Republic of Yemen
Ministry of Education and Scientific Research
Emirates International University
Faculty of Medicine and Health Sciences
Department of Community Medicine

Prevalence of Sleep Disorders Among Medical Students and It's Relation with Academic Performance in Al-Thawra Hospital, Sana'a City

A Research submitted to the department of community medicine, faculty of medicine and health sciences, Emirates International University, in partial fulfillment for the degree of MBBH in general medicine and surgery.

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DEDICATION

This effort is dedicated to our parents, who are the foundation of our strength and whose love and sacrifices have inspired us to think creatively and to see every obstacle as a chance to achieve our goals.

To our families, whose support and affection have always given us courage.

To our mentors, whose insight has guided us, this accomplishment is a result of your leadership.

And to our colleagues, whom we have traveled this amazing journey with.

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Content

Abstract

Introduction: Sleep is a vital aspect of overall health and well-being, serving as a crucial role for both the body and mind to rest and repair. However, sleep disorders are common among medical students. The excessive stress and overwhelming scheduling of classes and assessments may affect sleep, thereby adversely affecting the quality of life.

Objectives: To estimate the prevalence of sleep disorders among medical students in their clinical years and examine the relationship between these sleep disorders and their academic performance.

Methods: This study employed an analytical cross-sectional design. Data were collected from 335 medical students at Al-Thawra Hospital in Sana'a City using a self-administered questionnaire. The data included socio-demographic information, lifestyle factors, and responses to the validated SLEEP-50 Questionnaire. Data were analyzed with IBM SPSS software version 27.0. P value ≤ 0.05 is considered significant in all tests.

Results: A total of 335 students participated in this study, with 218 (65.1%) being male and 117 (34.9%) being female. The majority of the sample, comprising 88.1% of the total, fell within the 21-25 age group, while a smaller proportion (10.1%) was represented by the 25-30 age group, and only a minuscule 1.8% of the sample was above the age of 30. Regarding the distribution by university type, 55.5% of participants were enrolled in public universities, while 44.5% attended private universities. The study revealed that 33.62% with a mean (80.96±18.59) of students reported experiencing at least one sleep disorder, insomnia 33.89% with a mean (16.13±5.43) and narcolepsy 27.01% with a mean (8.78±2.98) being the most prevalent. The study found weak negative correlation between sleep disorder and academic performance which statically significant (p-value = 0.011). Suggested that when sleep disorders increase, academic rates tend to decrease. The study showed factors such as age, marital status, smoking, university type, and sleep duration showed significant associations with sleep quality.

Conclusion and recommendations: Sleep disorders are prevalent among medical students. It is crucial to recognize and address these challenges before the condition worsens. This study highlights the need for targeted interventions to improve sleep quality among medical students. Universities and healthcare institutions should implement counseling and awareness programs to alleviate sleep-related issues. Future research should focus on examining the longitudinal effects of sleep disorders on medical students' clinical performance and overall resilience.

Keywords: Sleep disorders, medical students, academic performance, Yemen.

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Abbreviation

Abbreviation	Meaning
AHS	Allied Health Sciences
ANOVA	Analysis of Variance
BiPAP	Bilevel Positive airway pressure
BMI	Body mass index
CBT	Cognitive-behavioral therapy
CO2	Carbon dioxide
CPAP	Continuous Positive airway pressure
CRDs	Circadian Rhythm Sleep Disorder
CSF	Cerebrospinal Fluid
DASS	Depression, Anxiety, and Stress Scales
DSM	Diagnostic and statistical manual
EEG	Electroencephalogram
ESS	Epworth Sleeping Scale
GPAs	Grade point averages
IRT	Imagery Rehearsal Therapy
MBBS	Bachelor of Medicine, Bachelor of Surgery
NREM	Non-rapid eye movement
OSA	Obstructive Sleep apnea
PLMD	Periodic leg Movement Disorder
PSQI	Pittsburgh Sleep Quality Index
PTSD	Posttraumatic stress disorder
REM	Rapid eye movement
RLS	Restless Legs syndrome
SNRIs	Serotonin-Norepinephrine Reuptake Inhibitors
SPSS	Statistical Package for the Social Sciences
SSRIs	Selective Serotonin Reuptake Inhibitors

CHAPTER 1: INTRODUCTION

1.1 Introduction:

Worriedly, Small alterations in brain activity can have a significant impact on sleep, and poor sleep quality is linked to a host of health issues as well as poor living and academic performance. (1) Our everyday lives would not be the same without sleep, which is also vital for preserving our mental and physical well-being. Getting enough sleep is essential for preserving general health, emotional stability, and cognitive performance. (2)

Throughout the years, Sleep problems were widespread among students in medical colleges, the excessive stress and the pressure of holding grades affects their sleep quality. (3)

High prevalence and extremely poor sleep quality were found in a study conducted among medical students at Sana'a University in Yemen. students utilize sleep aids relatively infrequently and suffer from severe sleep deprivation and daytime functioning.(4)

Many researches have conducted to study the prevalence of sleep disorders among medical students. A study found that (73.8%) of medical student complained for at least one sleep disorder, the most prevalent sleep disorder among students was narcolepsy (51.6%) followed by Insomnia (31.5%). (5) Furthermore, a study enrolled 342 students, 55.6% of them had at least one sleep disturbance. Narcolepsy was the most often reported sleep condition among students with (43.9%), followed by Insomnia (29.5%). (6) Another study found the prevalence of insomnia to be approximately 69% among college students. (7)

"SLEEP-50 questioner" used to be designed to screen for a variety of sleep disorders in the general population such as, Obstructive Sleep apnea (OSA), Insomnia, Narcolepsy, Restless Legs/Periodic leg Movement Disorder (RLS / PLMD) , Circadian Rhythm Sleep Disorder (CRDs), Sleepwalking, Nightmares, factors influencing sleep, and the impact of sleep complains on daily functioning. (8)

Sleep disorders spreads fast, by years worldwide. We aimed to find out the prevalence and it's relation with academic performance. To the best of our knowledge, no previous researches about sleep disorders have been published in our country.

1.2 Problem Statement:

Sleep disorders, such as insomnia, sleep apnea, and circadian rhythm disturbances, are increasingly recognized as factors that can significantly impact mental and physical health. In academic settings, particularly among students, sleep quality plays a crucial role in cognitive functioning, memory retention, and overall academic performance. Despite this, there is a lack of data on the prevalence of sleep disorders and their potential effects on academic performance in Yemen. Understanding the relationship between sleep disorders and academic performance is vital for improving students' health and educational outcomes. This study is conduct to find out the prevalence of sleep disorders among Yemeni students and how these disorders may be related to academic performance.

1.3 Research Questions:

What is the prevalence of sleep disorders among medical students in clinical years?

Is there association between study performance and sleep disorders ?

What are the most common types of sleep disorders experienced by medical student ?

1.4 Justification:

The presence of sleep disorders may negatively impact medical students' physical and mental well-being, leading to reduced quality of life and lower satisfaction with various life domains. Long study hours, clinical rotations, and the ever-present pressure. Sleep disorders, such as insomnia or sleep apnea may negatively affect medical students' cognitive functioning, concentration, and memory, leading to lower academic performance.

1.5 Objectives:

1.5.1 General objective:

The objective of this research is to estimate the prevalence of sleep disorders among medical students in clinical years and examine the relation of these sleep disorders on their academic performance.

1.5.2 Specific objectives:

- To determine the most common patterns of sleep disorders among medical students in clinical years.
- To compare the academic performance of medical students with\without sleep disorders using objective measure such as academic rate.
- To identify the risk factors of sleep disorders experienced by medical students.

1.6 Research hypothesis:

1.6.1 Null Hypothesis:

There is no relation between sleep disorders and academic performance among medical students in clinical years.

1.6.2 Alternative Hypothesis:

Clinical-years medical students are particularly susceptible to sleep disorders, which may have a relation with their academic performance.

Chapter 2 : Literature Review

2:1 Background

2.1 Definition of Sleep

Sleep is defined as unconsciousness from which a person can be aroused by sensory or other stimuli. (9) According to authors Sleep is the natural periodic state of rest for mind and body with closed eyes characterized by partial or complete loss of consciousness. Loss of consciousness leads to decreased response to external stimuli and decreased body movements. (10)

2.2 Sleep Requirement

Sleep requirement is not constant. However, average sleep requirement per day at different age groups are :

Table [1] The individual's daily need for sleep in hours

1	Newborn infants	18 to 20 hours
2	Growing children	12 to 14 hours
3	Adults	7 to 9 hours
4	Old persons	5 to 7 hours.

2.3 Types of sleep

Sleep is two types: (10)

1. Rapid eye movement sleep or REM sleep
2. Non-rapid eye movement sleep, NREM sleep or non-REM sleep.

2.4 Stages of sleep and EEG patterns can divide into :

RAPID EYE MOVEMENT SLEEP

During REM sleep, electroencephalogram (EEG) shows irregular waves with high frequency and low amplitude. These waves are desynchronized waves.

NON-RAPID EYE MOVEMENT

SLEEP The NREM sleep is divided into four stages, based on the EEG pattern. During the stage of wakefulness. while lying down with closed eyes and relaxed mind, the alpha waves of EEG appear. When the person proceeds to drowsy state, the alpha waves diminish. (10)

Stage I: Stage of Drowsiness Alpha waves are diminished and abolished. EEG shows only low voltage fluctuations and infrequent delta waves.

Stage II: Stage of Light Sleep Stage II is characterized by spindle bursts at a frequency of 14 per second, superimposed by low voltage delta waves.

Stage III: Stage of Medium Sleep During this stage, the spindle bursts disappear. Frequency of delta waves decreases to 1 or 2 per second and amplitude increases to about 100 µV.

Stage IV: Stage of Deep Sleep Delta waves become more prominent with low frequency and high amplitude. (10)

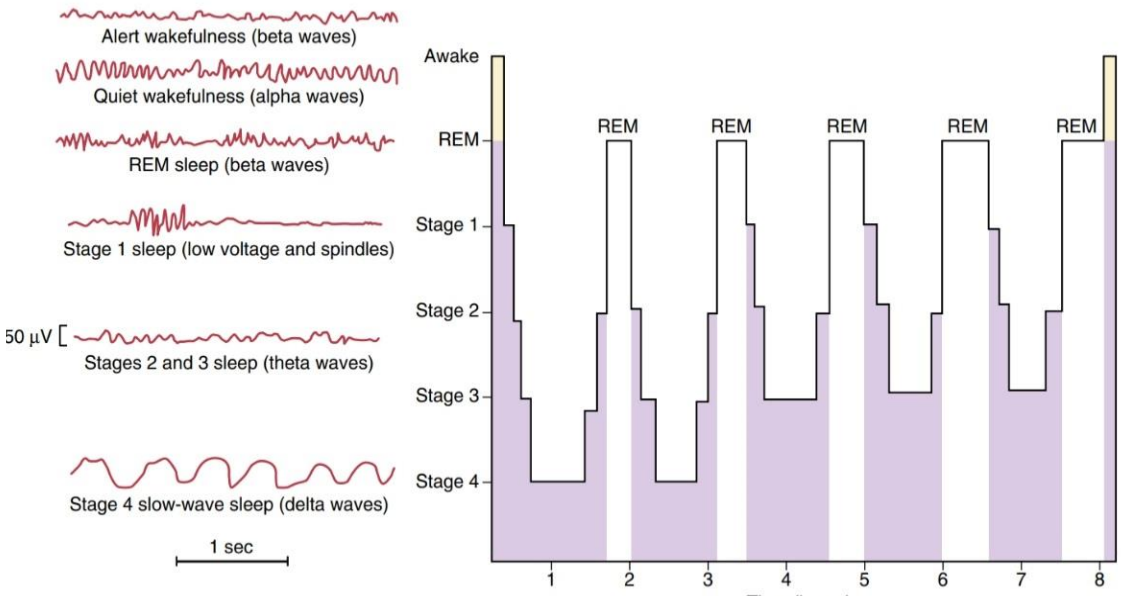

Figure 1: Progressive change in the characteristics of the brain waves during alert wakefulness, rapid eye movement (REM) sleep, and stages one through four of sleep. (9)

2.5 sleep disorders

Classified as either:

■ ***Dyssomnias***: Insufficient, excessive, or altered timing of sleep.

■ ***Parasomnias***: Unusual sleep-related behaviors. (11)

2.6 Dyssomnias

Dyssomnias are disorders that make it difficult to fall or remain asleep (insomnias), or of excessive daytime sleeping (hypersomnia).

2.6.1 Insomnia disorder

Refers to a number of symptoms that interfere with duration and/or quality of sleep despite adequate opportunity for sleep. Chronic insomnia lasts more than or equal to 3 months to years and is associated with reduced quality of life and increased risk of psychiatric illness .Diagnosis is often assisted by use of subjective sleep tracking measures such as the Consensus Sleep Diary. (11)

DSM-5 Criteria

- ❖ Difficulty initiating/maintaining sleep or early-morning awakening with inability to return to sleep.
- ❖ Occurs at least 3 days a week for at least 3 months.
- ❖ Causes clinically significant distress or impairment in functioning.
- ❖ Occurs despite adequate opportunity to sleep.
- ❖ Does not occur exclusively during the course of another sleep-wake disorder.
- ❖ Not due to the physiologic effects of a substance or medication.
- ❖ Coexisting mental and medical disorders do not adequately explain the insomnia. (11)

Treatment

■ Sleep hygiene.

■Cognitive-behavioral therapy (CBT).

■ Chronotherapy (bright light therapy) has evidence supporting its use in treating insomnia by entraining the circadian rhythm.

■ Pharmacotherapy (Benzodiazepines / Non-benzodiazepines as melatonin / Antidepressants as amitriptyline. (11)

2.6.2 Hypersomnia disorder

Refers to symptoms of excessive quantity of sleep, reduced quality of wakefulness, and sleep inertia/sleep drunkenness (i.e., impaired performance and reduced alertness after awakening). Complain of nonrestorative sleep, automatic behaviors (routine behavior performed with little to no recall), and difficulty awakening in the morning. (11)

Epidemiology

■Prevalence: 5–10% of individuals presenting to sleep disorders clinics.

■Equal frequency in men and women.

Course

- Progressive onset, beginning between ages 15 and 25.
- Persistent course unless treated.

DSM-5 Criteria

- ❖ Excessive sleepiness despite at least 7 hours of sleep, with at least one of the following: recurrent periods of sleep within the same day; prolonged, nonrestorative sleep more than 9 hours; difficulty being fully awake after awakening.
- ❖ Occurs at least three times per week for at least 3 months.
- ❖ Causes clinically significant distress or impairment in functioning.
- ❖ Does not occur exclusively during the course of another sleep-wake disorder.
- ❖ Not due to the physiologic effects of a substance or medication.
- ❖ Coexisting mental and medical disorders do not adequately explain the hypersomnolence. (11)

Treatment

■ Life-long therapy with modafinil or stimulants such as methylphenidate; amphetamine-like antidepressants such as atomoxetine are second-line therapy

■ Scheduled napping. (12)

2.6.3 Obstructive sleep apnea hypopnea

Chronic breathing-related disorder characterized by repetitive collapse of the upper airway during sleep and evidence by polysomnography of multiple episodes of apnea or hypopnea per hour of sleep, and its prevalence: (11)

■Most common in middle-aged men and women.

■Male to female ratio ranges from 2:1 to 4:1.

■Children: 1–2%; middle-aged adults: 2–15%; older adults: >20%.

Risk Factors (Obesity, increased neck circumference, airway narrowing). (11)

Features

1. Excessive daytime sleepiness.
2. Apneic episodes characterized by cessation of breathing or hypopneic episodes of reduced airflow (more than 15 per hour).
3. Sleep fragmentation.
4. Snoring.
5. Frequent awakenings due to gasping or choking.
6. No refreshing sleep or fatigue.
7. Morning headaches.
8. Hypertension.

Treatment

■Positive airway pressure: continuous (CPAP) and in some cases bilevel (BiPAP).

■ Behavioral strategies such as weight loss and exercise.

■ Surgery, including tonsillectomy and selective upper airway stimulation implants. (11)

2.6.4 Sleep – related hypoventilation

Polysomnography demonstrates decreased respiration and elevated CO2 levels. Individuals report frequent arousals, morning headaches, insomnia, and excessive daytime sleepiness. Frequently comorbid with medical or neurologic disorders, medication use, or substance use disorder. Over time it can result in pulmonary hypertension, core pulmonal, cardiac arrhythmias, polycythemia, neurocognitive dysfunction, and eventually respiratory failure due to severe blood gas abnormalities. Prevalence is Very uncommon and its Course is Slowly progressive. (11)

Treatment

■ Treat the underlying condition.

■ CPAP/BiPAP.

■ Medications to stimulate/promote breathing (e.g., bronchodilators, theophylline). (11)

2.6.5 Narcolepsy

Narcolepsy is characterized by excessive daytime sleepiness and falling asleep at inappropriate times.

Epidemiology/Prevalence

- Narcolepsy with cataplexy occurs in 0.02–0.04% worldwide.
- Slightly more common in males than females.

DSM-5 Criteria

- ❖ Recurrent episodes of need to sleep, lapsing into sleep, or napping during the day, occurring at least three times per week for at least months associated with at least one of the following:
- ❖ Cataplexy (brief episodes of sudden bilateral loss of muscle tone, most often associated with intense emotion).
- ❖ Hypocretin deficiency in the CSF.
- ❖ Reduced REM sleep latency on polysomnography.

Hallucinations and/or sleep paralysis at the beginning or end of sleep episodes are common (but not necessary for diagnosis in the DSM-5). (11)

Treatment

■Lifestyle Modifications as Scheduled Naps / Good Sleep Hygiene / Exercise and Diet**.**

■ Medications as Amphetamines /Sodium Oxybate /Antidepressants (SSRIs, SNRIs). (13)

2.6.6 Circadian rhythm sleep -walk disorder

Circadian rhythm sleep-wake disorders are recurrent patterns of sleep disruption due to an alteration of the circadian system or misalignment between the endogenous circadian rhythm and sleep-wake schedule required by an individual's environment or schedule. Subtypes include delayed sleep phase, advanced sleep phase, irregular sleep-wake, non-24-hour sleep-wake, and shift work. (11)

Symptoms

The syptoms of Circadian rhythm sleep-wake disorders are. (11)

- Excessive daytime sleepiness.
- Insomnia.
- Sleep inertia.
- Headaches.
- Difficulty concentrating.
- Increased reaction times and frequent performance errors.
- Irritability.
- Waking up at inappropriate times

2.7 Parasomnias

are abnormal behaviors, experiences, or physiological events that occur during sleep or sleep-wake transitions.)

 Symptoms may include abnormal movements, emotions, dreams, and autonomic activity.

 Parasomnias include **non-REM sleep arousal disorders** (such as sleepwalking and night terrors), **nightmare disorder**, **REM sleep behavior disorder**, and **restless legs syndrome**. (11)

2.7.1 Sleep walking

Occurs during the stages 3 & 4 of sleep.

■ One to seven percent of adults have sleepwalking episodes (not disorder).

■Ten to thirty percent of children have at least one episode and 2–3% sleepwalk often and **treated by:**

■ No treatment is needed in most cases.

■ Education, reassurance, addressing triggers, safe environment, and sleep hygiene can help.

■ Low-dose benzodiazepines (e.g., clonazepam) may help refractory cases

2.7.2 Sleep Terrors

Occurs during the stages 3 & 4 of sleep and it is Approximately 2% of adults and 20% of young children have sleep terrors (not disorder). Also, it is Tenfold increase in first-degree biological relatives of affected patients . (11)

And treated by:

■ Reassurance that the condition is benign and self-limited.

■ Same as for sleepwalking**.**

2.7.3 Nightmare Disorder

Occurs during REM sleep, Frequent nightmares in 1–2% of adults, higher prevalence in women. Peak prevalence in late adolescence or early adulthood. Nightmares are seen in at least 50–70% of posttraumatic stress disorder (PTSD) cases. And treated by:

■ Usually not needed; reassurance often helps.

■ Imagery Rehearsal Therapy (IRT): modifies nightmare outcomes through mental rehearsal.

■ Medication: rarely indicated.

2.7.4 Rem –Sleep Behavior Disorder

Dream-enacting behaviors include:

Sleep talking, Yelling, Limb jerking, Walking and/or running, Punching and/or other violent behaviors

■Prevalence in general population is approximately 0.5%, likely higher in people with psychiatric disorders .

■Occurs mostly in males.

■Can occur in all stages of sleep.

And treated by:

■ Discontinuation of likely causative medications if possible.

■ Clonazepam is efficacious in most patients

■ Melatonin may also be helpful.

■ Ensure environmental safety such as removing potentially dangerous objects from the bedroom and sleeping on the ground until behaviors can be managed effectively. (11)

2.7.5 restless leg syndrome

■ Prevalence is 2–7% in the general population .

■ Females 1.5–2 times more likely than males .

■ Prevalence may be lower in Asian population

And treated by:

■ Behavioral strategies: regular exercise, reduced caffeine, and avoiding triggers.

■ Remove offending agents; iron replacement if ferritin is low.

■ Medications: Dopamine agonists and benzodiazepines are first-line. Gabapentin, pregabalin, or low-potency opioids for refractory cases. (11)

Prevention of Sleep Disorders:

- Maintain a Consistent Sleep Schedule

Go to bed and wake up at the same time every day, including weekends, to regulate your body's internal clock.

- Create a Sleep-Friendly Environment

Keep your bedroom cool, quiet, and dark. Avoid screens (phones, TVs) at least 30 minutes before bed.

- Limit Stimulants

Avoid caffeine, nicotine, in the hours leading up to bedtime, as they can interfere with sleep quality.

- Exercise Regularly

Engage in physical activity during the day, but avoid vigorous exercise close to bedtime.

- Manage Stress and Anxiety

Practice relaxation techniques such as meditation or deep breathing to calm your mind before sleep.

- Avoid Late-Night Napping

Limit naps to 20-30 minutes, and avoid napping late in the afternoon to ensure better nighttime sleep.

By following these simple strategies, you can significantly reduce the risk of sleep disorders and improve overall health. (14)

Advice for medical students and healthcare workers on managing sleep disorders:

- Prioritize Sleep Hygiene:

Stick to a regular sleep schedule, avoid caffeine near bedtime, and create a calm sleep environment.

- Practice Strategic Napping:

Short naps (10-20 minutes) boost alertness. Avoid longer naps to prevent grogginess.

- Use Light to Regulate Circadian Rhythm:

Bright light in the morning can reset your clock; avoid it after night shifts to aid daytime sleep.

- Manage Stress:

Techniques like deep breathing, mindfulness, and exercise can reduce stress for easier sleep.

- Stay Hydrated but Limit Liquids Before Bed:

Proper hydration is key, but reduce intake close to bedtime to prevent interruptions.

- Seek Support if Needed:

For persistent issues, consult a specialist. Cognitive Behavioral Therapy for Insomnia (CBT-I) is effective for high-stress professions.

Following these strategies can help manage fatigue, prevent burnout, and improve patient care. (15)

2.2 Literature Review:

In 2020, in Saudi Arabia, a study was done by Rehab Ali Mohamed, Manahel Ghazi Alotaibi, and Nouf Abed Almutairi. This study aimed to estimate the prevalence of sleep disturbances among medical students and assess their effect on their academic achievement. A cross-sectional study was carried out among 303 male and female medical college students, and the Pittsburgh Sleep Quality Index (PSQI) was used to measure the quality and pattern of sleep. The current study found that, according to the PSQI, 13.2% of the students scored a good quality of sleep, and 86.8% of the students suffered from poor quality of sleep. The data showed that 90% of the students who have a good quality of sleep have satisfactory academic achievement. (16)

In 2020, in Sudan, a study was done by Mubashir Zafar, Eltigani O.M. Omer, Mohamed Elfatih Hassan, and Khalid A. Ansari. This study is to determine the association between sleep disorders and academic performance among medical students in Sudan. A cross-sectional study was conducted in which 199 medical students were selected through simple random sampling techniques. The Pittsburgh Sleep Quality Index and Epworth Sleepiness Scale were used to assess the sleep pattern and daytime sleepiness, respectively. Logistic regression analysis was used to determine the association of sleep disorders with academic performance. A study shows that a high prevalence of sleep disorders, which are associated with poor academic performance, was found in medical students. (17)

In 2020, in Oman, a study has been done by Asma Ali Al Salmani, Asma Al Shidhani, Shatha Saud Al Qassabi, Shahad Ahmed Al Yaaribi, and Aysha Muslem Al Musharfi.. This study aimed to estimate the prevalence and academic impact of various sleep disorders on university students by gender. In this cross-sectional study, the data was assessed using the validated SLEEP-50 questionnaire. 637 university students participated in the study (response rate: 100%); of these, 368 (57.8%) were female and 455 (71.4%) were > 20 years old. A total of 433 students (68.0%) had grade point averages (GPAs) of 2–3, whereas 20 (3.1%) had GPAs of < 2. The most common sleep disorders were narcolepsy, restless leg syndrome, insomnia, and obstructive sleep apnea, whereas sleepwalking and nightmares were infrequent. Sleep disorders were significantly associated with low GPA among female students. University students are at risk for sleep

disorders, with such disorders associated with decreased academic performance among females. (18)

In 2023, in Iraq, a study was done by Israa Mohammad Abd Al-Khaliq, Zubaida Najim Abdullah, Jahan Abduljabar Abdullah, and Zahraa Adnan Mohammed. This study aimed to determine the prevalence of stress and sleep disorders among medical students at Al-Kindy College of Medicine and their impact on academic performance. A cross-sectional study was conducted at Al-Kindy College of Medicine during the period from 2022 to the 2023 academic year. The electronic questionnaire was distributed among all students. The analysis of the data was carried out using IBM SPSS version 24. The study shows that a total of 500 medical students were recruited from the first year to the sixth year. Sleep disorders are common among medical students, and they affect their physical, mental, and psychological health. It is crucial to detect these problems and address them before their condition deteriorates. (19)

In October 2020, in Jordan, a study was conducted by Ahmed Yassin. This multi-site study measures the proportion and types of self-reported sleep disorders in medical students and evaluates their association with academic performance by grade point average. A cross-sectional survey utilized the SLEEP-50 questionnaire to estimate the proportion of several sleep disorders and their effects on daily functioning. 1041 medical students' online surveys were analyzed from two medical schools' campuses, representing a 29.7% response rate. Their mean age was 22 ± 2.1 years (ranging from 18 to 37), and 52.6% were female. It can be concluded that sleep disorders are common among medical students. Several sleep disorders were associated with poor academic performance. Proper diagnosis and treatment of sleep disorders may remedy this issue. (20)

In 2021, in Saudi Arabia, a Study was conducted by Reda Abdelmoaty Goweda. This study seeks to estimate the prevalence of sleep disorders among Umm Al-Qura University medical students and associated risk factors. This cross-sectional study was used to collect the data using a self-administrated questionnaire, including socio-demographic data and a sleep-50 questionnaire. Three hundred and twenty-three participants (73.8%) complained of at least one sleep disorder. The most prevalent sleep

disorder among students was narcolepsy, at 226 (51.6%). Female students, second-year students, and students spending significant time watching television or on smartphones were more affected than others, with p values of 0.001, 0.005, and 0.004, respectively. Conclusion: Sleep disorders are common among medical students. It is essential to detect and address them before their condition deteriorates. (21)

In 2020, in Pakistan, a study was conducted by Rbiya Javaid. The study aims to assess the effect of sleep quality on the academic performance of medical university students. A cross-section of second- to final-year Medical and Allied Health Sciences students filled out questionnaires that comprised three major components. With the help of a questionnaire, demographic data about the subjects along with their academic scores were collected. The Pittsburgh Sleep Quality Index (PSQI) and Epworth Sleeping Scale (ESS) were used to collect the data. It shows that a total of 810 students, including both MBBS and Allied Health Sciences (AHS), filled out the questionnaire. Among those, 564 (69.6%) were females and 246 (30.4%) were males. Overall, the mean age was 21.35 ± 1.51 years. Of the total, 418 (51.6%) were from the MBBS program, and 392 (48.4%) were from AHS. No significant relationship was found between PSQI and academic scores. However, academic scores had a strong association with ESS scores. (22)

In 2020, in Saudi Arabia, a study has done by Reda Abdelmoaty Goweda, Abdurahman Hassan-Hussein, Mohammed Ali Alqahtani, Murad Mohammed Janaini, Adi Hatim Alzahrani, Basil Mamdooh Sindy, Moayad Mansour Alharbi, Sari Abdulhamid Kalantan. This cross-section study seeks to estimate the prevalence of sleep disorders among Umm Al-Qura University medical students and associated risk factors. A self-administrated questionnaire was used to collect the data including socio-demographic data and sleep-50 questionnaire. Four hundred and thirty-eight (438) medical students from the second year to the sixth year were recruited to the study. It shows that Three hundred and twenty-three participants (73.8%) complained of at least one sleep disorder. The most prevalent sleep disorder among students was narcolepsy (51.6%) followed by Insomnia (31.5%). (5)

In 2012, in Saudi Arabia, a study has hamza m. abdulghani1, Norah a. alrowais1, Norah s. bin-saad2, Nourah m. al-subaie3, Alhan m. a. haji4, Ali i. Alhaqw. This study to examine the prevalence of sleep disorder among medical students and investigate any relationship between sleep disorder and academic performance. This is a cross-sectional self-administered questionnaire-based study. The participants were medical students of the first, second, and third academic years. The Epworth Sleepiness Scale (ESS) was also included to identify sleep disorder and grade point average was recorded for academic performance. It showed 36.6% of participants were considered to have abnormal sleep habits. (23)

In 2020, in Iran a study was conducted by Ahmad Janatmakan Amiri and Negar Morovatdar. The aim of this study was to determine the prevalence of sleep disturbance and potential associated factors among medical students of Mashhad University of Medical Sciences, Mashhad, Iran. This cross-sectional study, 315 medical students were chosen by stratified random sampling. The Pittsburgh Instrument and DASS-21 questionnaire were used to evaluate sleep quality and anxiety, depression, and stress. The study shows that the prevalence of poor sleep quality is 51.3%. We did not find significant associations among age, sex, and poor sleep quality. Concurrent psychological symptoms such as stress, depression, and anxiety were significantly associated with sleep disorders, so the prevalence of poor sleep quality among medical students was high, and we found that increased use of smartphones during the day and depression were associated with sleep disorders. (24)

Chapter 3: Research Methodology

3.1 Methodology

3.1 Study design

Analytical cross-sectional study.

3.2 Study setting and Period

The study was conducted among medical students who attainted to Al- Thawra Hospital from(20-10-2024 to15-11-2024).

3.3 Study population

The study population include all medical students of fourth, fifth, and sixth from the academic years in Al- Thawra Hospital in Sana'a City.

3.4 Sample size and sampling Technique

3.4.1 sampling Technique

A convenience sampling method was employed to select participants. considering inclusion and exclusion criteria.

3.4.2 Sample size

The selected key indicator for sampling was the '(Prevalence of Sleep Disorders Among Medical Students) the result of previous study conducted in Sudia Arabia, 2020 showed that 73.8% of medical students has sleep disorders. (5)

By using Epi info version 7.2.6.0, with considering the following factors -:

➢Total number of medical students at Al- Thawra Hospital are 4850

➢Confidence level is 95%,

➢Accepted margin of error 5%

➢The expected percentage of sleep disorders are 73. 8 %

➢So, the minimum sample size needed was 280 as it is clear in figure (2). We increased it to overcome non response and the final sample size was 335.

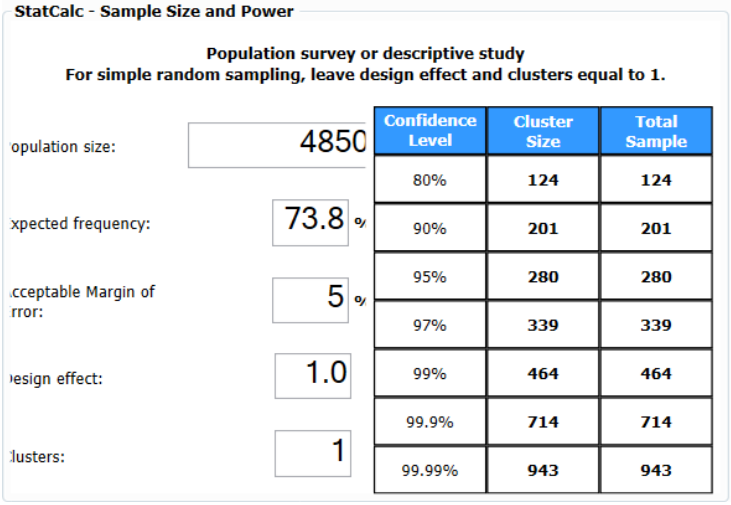

figure (2) calculation of sample size using (Epi info) program version 7.2.6.0

3.5 Inclusion and Exclusion Criteria

3.5.1 Inclusions criteria

- Both genders.
- Medical student from fourth , fifth and sixth academic years.
- Medical students of the clinical years at Al- Thawra Hospital.

3.5.2 Exclusion criteria

- Medical students who refused to participate.

3.6 Research variables

Independent variables are gender, age, marital status, income, academic level, university, sleep hours, and special habits.

Dependent variable are academic performance and prevalence of sleep disorder.

3.7 Data Collection Methods

A self-administered questionnaire was used by the research group students to collect data. All participants were asked for verbal and writing agreement after being fully informed about the study and the significance of completing the questionnaire with all the necessary information. A hard copy of the survey was given to each participant in person, with a student of research group available during completion to answer any questions or queries.

The questionnaire in our research was a self-report paper requiring between 5 and 10 minutes for answering 64 questions, divided into three parts (Demographic information which was 8 questions , Lifestyle factors which was 6 questions , sleep disorder criteria which was a Standardized SLEEP-50 questionnaire (8). For the purposes of the study, the original English-language version of the SLEEP-50 Questionnaire was translated into Arabic using forwards-backwards translation methods to ensure the equivalence of the concepts. Subsequently, the Arabic version was undergoing validation by psychiatric doctor to determine the appropriateness of the wording and the potential for misinterpretation.

3.8 Validity and Reliability of the Questionnaire

To ensure validity prior to data collection, the data collection tool was given to a psychiatric doctor to review it.

To ensure reliability the questions were adopted from existing questions in multiple studies that assessed medical students with sleep disorders. The internal consistency of SLEEP-50 subscales was measured by Cronbach's alpha for the test reliability Pearson correlation coefficients were determined for all subscales and the total score of the SLEEP-50

3.9 Statistical analysis

Data were analyzed with IBM SPSS software version 27.0. The qualitative data was described using numbers and percentages. The quantitative data were described using range (minimum and maximum), mean, standard deviation, and median. The significance of the acquired results was determined at a 5% level. The tests utilized were a Student t-test for normally distributed quantitative variables to compare between two examined groups and an F-test (ANOVA) for normally distributed quantitative variables to compare between multiple groups. The score was measured by = (observed value -minimum value)/ (maximum value -minimum value).

The validity of the subscales, as assessed through the Pearson correlation (R) between each SLEEP-50 subscales and the overall Sleep disorder, showed varying degrees of relationships. The Pearson correlation coefficient (r) measures the strength and direction of the linear relationship between two variables, ranging from -1 (perfect negative) to +1 (perfect positive). A value of 0 indicates no linear relationship. Correlation strength is classified as weak (0 to 0.3), moderate (0.3 to 0.7), and strong (0.7 to 1).

3.10 Ethical consideration

Approval for this study was secured from the Ethics Committees of both Emirati International University and Al-Thawra Hospital Teaching. Participants, comprising medical students, received a comprehensive explanation of the purpose and anticipated benefits of the research. It was imperative to emphasize that all participating medical students retained the right to refuse participation or withdraw from the study at any point prior to its conclusion. Furthermore, all data collected during this research was treated with strict confidentiality and utilized solely for scientific research purposes.

Chapter 4: Results

4.1 Results

Table 2: Distribution of study sample according to gender

Sex	Freq.	%
Male	218	65.1%
Female	117	34.9%
Total	335	100

This study included a total of 335 participants. (Table 2) show that out of 335 students enrolled in the study, more than half were males (65.1%) while (34.9%) were females.

Table 3: Distribution of study sample according to Age Group

The age group	Freq.	%
21-25	295	88.1%
25-30	34	10.1%
More than 30	6	1.8%
Total	335	100

The results of the study in (Table 3), showed that the majority of the sample, comprising (88.1%), falls within the 21-25 age group. This indicates that the study sample was predominantly composed of individuals in this younger age group. A smaller proportion, (10.1%), was represented by the 25-30 age group, while only smallest percentages (1.8%) of the sample was above the age of 30.

Table 4: Distribution of study sample according to Marital Status

Marital status	Freq.	%
Single	269	80.3%
Married	63	18.8%
Divorce	3	0.9%
Total	335	100

(Table 4) revealed that the majority of the medical students 80.3% were single, with only 18.8% married and 0.9% divorced.

Table 5: Distribution of study sample according to Place of Living

The place of living	Freq.	%
In student housing	80	23.9
With my family	227	67.8
live alone	28	8.4
Total	335	100.0

(Table 5) showed that most of the students with percentage (67.8%) lived with their families. In contrast, (23.9%) resided in student housing, while (8.4%) lived alone.

Table 6: Distribution of study sample according to source of Income

The source of the income	Freq.	%
Personal	57	17.0%
Family	278	83.0%
Total	335	100

(Table 6) described that most of participants, (83.0%), rely on family support as their primary source of income, while only (17.0%) reported personal income as their main financial resource.

Table 7: Distribution of study sample according to personal monthly income

Personal monthly income level (Yemeni Real	Freq.	%
Less than 60 thousand	85	25.4
From 60 to 120 thousand	157	46.9
More than 120 thousand	93	27.8
Total	335	100.0

The study results presented in (Table 7) that (46.9%) of participants earn between 60,000 and 120,000 Rials, indicating that this range represents the largest segment of the population surveyed. Additionally, (27.8%) of participants report incomes exceeding 120,000 Rials, while (25.4%) earn less than 60,000 Rials.

Table 8: Distribution of study sample according to current academic level

The current academic level	Freq.	%
Fourth	77	23.0%
Fifth	129	38.5%
sixth	129	38.5%
Total	335	100

The results in (Table 8) showed that (38.5%) are in both the fifth and sixth years of their studies, making these the most participants groups. In contrast, (23.0%) of participants are in their fourth year.

Table 9: Distribution of study sample according to academic rate

Academic Rate Mean± SD= (82.8 ±6.3)	Freq.	%
90s	114	34.0%
80s	193	57.6%
70s	26	7.8%
60s	1	0.3%
50s	1	0.3%
Total	335	100

(Table 9) revealed that the majority of participants, (57.6%), have scores in the 80s, while (34.0%) fall within the 90s range, indicating a strong overall academic performance among the students surveyed. A smaller proportion, (7.8%), achieved scores in the 70s, and only 0.6% of participants scored in the 60s or lower.

Table 10: Distribution of study sample according to work in addition to the study

Work in addition to the study	Freq.	%
I'm working	82	24.5%
I do not work	253	75.5%
Total	335	100

The results in (Table 10) showed that the majority with (75.5%) do not engage in any employment. whereas (24.5%) are working while pursuing their studies.

Table 11: Distribution of study sample according to Exercise during the week

Exercise during the week	Freq.	%
Nothing	22	6.6%
1-3 hours	293	87.5%
Above 3 hours	20	6.0%
Total	335	100

The results presented in (Table11) regarding weekly exercise habits revealed that majority of participants,(87.5%), engage in 1 to 3 hours of physical activity each week. In contrast, only (6.6%) report not exercising at all, while 6.0% engage in more than 3 hours of exercise weekly.

Table 12: Distribution of study sample according to chewing qat

Chewing Qat	Freq.	%
No	169	50.4
Every day	129	38.5
A day or two per week	37	11.0
Total	335	100.0

The results presented in (Table 12) regarding qat consumption showed half of the participants with (50.4%) do not chew qat, while (38.5%) report chewing it daily. Additionally, (11.0%) engaged in qat consumption once or twice a week.

Table 13: Distribution of study sample according to Smoking

Smoking	Freq.	%
Smoked	45	13.4
Non-Smoked	290	86.6
Total	335	100.0

The results in (Table 13) regarding smoking habits revealed that the majority with (86.6%) do not smoke, while a small with (13.4%) of participants smoke.

Table 14: Distribution of study sample according to university

University	Freq.	%
Public	186	55.5%
Private	149	44.5%
Total	335	100

The results presented in (Table14) regarding the distribution of the study sample by university type showed that more than half of participants with (55.5%) were enrolled in public universities, while (44.5%) attend private universities.

Table 15: Distribution of study sample according to Sleep hours

Sleep hours	Freq.	%
Less than 6 hours	147	43.9
From 6-8 hours	167	49.9
More than 8 hours	21	6.3
Total	335	100.0

The results in (Table 15) regarding sleep hours showed that the majority of participants with (49.9%) slept between 6 and 8 hours per day. Followed by, (43.9%) report slept less than 6 hours, while only 6.3% achieved more than 8 hours of sleep.

Table 16: Descriptive Analysis of the Sleep subscale-50 Score According to sleep disorder

Sleep subscale-50	Minimum	Maximum	Mean	Std. Deviation	%Score
Apnea	8.00	30.00	10.86	3.28	13.01
Insomnia	8.00	32.00	16.13	5.43	33.89
Narcolepsy	5.00	19.00	8.78	2.98	27.01
RLS/PLMD	4.00	16.00	5.40	2.01	11.69
Circadian Rhythm Sleep Disorder	3.00	11.00	4.88	1.899	23.54
Sleepwalking	3.00	12.00	3.67	1.57	7.46
Nightmares	1.00	19.00	5.29	5.18	23.85
Factors Influencing Sleep	7.00	26.00	10.26	2.91	17.17
Impact of Sleep Complaints on Daily Functioning	7.00	28.00	15.67	5.16	41.29
Overall	46.00	150.00	80.96	18.59	33.62

Note: RLS/PLMD = restless legs/periodic limb movement disorder

(Table 16) reported a descriptive analysis of the students under study based on their sleep disorders. The data showed that the prevalence of sleep disorders is 33.62%, with 80.96±18.59 (figure 3) . Insomnia was the most reported disorder Scored (33.89%) with a mean (16.13±5.43). followed by narcolepsy with (27.01%) with a mean of (8.78±2.98) ,while Sleep apnea, scored (13.01%), with a mean of (10.86±3.28). Other disorders, such as restless legs syndrome and sleepwalking, have lower prevalence rates. Additionally, the high score (41.29%) with a mean of (15.67±5.16) showed an impact of sleep complaints on their daily functioning.

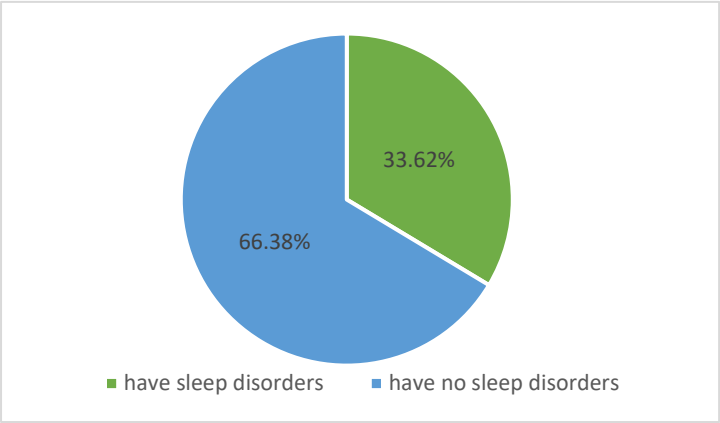

Figure 3: prevalence of sleep disorder

Table (17) : Correlation between academic rate and sleep disorders

Sleep disorders			
Academic Rate	N	Pearson Correlation	p-value
	335	-.140	**.011**

The results from the (Table 17) showed weak negative correlation between sleep disorder and academic performance which was statically significance this means that as sleep disorders increase, academic rates tend to decrease.

Table 18: Relation Between overall sleep disorder and Sociodemographic Characteristics

Sociodemographic characteristics		N	Mean	Std. Deviation	Test of sig.	P value
Sex	Male	218	79.81	18.93	t=1.552	.122
	Female	117	83.11	17.82		
Age	21-25	295	80.48	18.27	F=3.212	**.042***
	25-30	34	81.82	19.71		
	More than 30	6	99.66	21.37		
Marital status	Single	269	81.56	18.49	F=5.471	**.005***
	Married	63	76.98	17.29		
	Divorce	3	110.33	28.54		
The place of living	In student housing	80	78.56	17.22	F=1.153	.317
	With me family	227	81.41	18.25		
	live alone	28	84.17	24.31		
The source of the income	Personal	57	83.87	21.14	t=1.300	.195
	Family	278	80.36	18.01		
Personal monthly income level (Yemeni Real	Less than 60	85	81.29	17.53	F=.134	.874
	From 60 to 120	157	80.41	19.12		
	More than 120	93	81.59	18.79		
The current academic level	Fourth	77	83.17	18.94	F=1.147	.319
	Fifth	129	81.39	19.82		
	sixth	129	79.21	17.02		
Work in addition to the study	I'm working	82	83.32	20.57	t=1.327	.185
	I do not work	253	80.19	17.88		
Exercise during the week	Nothing	22	83.68	20.77	F=.371	.690
	1-3 hours	293	80.64	18.45		
	Above 3 hours	20	82.75	18.83		
Chewing Qat	No	169	80.84	16.79	F=.676	.510
	Every day	129	81.98	21.43		
	A day or two	37	77.97	15.63		
Smoking	Smoked	45	91.53	21.98	t=4.199	**.000***
	Non-Smoked	290	79.32	17.49		
Type of university	Public	186	78.94	18.14	t=2.245	**.025***
	Private	149	83.49	18.90		
Sleep hours	Less than 6 hours	147	84.85	19.32	F=6.424	**.002***
	From 6-8 hours	167	77.45	17.72		
	More than 8 hours	21	81.67	15.08		

*P value < 0.05 is consider significant

According to the multivariable analysis in (Table 18) we identified associations between five variables and sleep disorders. Students older than 30 years (mean=99.66, SD=21.37), who sleep less than 6 hours per day (mean=84.85, SD=19.32), Smokers (mean=91.53, SD=21.98), Divorced students (mean=110.33, SD=28.54) and Students attending private universities (mean=83.49, SD=18.90) all of these variables had exhibit significantly high mean scores compared to others with **(** $p<0.05$).

Chapter 5: discussion

Discussion

Yemeni medical students with poor sleep quality were more likely to experience difficulty concentrating during lectures, struggle with information retention, and perform poorly on examinations. (3) The current study estimates the prevalence of sleep disorders among medical students in clinical years and examine the relation of these sleep disorders on their academic performance .

The present study showed that at least one sleep disorder was found in 33.62 %. This was in contrast to higher findings in study in Umm Al-Qura University (5), and Mashhad University of Medical Sciences, Mashhad, Iran. (24) They found out the prevalence were 73.78, and 51.3% respectively. And in line with a study in King Saud University, Kingdom of Saudi Arabia Showed that 36.6% of students have sleep disorders. These findings emphasized the importance of addressing sleep disorders within this population to enhance both health and academic performance.

The current study demonstrated that insomnia was the most prevalent sleep disorder with 33.89% of this study population, narcolepsy second with (27.01%). Sleep apnea, restless legs syndrome and sleepwalking were found in 13.01%,11.69%, 7.46% respectively. In contrast to previous study in Sultan Qaboos University Hospital, Muscat, Oman found out narcolepsy was the most common with 88.2% and RLS was second with (41.1%), insomnia was third with (36.4%). (18) Additionally, a high Score of (41.29%) for the impact of sleep complaints on daily functioning. Which is particularly concerning in a high-stress academic environment, the impact of sleep complaints on daily functioning underscores the urgent need for interventions to improve sleep quality and support student well-being.

The presented study aimed to evaluate the effect of sleep disorders on academic performance as determined by academic rate. we found a statistically significant (p-value = 0.011) suggested that when sleep disorders increase, academic rates tend to decrease. This was in agreement with a study in Imam Abdulrahman bin Faisal University, Dammam, Kingdom of Saudi Arabia they found a statistically significant association between sleep disorders and poor academic performance .(17) And in contrast with a

study in Umm Al-Qura university (5) which found no associated between sleep disorders and academic performance.

Depending on the age of the students the current study showed that the majority of medical students older than 30 years significantly have higher mean scores with (99.66 ± 21.37) compared to the younger age groups 21-25 with mean scores (80.48 ± 18.27) years and 25-30 years with mean scores (81.82 ±19.71) . This suggests that mature-aged medical students, particularly those above 30 years old, experience more severe overall sleep disorders. This result was in contrast to a study conducted in Mashhad University of Medical Sciences, Mashhad, Iran, showed no association between age and poor sleep quality. (24)

The present study revealed that there was a significant relationship between sleep disorder and marital status, showed that divorced Students have the highest mean scores with (110.33±28.54), followed by married with mean scores (76.98±17.29) and single students fall in the middle with mean scores (81.56±18.49) . These results are in the same line with pervious study in Umm Al-Qura University, Makkah, Kingdom of Saudi Arabia showed the highest score was divorced with %100 followed by the single with %74.2 and the least was married with %60. (5) The increased of sleep disorders observed among divorced students may be linked to the emotional and practical challenges associated with relationship dissolution. In contrast, the lower scores in married students suggested that stable relationships and social support can positively influence sleep quality.

Based on the reported sleep duration the current study shows that students who sleep less than 6 hours per night had the highest mean scores(84.85±19.32), followed by those who sleep 6-8 hours with mean scores (77.45±17.72). It was correlate with Al-Kandy College of Medicine- Iraq (19), King Edward Medical University-Pakistan (22) showed the majority of students with percentage of 35.2%, 32% respectively were sleeping 6 hours/day .This suggests that insufficient sleep (less than 6 hours) is associated with more severe overall sleep disorders among medical students, while the optimal sleep duration of 6-8 hours is associated with lower sleep disorder scores.

There was significant difference in the mean overall sleep disorder scores based on the type of university. Students attending private universities had higher mean scores (83.49±18.90) compared to those attending public universities with mean scores (78.94±18.14).This indicate that medical students in private universities may experience more severe overall sleep disturbances than their counterparts in public universities. maybe due to financial responsibilities especially with the war conflict.

Based on the research study, it was found that students that was smokers with mean scores (91.53±21.98) are more susceptible to sleep disorders than non-smokers with mean scores (79.32±17.49). It is in contrast with pervious study in Umm Al-Qura University, Makkah, Kingdom of Saudi Arabia showed that there was no significant relation between sleeping disorders and smoking. (21) And a study in College of Medicine, Jouf University also showed no association. (16) suggested that smoking was associated with more severe overall sleep disorders among medical students.

The variables of gender, place of living, work in addition to study, source of income, personal monthly income level (Yemeni Rial), exercise during the week, current academic level, and qat chewing did not show any statistically significant differences. These variables, such as sex, place of living, and work, contrast with studies conducted at Jouf University (16), Sultan Qaboos University (18), and two medical schools in Jordan, (20). However, study at Sultan Qaboos University (18) was consistent with our study regarding sex and place of living.

Chapter 6 : Conclusion and recommendation

6.1 Conclusion

- Sleep disorders are common among medical students and it affects their daily function. It is crucial to detect these problems and address them before their condition deteriorates.
- The prevalence of sleep disorders was high among medical students, revealing that a significant 33.62%, which is approximately one-third of the participants, reported experiencing sleep disorders.
- Insomnia being the predominant disorder identified then narcolepsy .
- There was a significant association between sleep disorders and poor academic performance among the participants. The study suggested that when sleep disorders increase, academic rates tend to decrease
- Age group, marital status, smoking, type of university, and sleep hours shows a significant correlation with sleep disorders.

6.2 Recommendation

6.2.1 For Ministry of health

- Establish workshops and seminars to raise awareness about importance of sleep in maintaining overall well-being.

6.2.2 For Universities

- Medical schools should enhance accessibility to counseling services that address sleep issues, providing students with strategies to manage their sleep effectively.
- Medical schools could consider flexible scheduling of classes and assessments to accommodate students' diverse sleep patterns and needs, allowing for optimal learning conditions.
- Medical schools should increase the awareness about importance of sleep and activating the role of academic mentors or advisors and provide the support for junior medical students.

6.2.3 For Medical students

- Keeping bedtime and wake time consistent from day to day, including on weekends.
- Regular activity helps promote a good night's sleep.
- There is a need to investigate the causes and risk factor of the high prevalence of sleep disorders among college students.
- Longitudinal studies could yield valuable insights into how sleep patterns and academic outcomes develop throughout the course of medical training.

6.3 Limitation

This study focused exclusively on medical students, excluding other paramedical colleges, and was conducted in only one hospital due to constraints in time and financial resources. As a result, the findings may not be representative of the entire country. Additionally, not all students were available during the data collection period, which required significant time and effort to gather the information. The study design was cross-sectional, meaning it does not establish causal relationships but only highlights associations. Furthermore, the use of a self-reported questionnaire introduces the possibility of reporting bias, as participants may not have accurately or honestly disclosed their information.

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Appendix

Appendix I (Questionnaire):

Sleep disorder questioner

We are medical student at EIU , conducting research about sleep disorder and it's impact on academic performance .

This questionnaire is a screening tool to assist the presence of sleep disorder and it's impact on academic performance .

It is very important to answer every question, because some disorders show up as a pattern of answers to different questions.

In answering the questions, consider each question as applying to the **past six months**

Do you agree to be enrolled in the study and answer the questions of the survay ?

☐ **Yes** ☐ **No**

Personal information :-

Sex :- ☐ Male ☐ Female

The age group:- ☐ 21-25 ☐ 25-30 ☐ Over 30

Marital status :- ☐ married ☐ Single ☐ divorced

The place of living:- ☐ In student housing ☐ with my family ☐ live alone

The source of the income:- ☐ Personal ☐ family

Personal monthly income level (Yemeni Real):-

☐ Less than 60 thousand ☐ From 60 to 120 thousand ☐ More than 120 thousand

The current academic level:- ☐ Fourth ☐ Fifth ☐ Sixth

Academic Rate :- ☐ **50s** ☐ **60s** ☐ **70s** ☐ **80s** ☐ **90s**

Lifestyle :-

Work in addition to the study:- ☐ I'm working ☐ I do not work

Exercise during the week :- ☐ ☐ Nothing 1-3 hours ☐ Above 3 hours

Chewing Qat:- ☐ No ☐ Every day ☐ A day or two per week

Smoking:- ☐ Smoked ☐ Non -smoked

University :- ☐ Public ☐ private

Sleep hours: ☐ Less than 6 hours ☐ 6-8 hours ☐ More than 8 hours

Sleep disorder questioner :-

If you **haven't (Not at all)** face this problem, put a check mark on **(1)**
If you face this problem **a little,** put a check mark on **(2)**
If you face this problem **rather much**, put a check mark on **(3)**
If you face this problem **very much**, put a check mark on **(4)**

N		1	2	3	4
1	I am told that I snore	☐	☐	☐	☐
2	I sweat during the nigh	☐	☐	☐	☐
3	I am told that I hold my breath when sleeping	☐	☐	☐	☐
4	I am told that I wake up gasping for air	☐	☐	☐	☐
5	I wake up with a dry mouth	☐	☐	☐	☐
6	I wake up during the night while coughing/being short of breath	☐	☐	☐	☐
7	I wake up with a sour taste in my mouth	☐	☐	☐	☐
8	I wake up with a headache	☐	☐	☐	☐
9	I have difficulty in falling asleep	☐	☐	☐	☐
10	Thoughts go through my head and keep me awake	☐	☐	☐	☐
11	I worry and find it hard to relax	☐	☐	☐	☐
12	I wake up during the night	☐	☐	☐	☐
13	After waking up during the night, I fall asleep slowly	☐	☐	☐	☐
14	I wake up early and cannot get back to sleep	☐	☐	☐	☐
15	I sleep lightly	☐	☐	☐	☐
16	I sleep too little	☐	☐	☐	☐
17	I see dreamlike images when falling asleep or waking up	☐	☐	☐	☐
18	I sometimes fall asleep on a social occasion	☐	☐	☐	☐
19	I have sleep attacks during the da	☐	☐	☐	☐
20	With intense emotions, my muscles sometimes collapse during the day	☐	☐	☐	☐
21	I sometimes cannot move when falling asleep or waking up.	☐	☐	☐	☐
22	I am told that I kick my legs when I sleep.	☐	☐	☐	☐
23	I have cramp or pain in my legs during the night	☐	☐	☐	☐
24	I feel little shocks in my legs during the night	☐	☐	☐	☐
25	I cannot keep my legs at rest when falling asleep.	☐	☐	☐	☐
26	I would rather go to bed at a different time	☐	☐	☐	☐
27	I go to bed at very different times (more than 2 hours difference)	☐	☐	☐	☐
28	I do shift work	☐	☐	☐	☐
29	I sometimes walk when I am sleeping	☐	☐	☐	☐

30	I sometimes wake up in a different place than where I fell asleep	☐	☐	☐	☐
31	I sometimes find evidence of having performed an action during the night I do not remember	☐	☐	☐	☐
32	I have frightening dreams (if not, go to 37)	☐	☐	☐	☐
33	I wake up from these dreams	☐	☐	☐	☐
34	I remember the content of these dreams	☐	☐	☐	☐
35	I can orientate quickly after these dreams	☐	☐	☐	☐
36	I have physical symptoms during or after these dreams (e.g. movements, sweating, heart palpitations, shortness of breath	☐	☐	☐	☐
37	It is too light in my bedroom during the night	☐	☐	☐	☐

If you **haven't (Not at all)** face this problem, put a check mark on **(1)**
If you face this problem **a little,** put a check mark on **(2)**
If you face this problem **rather much**, put a check mark on **(3)**
If you face this problem **very much**, put a check mark on **(4)**

<u>Continue</u> :		1	2	3	4
38	It is too noisy in my bedroom during the night	☐	☐	☐	☐
39	I drink alcoholic beverages during the evening	☐	☐	☐	☐
40	I smoke during the evening	☐	☐	☐	☐
41	I use other substances during the evening (e.g. sleep or other medication)	☐	☐	☐	☐
42	I feel sad and depressed	☐	☐	☐	☐
43	I have no pleasure or interest in daily occupations	☐	☐	☐	☐
44	I feel tired at getting up	☐	☐	☐	☐
45	I feel sleepy during the day and struggle to remain alert	☐	☐	☐	☐
46	I would like to have more energy during the day	☐	☐	☐	☐
47	I am told that I am easily irritated	☐	☐	☐	☐
48	I have difficulty in concentrating at work or school	☐	☐	☐	☐
49	I worry whether I sleep enough	☐	☐	☐	☐
50	Generally, I sleep badly	☐	☐	☐	☐

Appendix II (Ethical consent):

Republic of Yemen

Emirates International University

Sana'a

الجمهورية اليمنية

الجامعة الإماراتية الدولية

صنعاء

EMIRATES INTERNATIONAL UNIVERSITY

15/10/2024

المحترم

الأستاذ الدكتور/ همدان باجري- مدير هيئة مستشفى الثورة

تحية طيبة وبعد،،

الموضوع:-بحث تخرج طلاب الطب البشري الدفعه السادسة

تهديكم كلية الطب والعلوم الصحية – الجامعة الاماراتية اجمل التحايا .

بالاشارة الى الموضوع اعلاه نرجو تكرمكم بالموافقه والسماح لطلاب الطب البشري الدفعة السادسة

باجراء استبيان يخدم بحث تخرجهم والذي سيحمل عنوان :-

Prevalence of Sleep Disorder Among Medical Student and It is relation with Academic Performance in Al-Thawra Hospital Sana'a (2024).

شاكرين تعاونكم سلفا .....

وتقبلوا خالص التحايا،،

عميد كلية الطب والعلوم الصحية

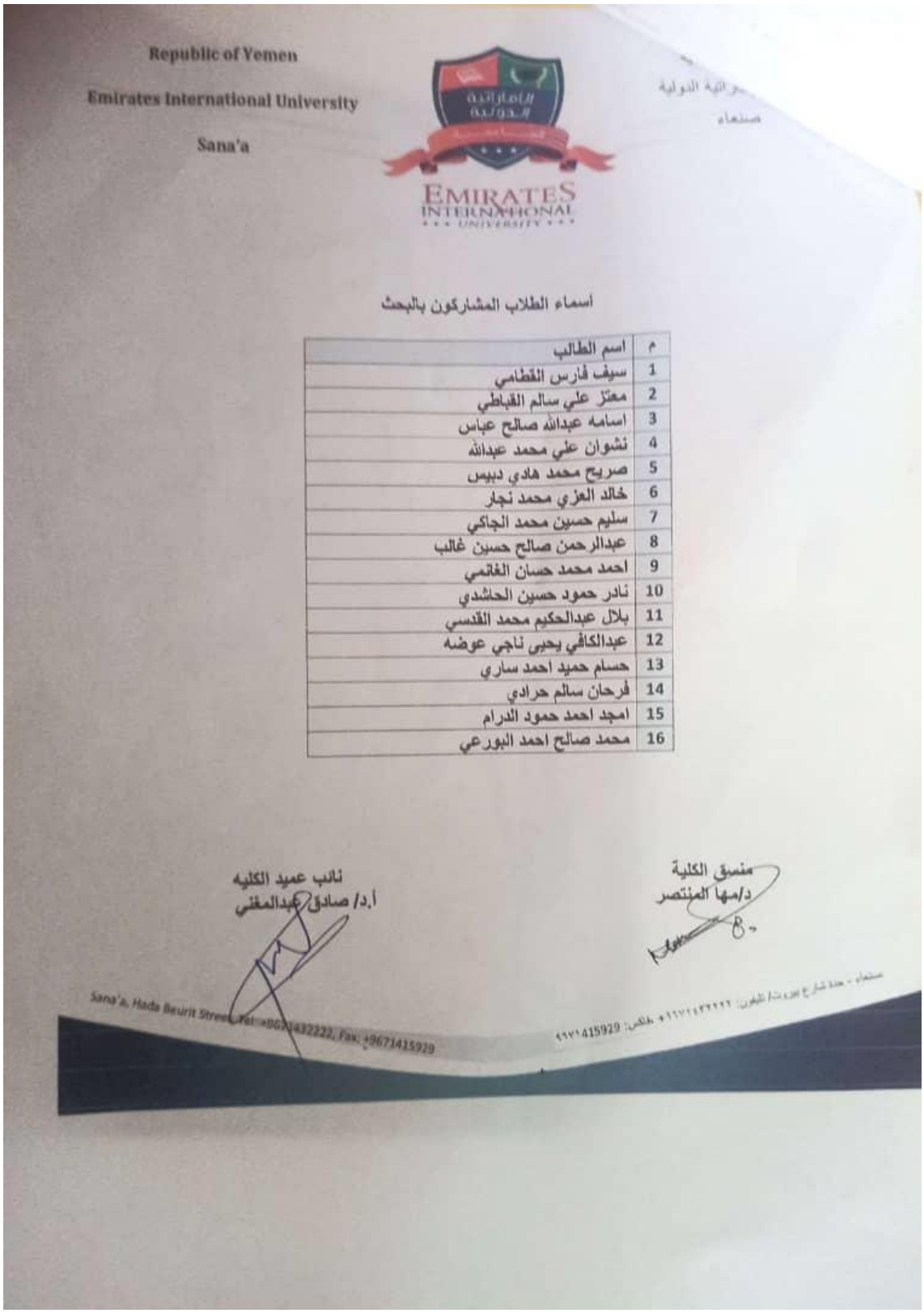
أ.د/ صالح القاهري

20/24

مرفق لكم

- كشف باسماء الطلاب

Sana'a, Hada Ileurit Street, Tel: +9671432222, Fax: +9671415929



Republic of Yemen

Emirates International University

Sana'a

الإمارات الدولية

صنعاء

EMIRATES INTERNATIONAL UNIVERSITY

أسماء الطلاب المشاركون بالبحث

م	اسم الطالب
1	سيف فارس القطامي
2	معتز علي سالم القباطي
3	اسامه عبدالله صالح عباس
4	نشوان علي محمد عبدالله
5	صريح محمد هادي دبيس
6	خالد العزي محمد نجار
7	سليم حسين محمد الجاكي
8	عبدالرحمن صالح حسين غالب
9	احمد محمد حسان الغاتمي
10	نادر حمود حسين الحاشدي
11	بلال عبدالحكيم محمد القدسي
12	عبدالكافي يحيى ناجي عوضه
13	حسام حميد احمد ساري
14	فرحان سالم حرادي
15	امجد احمد حمود الدرام
16	محمد صالح احمد البورعي

نائب عميد الكليه

أ.د/ صادق عبدالمغني

منسق الكلية

د/مها المنتصر

Sana'a, Hada Beurit Street, Tel: +9671432222, Fax: +9671415929

صنعاء - هدا شارع بيروت تلفون: ٠١٦٧١٤٣٢٢٢٢ ٠ فاكس: ٠١٦٧١٤١٥٩٢٩

الجمهورية اليمنية
هيئة مستشفى الثورة العام- بصنعاء
الشؤون الاكاديمية والتدريب
قسم البحوث والنشر

الشؤون الأكاديمية والتدريب
ACADEMIC AFFAIRS and TRAINING

الرقم 235

الاخ/ رئيس قسم النساء والتوليد المحترم

مرفق اليكم صورة من المذكرة الواردة إلينا من/ الجامعة الاماراتية الدولية

يُرجي الاطلاع والتكرم بالتعاون مع الطلاب/ ة في تسهيل جمع بيانات بحث التخرج

☐ بعنوان البحث

Pervalence of Sleep Disorders Among Medical Students and It's Relation with Academic Performance in AL-Thawra Hospital Sana'a City

المؤهل: بكالوريوس من تاريخ 20/10/2024 الى تاريخ 15/11/2024

بحسب السياسة المتبعة لديكم

وتقبلوا خالص التحايا ....

رئيس قسم البحوث والنشر
د/عبدالرحمن الحرازي

نائب المدير العام للشؤون الاكاديمية والتدريب د/محمد الشهاري

الجمهورية اليمنية
هيئة مستشفى الثورة العام- بصنعاء
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قسم البحوث والنشر

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ACADEMIC AFFAIRS and TRAINING

الرقم 235

الاخ/ رئيس قسم الطوارئ المحترم

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ACADEMIC AFFAIRS and TRAINING

الرقم 235

المحترم

الاخ/ رئيس قسم الاطفال

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ACADEMIC AFFAIRS and TRAINING

الرقم 235

الاخ/ رئيس قسم الجراحة المحترم

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الرقم 235

الاخ/ رئيس قسم الباطنية المحترم

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رئيس قسم البحوث والنشر
د/عبدالرحمن الحرازي

نائب المدير العام للشؤون الاكاديمية والتدريب د/محمد الشهاري

الملخص العربي

المقدمة: النوم جانب حيوي من الصحة العامة والرفاهية، حيث يلعب دورًا هاماً لجسم وعقل الإنسان في الراحة والإصلاح. ومع ذلك، فإن اضطرابات النوم شائعة بين طلاب الطب. قد تؤثر الضغوط الزائدة والجدول المرهق للمحاضرات والاختبارات على النوم. نتيجة لذلك، يعاني العديد من الطلاب من اضطرابات نوم تعطل هذه الوظائف الأساسية. يمكن أن تؤدي حالات مثل الأرق والنوم القهري إلى التعب المزمن، واضطرابات المزاج، واختلالات معرفية، مما يؤثر سلبًا على جودة الحياة.

الأهداف: تقدير انتشار اضطرابات النوم بين طلاب الطب في سنواتهم السريرية وفحص العلاقة بين هذه الاضطرابات وأدائهم الأكاديمي.

المنهجية: اعتمدت هذه الدراسة تصميماً تحليلياً مقطعياً. تم جمع البيانات من ٣٣٥ طالبًا بمستشفى الثورة في مدينة صنعاء باستخدام استبيان مُدار ذاتيًا. شملت البيانات معلومات شخصية واجتماعية، عوامل نمط الحياة، وعلى خمسين سؤال معتمد للنوم. تم تحليل البيانات بواسطة برنامج الحزم الإحصائية للعلوم الاجتماعية الإصدار ٢٧، اعتبار قيمة $P \leq 0.05$ ذات دلالة إحصائية في جميع الاختبارات.

النتائج: شارك في هذه الدراسة إجمالي ٣٣٥ طالباً، منهم ٢١٨ (٦٥,١٪) ذكور و١١٧ (٣٤,٩٪) إناث. كانت الغالبية العظمى من العينة، والتي شكلت ٨٨,١٪ من الإجمالي، ضمن الفئة العمرية ٢١-٢٥، بينما كانت نسبة أصغر (١٠,١٪) ممثلة في الفئة العمرية ٢٥-٣٠، ولم تتجاوز نسبة الذين تزيد أعمارهم عن ٣٠ عامًا ١,٨٪. فيما يتعلق بتوزيع النمط الجامعي، كان ٥٥,٥٪ من المشاركين مسجلين في جامعات حكومية، بينما حضر ٤٤,٥٪ جامعات خاصة. كشفت الدراسة أن ٣٣,٦٢٪ من الطلاب أبلغوا عن معاناتهم من اضطراب واحدة على الأقل للنوم، وكان الأرق (٣٣,٨٩٪) والنوم القهري (٢٧,٠١٪) هما الأكثر شيوعًا. هدفت الدراسة إلى تقييم تأثير اضطرابات النوم على الأداء الأكاديمي كما يحدده المعدل الأكاديمي. وجدنا أن هناك علاقة سلبية ذات دلاله إحصائية تشير إلى أنه عندما تزيد اضطرابات النوم، فإن المعدلات الأكاديمية تميل إلى الانخفاض. كما أظهرت عوامل مثل العمر، الحالة الاجتماعية، التدخين، نوع الجامعة، ومدة النوم، ارتباطات كبيرة بجودة النوم.

الاستنتاج والتوصيات: تعد اضطرابات النوم شائعة بين طلاب الطب. من الضروري التعرف على هذه التحديات ومعالجتها قبل أن تتفاقم الحالة. تبرز هذه الدراسة الحاجة إلى تعاون الجميع للعمل على تحسين جودة النوم بين طلاب الطب. يجب على الجامعات والمؤسسات الصحية انشاء برامج للإرشاد والتوعية للتخفيف من القضايا المتعلقة بالنوم. ينبغي أن تركز الأبحاث المستقبلية على دراسة التأثيرات الطولية لاضطرابات النوم على أداء طلاب الطب السريري ومرونتهم العامة.

الكلمات الافتتاحية: اضطرابات النوم، طلاب الطب، الأداء الأكاديمي، اليمن.

الجمهورية اليمنية
وزارة التربية والتعليم والبحث العلمي
الجامعة الإماراتية الدولية
كلية الطب والعلوم الصحية
قسم طب المجتمع

انتشار اضطرابات النوم بين طلاب الطب وعلاقتها بالأداء الأكاديمي في مستشفى الثورة ـ مدينة صنعاء

بحث مقدم إلى قسم طب المجتمع كلية الطب والعلوم الصحية الجامعة الإماراتية الدولية كمتطلب للحصول على درجة البكالوريوس في الطب والجراحة العامة

الباحثــون:

سيــف فــارس راشـد القطــامي
أسامــة عبد الله صــلاح عبــاس
نشــوان عــلــي محمــد عبـد الله
صــريح محمــد هــادي دبيــس
سليــم حسيــن محمـد علي الجاكي
امجـد احــمــد حــمــود الــدرام
عبــد الرحمن صالـح حسين غالـب
فــرحان سالــم جـرادي عيظــه

معتــز علــي سالــم علـي القباطـي
خـالــد العــزي محمـد نجــار
محمــد صالــح احـمد الـبرعـي
احـمــد محمــد حسـن الغانمــي
عبـد الكافي يحيى نــاجي عوضـه
بــلال عبد الحكيم محمـد القدسـي
نــادر حمــود حسيــن الحـاشــدي
حسـام حـمــيد احـمــد ســاري

اشراف

الدكتورة / نورا أحمد العواضي

كلية الطب والعلوم الصحية

جامعة صنعاء

١٤٤٥-١٤٤٦هـ