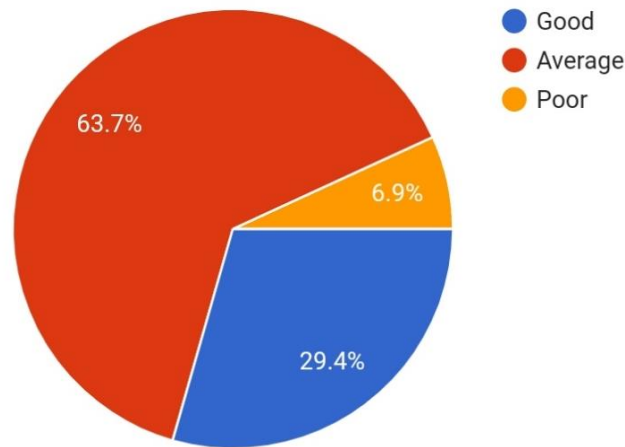


FIG.—9(heavy meal/snacks)

Use of alcohol

Study having data of about 62.7% people don't consume alcohol. 23.5% people consume alcohol on daily basis and about 11.8% people consume alcohol occasionally and they get good sleep after alcohol consumption.

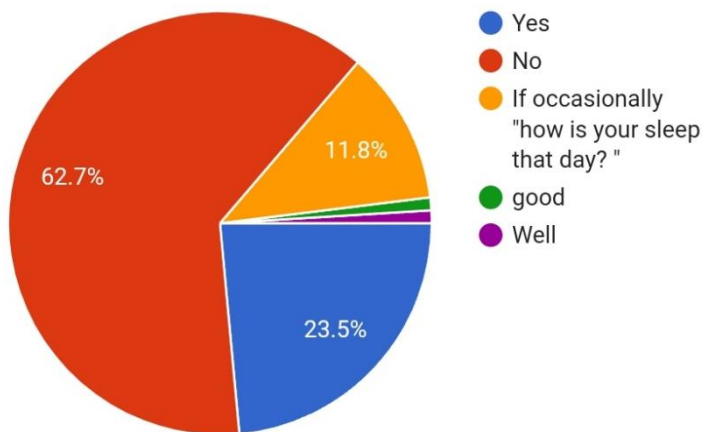


FIG.—10(use of alcohol)

Use of nicotine products

Study having data of about 30.4% people use nicotine products on daily basis. Another data (fig.12) shows the % of people believes smoking affects their sleep quality, 21.6% people believe smoking change their sleeping pattern. 34% people are not sure about change and 44.3% people believe smoking don't have any effects on sleep pattern.

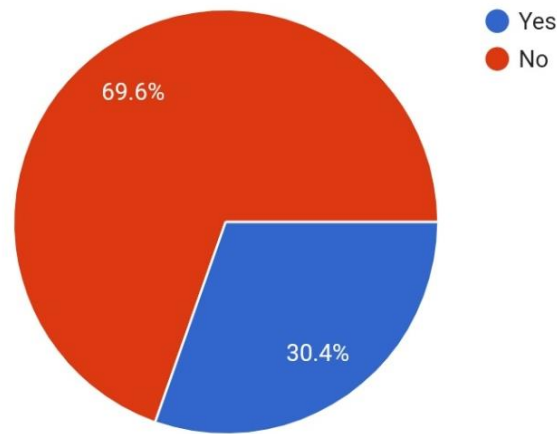


FIG.—11(nicotine products)

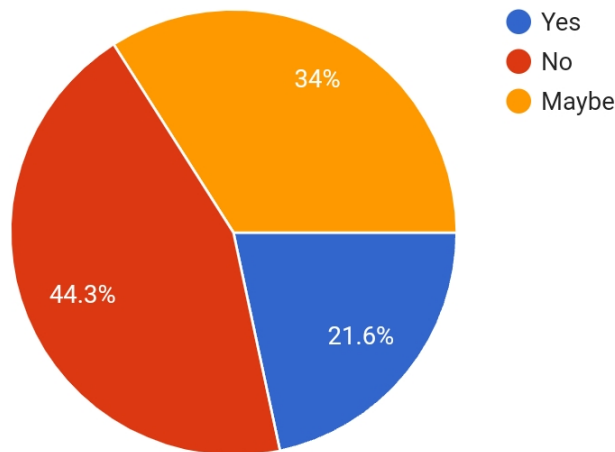


FIG.—12(believes nicotine affect sleep)

Do taking stress change sleep pattern

Study having data of about 48% people who believes stress have major impact on sleep pattern, 41.2% people think stress affect but not that much and 10.8% people believes stress does not affect sleep pattern.

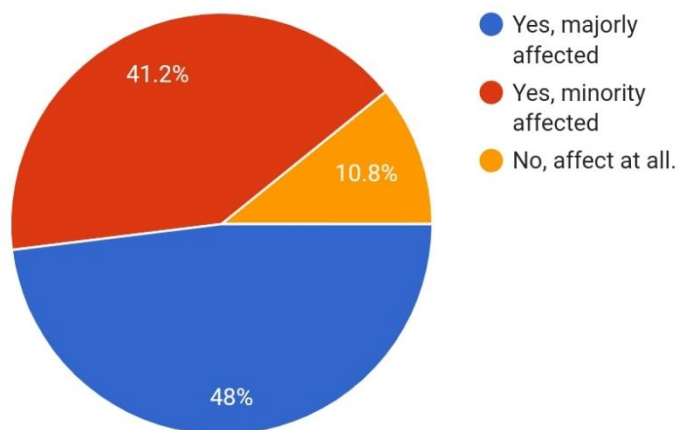


FIG.—13(stress)

History of sleep disorder

Study having data of about 21.8% people having history of sleep disorder.

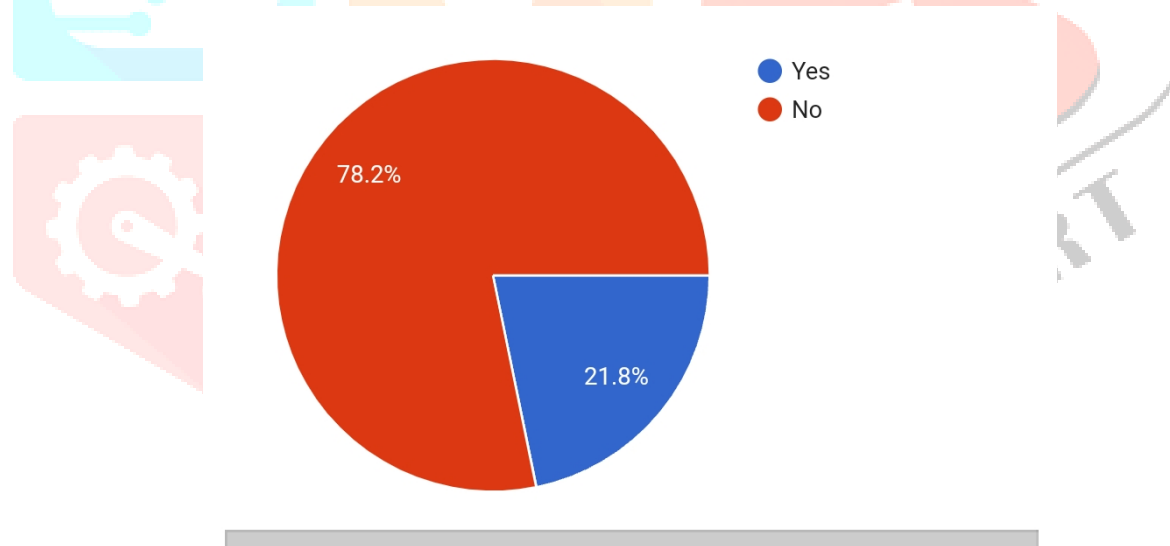


FIG.—14(sleep disorder)

Regular bed time

Study having data of about 48% people have regular bed time.

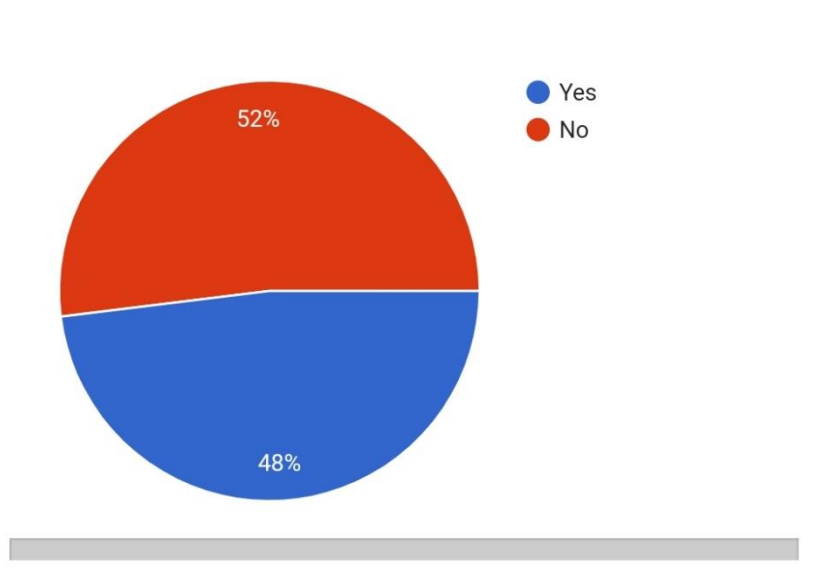


FIG.—15(regular bed time)

Satisfied with current sleep pattern

Study have data of about 56.9% people are not satisfied with their sleep pattern.

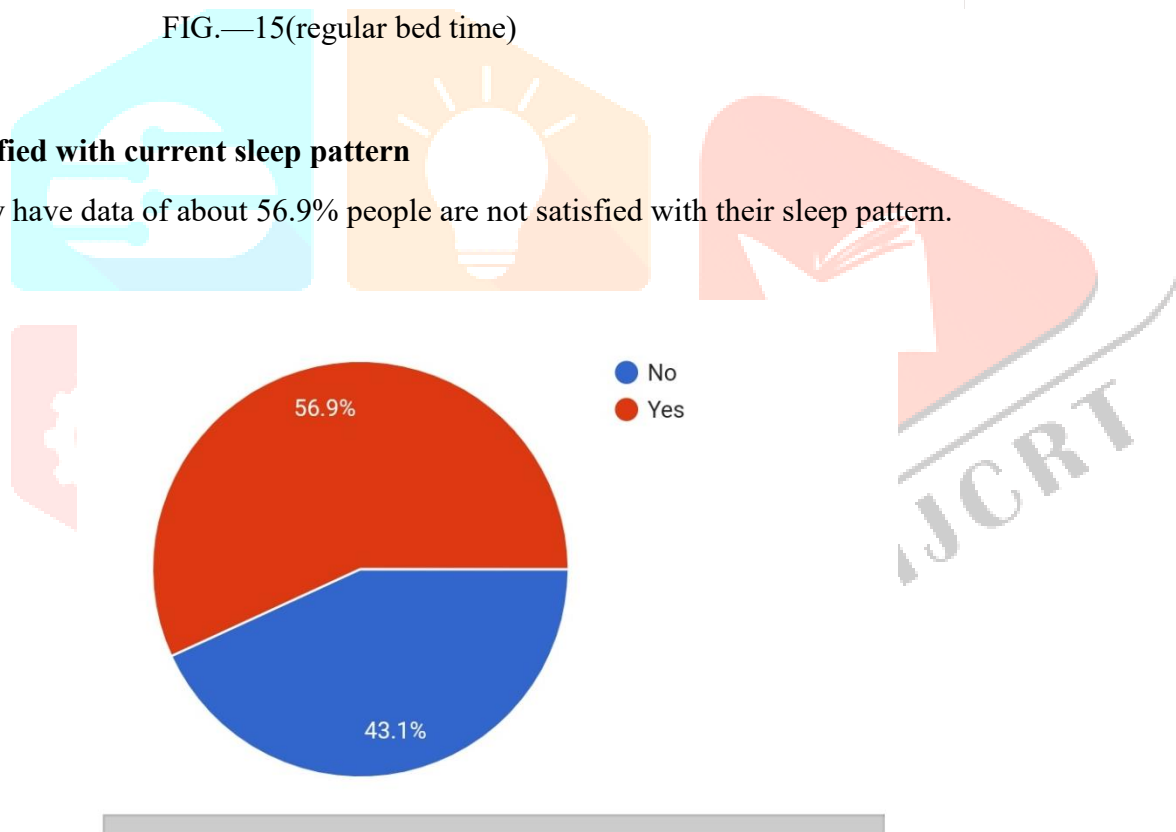


FIG.—16(satisfied with current sleep pattern)

Hours of sleep people get each day

Study have data of about 57.8% people get 6-8 hours sleep, 26.5% people get 4-6 hour sleep each day, 10.8% people get 8-10 hour sleep each day.

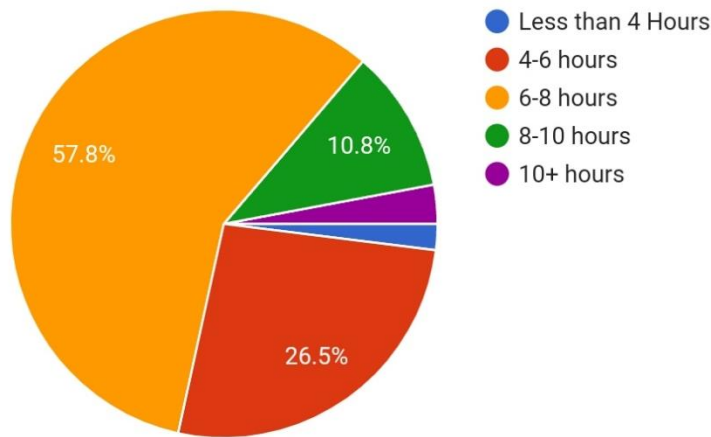


FIG.—17(hours of sleep)

Sleep quality rating

Rating is given of the scale of 5 according to the quality of sleep they get daily.

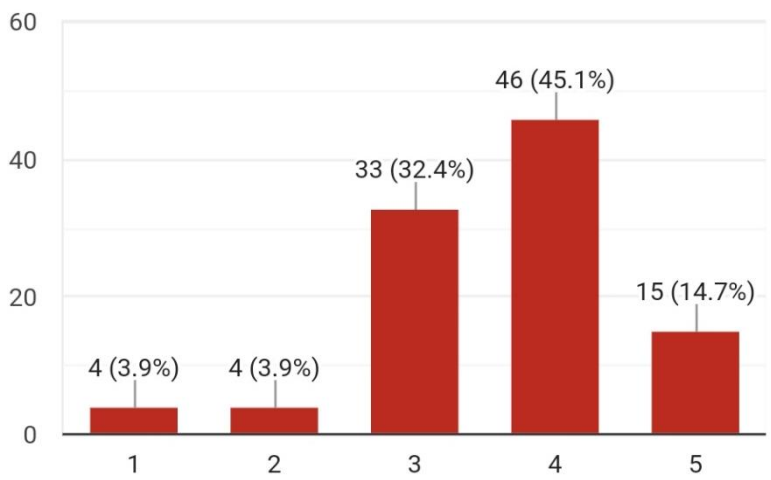


FIG.—18(sleep quality rating)

Sleep improving medication or supplements

Study have data of about 91% people do not take any kind of medicine and supplement to improve their sleep pattern.

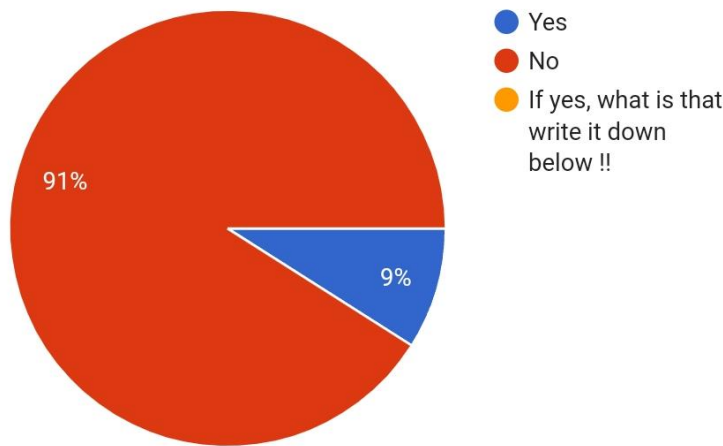
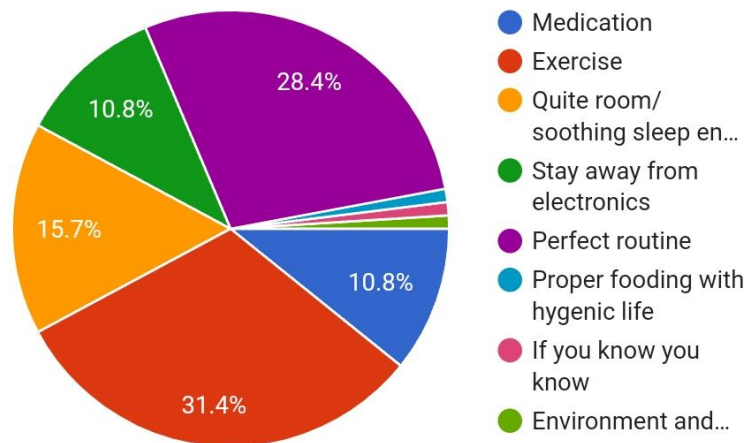


FIG.—19(self improving medicines)

How sleep quality can be improved in adults

Study have data of about 31.4% people believes regular exercise improves sleep quality. 28.4% people believes perfect routine improves sleep quality, 15.7% people believe quite room/soothing sleep environment improves sleep quality, 10.8% people believe by not using electronic devices before bed time improves sleep quality, 10.8% people believe by doing meditation sleep quality can be also improved.

FIG.—20(how sleep quality improved)



DISCUSSION

Path analysis is used in this study to identify relationships between factors such as income, mental health, sports activities, work-life balance, quality and duration of sleep, and housing and environment satisfaction. The results of our study indicate a direct or indirect correlation between improved sleep quality and all of these variables. The results are noteworthy because they demonstrate the important role that subjective health plays as a vital power intermediary in relation to sleep quality. Moreover, a complex relationship has been seen between sleep quality and aspects of wellbeing. Many of the current studies on sleep quality have indicated the presence of various well-being components and their interactions. The current study reveals that 76% people are men and 24% people are women. And most of the people who participated are of age group

18-26. The people having bad habits like drinking, smoking, not doing any physical exercise have irregular sleeping pattern. Most people using electronic devices and eating heavy foods before bed times have irregular sleep pattern. People doing regular exercise and having perfect daily routine have good sleep pattern.

CONCLUSION

In conclusion, understanding the determinants of sleep patterns in adults is crucial for promoting overall health and well-being. Through this survey, we've uncovered various factors influencing sleep, ranging from lifestyle choices to psychological and environmental factors. About more than 50% people choose healthy routine and exercise helps in better sleep pattern and there is high percentage of people who don't smoke and drink get better sleep than the one who do. By addressing these determinants, individuals and healthcare professionals can work together to develop personalized strategies for improving sleep quality and duration, ultimately leading to better physical and mental health outcomes. Further research in this area is essential for refining our understanding and implementing effective interventions to support healthy sleep habits in adults. The people having bad habits like drinking, smoking, not doing any physical exercise have irregular sleeping pattern

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