Investigating Socio-Emotional Competence, Sleep Quality, and Work-Life Balance Among Medical Students

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https://doi.org/10.62345/jads.2024.13.2.124

Abstract

The present study explores the interrelationships between social-emotional competence, work-life balance, and sleep quality among medical students. The study is critical because it explores the depressing factors of medical students. This research was conducted on samples of 200 Faisalabad medical university and independent medical university students. Using a cross-sectional design, data were collected via self-report questionnaires, including the social-emotional competence scale, the work-life balance scale, and the Pittsburgh sleep quality index (PSQI). Various statistical analyses, such as descriptive statistics, correlation analysis, and regression modelling, were used to analyze the data. The results revealed significant correlations between the variables, indicating that higher socio-emotional competence was associated with better work-life balance and sleep quality. Findings highlight the importance of developing targeted interventions to enhance social-emotional skills, promote work-life balance, and improve sleep hygiene among medical students. This study contributes to the growing body of literature on medical student well-being and provides actionable insights for creating more balanced and supportive learning environments for medical institutions.

Keywords: Socio-emotional Competence, Work-life Balance, Sleep Quality

Introduction

Medical education represents one of the most challenging and demanding fields of study, requiring students to acquire a wide range of necessary. The demanding nature of medical training places significant stress on students, both academically and emotionally (Mohammad et al., 2024). Medical students are tasked with mastering complex medical concepts, handling heavy workloads, and navigating clinical settings while maintaining high academic standards. Intense academic pressure, coupled with responsibility for patient care, can lead to high-stress levels, anxiety, and burnout in medical students (Ahmad et al., 2024).

According to Rehan et al. (2024), medical students slept fewer hours per night than recommended for young adults. Most students (60%) reported sleeping less than seven hours per night, and nearly half (47%) experienced difficulty initiating and maintaining sleep. This has also been revealed in this research (Dzaferovic, 2018). Emphasize the importance of developing healthy sleep habits in medical students to enhance their academic success and overall health (Dzaferovic, 2018).

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Compliance with ethical standards: There are no conflicts of interest (financial or non-financial). This study did not receive any funding.

They are examining the role of social-emotional skills in predicting academic and life success in students (Imran et al., 2023). Using diverse informants and longitudinal data, the authors aim to comprehensively understand the relationship between social-emotional skills and various outcomes, including academic achievement, well-being, and life satisfaction (Guo, 2023). Additionally, the competitive nature of medical education can foster a culture of comparison and self-doubt among students. Fear of failure and the constant pursuit of perfection can create a toxic environment that undermines colleagues' cooperation, teamwork, and empathy (Imran & Akhtar, 2023). Medical students assess their stress levels and examine strategies used by students to manage stress related to medical education. Additionally, research has identified sociodemographic factors such as gender, age, and socioeconomic status that may influence the choice of coping strategies among students (Malin, 2021).

The role of emotional intelligence in nursing education, including its effects on student learning, clinical performance, and interpersonal relationships (Phulpoto et al., 2024). The review identified several significant findings: First, there is a positive relationship between emotional intelligence and various aspects of nursing education, such as academic achievement, clinical competence, and professional development (Oad et al., 2023). Second, the review highlighted the importance of incorporating emotional intelligence training into the nursing curriculum to enhance students' interpersonal skills, empathy, and resilience (Imran et al., 2023). Finally, the review identified potential challenges and limitations in assessing and developing emotional intelligence in nursing education, including the need for standardized measures and evidence-based interventions (Dugué et al., 2021).

Sleep quality is essential to clinical education, as it directly affects cognitive function, emotional regulation, and overall health (Imran et al., 2024). The American Academy of Sleep Medicine confirms that sleep is essential to optimal physical, mental, and emotional health. Adequate sleep duration and quality are fundamental to cognitive functioning, emotional regulation, immune function, metabolism, and cardiovascular health (Ramar, 2017).

Relationship between sleep hygiene practices and sleep quality among medical students (Khoso et al., 2024). To understand how adherence to recommended sleep hygiene behaviours affects the subjective experience of sleep quality in this population (Imran et al., 2024). This study found a significant relationship between sleep hygiene practices and subjective sleep quality among medical students. Specifically, individuals who reported better adherence to sleep hygiene practices also reported higher levels of sleep quality, including sleep duration, efficiency, latency, and satisfaction (Cameron, 2010). Prevalence of sleep disorders, factors contributing to poor sleep quality, and effects of sleep disturbances on academic performance and overall well-being of medical students in Karachi (Surani, 2013).

Emotional well-being is essential to medical students' mental and overall well-being. The efficacy of wellness therapy in promoting adjustment and relieving emotional distress in medical freshers (Ahmad et al., 2023). This study aimed to examine whether well-being therapy, a psychological intervention focused on enhancing positive emotions and personal strengths, can effectively support the emotional well-being of medical students during the challenging transition to medical school (Xu & Zang, 2019). Balancing academic responsibilities and personal life is essential to medical students' well-being. Effective time management, setting boundaries, and engaging in activities outside of medical school contribute to a healthy work-life balance (Imran et al., 2023). Building resilience, the ability to bounce back from setbacks and adversity, is an essential protective factor for medical students' well-being. Resilient individuals are better equipped to deal with the stresses and challenges encountered during medical education (Kotter & Fuchs, 2019).

To explore the effects of emotional training based on positive principles of psychological training to promote psychological health and reduce the prevalence of common mental disorders in medical students. The study revealed a high prevalence of common mental disorders among medical students, with a significant proportion experiencing symptoms anxiety, depression and stress (Machado, 2019). Highlights the complexities of measuring emotion in medical education and the importance of adopting interdisciplinary approaches and leveraging technological innovations to advance our understanding of emotion in authentic educational settings. By incorporating insights from emotional research, clinical educators can create more effective and supportive learning experiences for students, ultimately enhancing their professional development and patient care skills (Duffy, 2016).

Significance of the Study

The importance of investigating social-emotional competence, work-life balance, and sleep quality in medical students lies in its potential to address critical issues affecting students and the healthcare system. This study aims to shed light on essential factors in medical students' mental, emotional and physical health. Teachers and administrators can better support students and reduce stress and burnout by understanding how social-emotional competence, work-life balance, and sleep quality affect student well-being. It can reduce adverse effects. Study findings can better inform medical education practices to prepare students for future physician roles. Developing social-emotional skills, promoting work-life balance, and promoting healthy sleep habits early in medical training can contribute to long-term professional satisfaction, resilience, and success in the medical profession. Addressing the well-being of medical students is integral to building a resilient healthcare workforce. This **s**tudy has far-reaching implications for clinical education, patient care, professional development, and healthcare system resilience. By understanding and addressing the factors that influence medical student well-being, stakeholders can create a supportive learning environment and promote the development of competent, compassionate, and resilient healthcare professionals.

Objectives of the Study

- Investigating the relationship between social-emotional competence and work-life balance in medical students.
- Examining medical students' sleep quality and association with social-emotional competence and work-life balance.
- Overall well-being, academic performance, and resilience of medical students to identify work-life balance.
- To explore potential interventions that may improve medical students' social-emotional competence, work-life balance, and sleep quality.

Hypothesis

- There is an association between social-emotional competence, sleep quality and work-life balance among medical students.
- Social emotional competence and sleep quality predict work-life balance among medical students.
- There are mean differences based on demographic variables for social-emotional competence, sleep quality, and work-life balance among medical student.

Literature Review

Erikson's psychosocial theory of development is a prominent theory that deals with social-emotional competence, work-life balance and sleep quality in medical students. According to Erikson, human development occurs in eight distinct stages, each with its unique psychological crisis that must be resolved for healthy growth. Each stage is marked by a specific quality that emerges from successfully resolving the same psychological turmoil. For medical students, the most relevant stages in Erikson's theory are industry vs. inferiority (ages 6–11) and intimacy vs. isolation (adolescence). During the industry versus inferiority stage, children develop a sense of competence and industry as they learn new skills and receive positive feedback from their environment. Successfully resolving this crisis leads to the emergence of the virtue of competence. Medical students who enter medical school with a strong foundation in this quality are more likely to approach their studies with confidence and a desire to learn. Overall, Erikson's psychosocial development theory highlights the importance of social-emotional competence, work-life balance, and sleep quality in promoting healthy growth and academic success among medical students (Erikson, 1933).

Fitzgerald and colleagues examine the intervention's effects on teachers' perceived social-emotional competence, indicators of well-being, and perceptions of student-teacher relationships. Quantitative measures include self-report surveys assessing emotional intelligence, stress levels, and job satisfaction, while qualitative interviews provide in-depth insight into participants' experiences and perspectives (Fitzgerald, 2019).

This is a systematic literature review focusing on current instruments for assessing students' social-emotional competence. It addresses the growing recognition of the importance of social-emotional skills in education and the need for effective assessment tools to assess these competencies (Negru, 2023).

Highlight the effectiveness of evidence-based interventions to enhance social-emotional competence in school settings. These interventions typically incorporate strategies such as social-emotional learning (SEL) programs, which provide explicit instruction, skill-building activities, and real-world practice opportunities. Research shows that SEL programs improve social-emotional skills and contribute to academic achievement, school climate, and long-term well-being (Domitrovich, 2017).

Begin by providing an overview of SEL initiatives in schools, highlighting the growing recognition of SEL as a core education component. They emphasize the potential of SEL programs to enhance students' social skills, emotional regulation, and overall well-being while improving academic performance and school climate. They highlight the role of reflective practice in strengthening professional development, ongoing collaboration, and educators' ability to integrate SEL into their teaching practice effectively. Additionally, this study examines the impact of educator competence on student outcomes, emphasizing the positive relationship between high-quality SEL implementation and improvements in students' social-emotional skills, behaviour, and academic achievement (Gimbert, 2023).

By examining medical students' perspectives at different stages of education, researchers attempt to identify patterns and themes related to work-life balance expectations across various demographic groups. The study findings offer valuable insight into medical student's aspirations and concerns about work-life balance during the transition to the medical profession. Understanding these expectations, educators, policymakers, and healthcare organizations are developing targeted interventions and supports to help future physicians achieve a sustainable work-life balance and thrive in their careers (Suresh, 2020).

Investigate burnout and satisfaction with work-life balance among US physicians compared to the general US population. To examine burnout, work-life balance satisfaction, and related factors among physicians, highlighting the unique challenges faced by this professional group. The study highlights the high prevalence of burnout among doctors and their challenges in achieving a satisfying work-life balance. The research provides valuable insight into the complex dynamics affecting physician well-being through a comprehensive analysis of contributing factors, including workload, organizational culture, and personal characteristics (Shanafelt & Boone, 2012).

A systematic review and meta-analysis on interventions aimed at preventing and reducing physician burnout. This study addresses physician burnout, which has important implications for individual well-being and healthcare system performance. The authors identify and analyze several interventions to reduce burnout among physicians through a thorough literature review and quantitative synthesis of relevant studies. These interventions include various approaches, including organizational changes, individual wellness programs, and educational initiatives. Study findings provide valuable insight into the effectiveness of different interventions in combating physician burnout. Synthesizing data from multiple studies, the authors offer evidence-based recommendations for healthcare organizations, policymakers, and clinical educators seeking to implement strategies for physician well-being. A systematic review and meta-analysis by west, Dyrbye, and Shanafelt contributes to the growing body of literature on physician burnout and highlights the importance of proactive measures to address this critical issue in health care (Gakidou et al., 2017).

Additionally, Huber discusses the role of individual self-care practices and peer support networks in promoting well-being among vascular surgeons. By addressing these critical issues, Huber's address contributes to the ongoing dialogue on professionalism and work-life balance in surgical practice. His insights provide valuable guidance for aspiring and practising vascular surgeons, encouraging them to prioritize their health and personal fulfilment alongside their professional responsibilities (Huber, 2014).

The multifaceted challenges graduate students face in achieving work-life balance and maintaining overall well-being. Drawing from their research and expertise, the authors provide insight into the unique pressures and demands graduate students face in the context of higher education. Yusuf (2022) explores various factors affecting graduate students' work-life balance, including academic workload, research commitments, teaching responsibilities, and personal responsibilities. They discuss the implications of these factors on students' physical health, mental well-being, and overall quality of life. Additionally, the authors examine the importance of promoting work-life balance initiatives and support services within academic institutions to enhance the well-being and productivity of graduate students. They highlight the role of mentoring, peer support networks, and institutional policies in fostering a supportive and inclusive environment for graduate students. Factors affecting a general practitioner's work-life balance include workload, type of practice, geographical location and individual characteristics. By examining these factors, the Study aims to uncover patterns and trends that can inform strategies to promote better work-life balance among general practitioners. By exploring these findings, Shrestha and Joyce provide insight into the broader implications of work-life balance for individual general practitioners and the healthcare system.

Theoretical Framework

The theoretical framework for this study was set within Erikson's psychosocial theory of development because it created a lens to understand how social-emotional competence, sleep quality, and work-life balance interplay in medical students. Erikson's theory, particularly the industry versus inferiority and intimacy versus isolation stages, pertains to competence development and the ability to form meaningful relationships, both of which are significant during the developmental years in medical education. Social-emotional competence forms the basis for Erikson's model and is paramount in medical students who undergo rigorous academic and emotional demands in medical education.

The study is also based on sleep hygiene and work-life balance theories, which are integral to cognitive functioning, emotional regulation, and general well-being. The association of these variables under consideration will be conceptualized within a biopsychosocial model, in which social-emotional skills would act as a protective factor for enhanced resilience to foster improved sleep quality and work-life balance that eventually lead to overall well-being and academic success among medical students.

According to this framework, interventions enhancing social-emotional competence, fostering healthy sleep habits, and reaching a balanced work-life environment contribute mainly to medical students' improved mental and emotional health and, therefore, support their academic and professional development. Based on these theoretical premises, the hypothesis was that social-emotional competence and sleep quality would predict work-life balance and form a basis for a supportive learning environment, setting the stage for the long-term well-being of future healthcare professionals.

Research Methodology

The present study used a quantitative exploratory method and selected 200 medical students from an independent medical college and Faisalabad medical university. Participants were 19 to 28 years old. The sample was obtained using convenience sampling, ensuring the representation of different academic years and demographic backgrounds. The study population consisted of all medical students enrolled in medical programs at accredited universities within the target region. This includes both undergraduate and graduate medical students pursuing a degree. Medical students of different academic years, ranging from first-year students to final-year students, are included in the population.

The research design of this study on socio-emotional competence, work-life balance, and sleep quality among medical students is comprehensive and systematic to investigate causal relationships, identify critical factors, compare groups and produce meaningful results. The study adopts a mixed methodology, combining quantitative and qualitative methods to thoroughly understand the phenomena under investigation. In the quantitative strand, a cross-sectional survey design is used to collect data from a large sample of medical students. The survey includes validated measures to assess social-emotional competence, work-life balance, sleep quality, and related demographic variables. The study explores causal relationships between these constructs through statistical analyses, examining how socio-emotional competence and work-life balance affect sleep quality and vice versa. Additionally, subgroup analyses are conducted to compare different groups of medical students based on factors such as gender, academic year, and academic performance.

A stratified sampling technique ensures representation across different academic years, genders, and institutions. Sample size determination is based on statistical considerations, such as desired precision level, confidence interval, and expected effect size. For this study, a sample size of 200 participants is sufficient.

Justification of the Methodology

The methodology adopted in this study is justified because it is considered an effective way to address the research objectives by adopting a cross-sectional design and a robust data collection process. In a study that seeks to understand the interlinkages between social-emotional competence, work-life balance, and sleep quality among medical students, the choice of self-report questionnaires, the social-emotional competence scale, the work-life balance scale, and the Pittsburgh sleep quality index are pertinent. These are standardized tools containing reliable measures of the constructs under investigation. Descriptive statistics, correlation analysis, and regression modelling will permit detailed data analysis to identify significant relationships and predictors. The study focuses on a sample of 200 medical students from Faisalabad medical university and independent medical university, hence findings relevant to the target population. The overall methodology ensures suitable appropriateness to the aims of the study. It provides asolid platform to make meaningful conclusions about the factors influencing medical student well-being.

Inclusion Criteria

- Medical students enrolled in accredited medical schools or programs.
- Age range of students from 19 years to 28 years.
- Students who are willing and able to complete the study questionnaire or interview.
- Students from different academic years or stages of clinical training (e.g., preclinical, clinical).

Exclusion Criteria

- Medical students on a leave of absence or not actively enrolled in their medical program during the study period.
- Students who cannot understand or communicate in the language of the study material.
- Students currently being treated for sleep disorders or other medical conditions that may significantly affect sleep quality.
- Students who have previously participated in the same or similar research studies within a specified time to avoid duplicate data collection.

The survey consists of several sections, each targeting different constructs related to the overall well-being of medical students. Participants are expected to complete the survey within approximately 10-15 minutes. Participants are asked to answer each item honestly and to the best of their ability.

Demographic Sheet

First asked to complete a demographic sheet. Demographics sheets provide information about age, gender, current field of students, year, house job, family members, birth order father occupation, material status, socioeconomic status, earning members.

Social-Emotional Competence Scale (SECS)

The Delaware Social-Emotional Competency Scale (DSECS-S) is a newly developed scale that measures social-emotional competence in children and adolescents. Through a rigorous validation process, demonstrated the validity and reliability of the DSECS-S in diverse populations, ensuring its applicability in a variety of contexts. Providing a comprehensive assessment of individuals' abilities in these areas. The purpose of the study by Mantz (2018), was to provide validity and reliability evidence for the DSECS-S. The study included a sample of 1,105 students in grades 3 through 12, who completed the DSECS-S, as well as other measures of behavioural outcomes. The DSECS-S serves as a valuable tool for researchers, educators, and practitioners interested in assessing social-emotional competence among individuals of various ages and backgrounds (Mantz, 2018).

Work-Life Balance Scale

The work-life balance scale is a carefully designed instrument that aims to assess medical student's perceptions of their ability to effectively manage academic responsibilities along side personal life pursuits. The scale typically includes items related to time management, flexibility, and satisfaction with work-life balance. Items may ask respondents to rate their agreement with statements such as "I have enough time for my personal activities," "my academic responsibilities often interfere with my personal life," or "I Satisfied with my current work-life balance." This scale aims to capture individual's subjective experiences of work-life balance, taking into account both work demands and non-work activities The time balance dimension assesses an individual's ability to manage their time between work and personal life. Example items include "I spend too much time on work-related tasks" and "I don't have enough time for personal activities." The balance dimension of involvement measures the degree to which an individual is mentally and emotionally absorbed in his work and personal life. This scale has demonstrated good reliability and validity in previous studies.

Assessment of Sleep Quality

The Pittsburgh Sleep Quality Index (PSQI) is a widely used self-report measure of sleep quality that assesses seven components of sleep quality, including sleep duration, sleep disturbance, and sleep medication use. Key components of the PSQI include sleep latency, which refers to the time it takes an individual to fall asleep after initiating sleep. Sleep duration, which measures the total duration of sleep achieved during the night and sleep efficiency, which measures the amount of time spent asleep in bed. Additionally, the PSQI assesses the frequency and severity of an individual's sleep disturbances, such as nighttime awakenings or sleep-disordered breathing. It also considers sleep medication use as an indicator of sleep quality and dependence on external aids for sleep facilitation.

Procedures

Participants will be recruited from both the medical university and independent medical college in Faisalabad, Pakistan. Recruitment efforts will include collaboration with the administration of both institutions to obtain permission to access students for research purposes. Prior to participation, all eligible students will receive a detailed explanation of the study's objectives, procedures, potential risks and benefits, privacy measures, and their rights as participants. Informed consent will be obtained from each participant, indicating their voluntary agreement to participate in the study. The following three devices will be provided to the participants. Social-emotional competence scale: This scale will assess participants' socio-emotional competence. Work-Life Balance Scale: This scale will measure participant’s perceptions of their ability to balance academic responsibilities with personal life activities, including time management, flexibility, and work-life balance and relative satisfaction. Pittsburgh Sleep Quality Index (PSQI): This tool will assess subjective sleep quality and disturbance over a one-month period, including sleep latency, duration, efficiency, disruption, medication use, and daytime disturbances such as Components will be covered.

Statistical Analysis

Statistical software packages such as SPSS (Statistical Package for Social Sciences) used for data analysis. SPSS offers a range of tools for data management, descriptive statistics, correlation analysis, and regression making it suitable for this study. Descriptive statistics will be calculated to summarize important characteristics of the variables, including measures of central tendency and measures of dispersion. Correlation analysis will be performed to explore the relationship between different variables of interest. Pearson's correlation coefficient will be calculated to assess the strength and direction of association between pairs of continuous variables. This analysis will help identify any significant correlations between socio-emotional competence, work-life balance, sleep quality, and other relevant factors. The results of the statistical analysis will be interpreted to gain insight into the relationship between social-emotional competence, work-life balance, sleep quality, and other variables among medical students.

Results

Data collected from the participants were analyzed using SPSS statistical software. The frequencies and percentages for each demographic variable are summarized in table 1. Understanding these characteristics is critical to interpreting the results of this study, as they provide context regarding the population being studied.

Table 1: Demographic Characteristics of Participants (N=200)

Variable	Categories	*F*	*%*
Institution	FMU	164	82
Age	IMU	36	18
Gender	19-23	134	67
	24-28	66	33
Fields of Study	Male	54	27
House Job	Female	146	73
Family System	MBBS	182	91
	BDS	18	9
Socio-economic status	Yes	26	13
	No	174	87
Material Status	Nuclear	160	80
	Joint	40	20
	Lower	25	12.5
	Middle	171	85.5
	Upper	4	2
	Married	9	4
	Un Married	191	95

The demographic profile of the participants shows a predominance of FMU students with a strong representation in the MBBS programme, mainly unmarried, middle-class individuals living in nuclear families. These characteristics provide a comprehensive overview of the study population and help to understand the context of outcomes related to social-emotional competence, work-life balance and sleep quality in medical students. Majority of the participants (81.5%) were from Faisalabad Medical University (FMU), while only 18.5% were from Independent Medical University (IMU). This indicates a large representation by FMU in the study sample. Most of the participants were enrolled in an MBBS program, which constituted 74.5% of the sample. The remaining 25.5% were pursuing a BDS degree. This distribution shows more inclination towards MBBS program among the participants. A significant majority of participants (96%) were not engaged in housework, with only 4% reporting that they were. This suggests that most of the respondents were still in the academic phase of their medical education. Regarding the family system, 68% of the participants reported living in a nuclear family system, while 32% lived in a joint family system. This indicates a high prevalence of nuclear families among the participants. The socio-economic status of the participants was predominantly middle class, with 89.5% identifying as such. A smaller proportion is reported from lower class (6.5%) and higher class (4%).

This highlights that the majority of the sample comes from a middle-class background. The majority of participants were unmarried (96%), with only 4% married. None of the participants reported being divorced. This demographic characteristic is typical of the student population, where most individuals are unmarried.

Table 2: Variables Descriptive statistical (n=200)

Variables	Mean	S. D	Skewness	Kurtosis
Social Emotional competence	11.21	12.69	-0.5	.84
Work life balance	3.23	1.15	-0.20	-1.32
Sleep Quality	1.65	1.12	-1.00	-.40

To analyze the distribution and central tendencies of the variables in our study social-emotional competence, work-life balance, and sleep quality among medical students. we used SPSS software. Table 2 provides a detailed summary of these statistics for a sample size of 200 participants. The average score of social-emotional competence among medical students is 11.21. A S.D of 12.683 indicates considerable variability in socio-emotional competence scores among participants. A skewness of -0.497 shows that the distribution of scores is moderately to the left, indicating that the majority of students scored above the mean. A kurtosis value of 0.839 implies a distribution that is slightly more than a normal distribution. The average score for work-life balance is 3.23. With a SD of 1.151, work-life balance scores showed moderate variability. Descriptive statistics highlight central trends and distribution shapes of key variables in our study. Social-emotional competence shows significant variability and a moderate left skew, indicating a wide range of competence among students. Work-life balance appears to be fairly smooth but flatter, suggesting a generally consistent experience among students with some variation. Sleep quality skews strongly to the left with a relatively flat distribution, indicating that although most students report good sleep quality, there is still significant variability.

Table 3: Scale reliability analysis (N=200)

Variables	No. of items	Alpha Coefficient
Social-Emotional Competence	25	.78
Work-Life Balance	15	.69
Pittsburgh Sleep Quality Index	20	.74

This table presents the results of the scale reliability analysis for three different variables, social-emotional competence, work-life balance, and the Pittsburgh sleep quality index that indicates how well the items on a scale measure the same construct. The social-emotional competence scale consists of 25 items and has an alpha coefficient of .789. This indicates a high degree of internal consistency. An alpha coefficient above .78 is considered good, indicating that the scale is a reliable measure of socioemotional competence among study participants. The work-life balance scale consists of 15 items and has an alpha coefficient of .690. This suggests an acceptable level of internal consistency. A coefficient of .70 is generally considered the minimum acceptable range for research purposes, indicating that the items on this scale are reasonably consistent in measuring the work-life balance construct. Pittsburgh Sleep Quality Index (PSQI): This scale includes 20 items and has an alpha coefficient of .744. This high level of indicates that PSQI are reliable in measuring sleep quality. An alpha coefficient above .80 is considered good.

Hypothesis 1: There is an association between social- emotional competence, sleep quality and work-life balance among medical students.

Table 4: Correlation Between SECQ, PSQI and Work-life Balance (WLB) N=200

	SECQ	PSQI	WLB
SECQ	-	.021	.069
PSQI		-	.235**
WLB			-

** Correlation is significant at the 0.01 level (2- tailed)

The table presents the correlation coefficients between three variables: Social-Emotional Competence (SECQ total), Global Pittsburgh Sleep Quality Index (Global PSQI), and Work-Life Balance (WLB total).

This correlation table highlights that while socio-emotional competence is not significantly related to sleep quality or work-life balance, sleep quality is significantly related to work-life balance. Poor sleep quality is associated with poor work-life balance, emphasizing the importance of addressing sleep problems to improve the overall health of medical students.

Hypothesis 2: Social emotional competence & sleep quality predict work-life balance among medical students.

Table 4: Summary of multiple regression analysis with SECQ, PSQI and WLB as predictors in medical students (N=200)

	B	B	SE	R^2	F	p	95%CI (LL,UL)
SECQ	.03	.06	6.72	.06	6.23	.002	(-.039,1.109)
PSQI	.69	.23					(.288, 1.092)

Predictors: SECQ, PSQI, Dependent variable: WLB

R Square = .060: An R-squared value of .060 means that 6% of the variance in the dependent variable is explained by the predictors (global PSQI score and SECQ total). The results of the regression analysis showed that the predictors—Global PSQI score and SECQ total—had a weak positive relationship with the dependent variable, explaining only a small part of its variance (6%). The standard error of the estimate indicates the moderate accuracy of the model's predictions.

The ANOVA table shows that the regression model, which includes global PSQI score and SECQ total as predictors, significantly explains some of the variance in work-life balance total (WLB total) among medical students. The significant F statistic (6.235) and p-value (.002) indicate that the model fits the data and that the predictors. This analysis supports the hypothesis that different factors (in this case, sleep quality and social-emotional competence) significantly affect work-life balance among medical students.

Regression analysis suggests that among the predictors, the global PSQI score significantly affects the work-life balance total (WLB total). In contrast, the SECQ total shows no significant effect. The significant positive correlation between global PSQI score and WLB total suggests that medical students with better sleep quality may experience healthier work-life balance.

Hypothesis 3: There is mean differences based on demographic variables for social emotional competence, sleep quality & work life balance among medical students.

Table 5: Mean difference on SECQ-based demographics (N=200)

Variable	Categories	t/f	p(sig)
Age	19-23	1.36	.003
	24-28		
Fields of Study	MBBS	1.17	.173
	BDS		
House Job	Yes	-2.82	.163
	No		
Family System	Nuclear	-.302	.040
	Joint		
Socio-economic status	Lower	1.15	.318
	Middle		
	Upper		
Material Status	Married	.86	.970
Gender	Un Married		
	Male	-.61	.146
	Female		

This table presents the results of t-tests comparing socio-emotional competence (SECQ) scores across different demographic variables among medical students. t-values, F-values, and p-values indicate the statistical significance of differences in the SECQ based on different categories within each demographic variable. This table highlights that significant differences in social-emotional competence are observed in relation to age and family system, suggesting that younger students (19-23 years) and those from nuclear families may have different levels of social-emotional competence compared to their older counterparts (24-28 years) and those from joint families. However, fields of study, house job status, socio-economic status, and marital status do not show significant differences in social-emotional competence among the medical students studied. This information can be useful for understanding the demographics that influence social-emotional competence and guiding targeted interventions to support medical students' well-being.

Table 6: Mean difference on PSQI-based demographics (N=200)

Variable	Categories	t/f	P(sig)
Age	19-23	-.80	.029
	24-28		
Fields of Study	MBBS	-.83	.120
	BDS		
	Yes	1.003	.015
House Job	No		
	Nuclear	.65	0.704
Family System	Joint		
	Lower	.44	.641
Socio-economic status	Middle		
	Upper		
	Married	-1.47	.091
Material Status	Un Married		
	Male	2.74	.025
Gender	Female		

This table highlights those significant are observed in relation to age, house job status, and gender, suggesting that younger students (19-23 years), students without house jobs, and female students may have different sleep quality compared to their older counterparts (24-28 years), students with house jobs, and male students. However, fields of study, family system, socio-economic status, and marital status do not show significant differences in sleep quality among the medical students studied.

Table 7: Mean difference on WLB-based demographics (N=200)

Variable	Categories	t/f	P(sig)
Age	19-23 24-28	1.36	.003
Fields of Study			
	MBBS BDS	-.64	.906
House Job			
Family System	Yes No	-2.82	.163
Socio-economic status			
	Nuclear Joint	-.30	0.40
Material Status			
	Lower Middle Upper	1.15	.318
Gender			
	Married Un Married	.86	.970
	Male Female	1.17+	.173

This table presents the results of t-tests comparing Work-Life Balance (WLB) scores across different demographic variables among medical students. The t-values, F-values, and p-values indicate the statistical significance of differences in WLB scores based on various categories within each demographic variable. This table highlights those significant differences in work-life balance, as measured by the WLB scale, are observed in relation to age and family system, suggesting that younger students (19–23 years) and belonging to different family systems (nuclear versus joint) may experience different levels of work-life balance. However, fields of study, household employment status, socioeconomic status, marital status, and gender did not show any significant differences in work-life balance among medical students. This information may be useful for understanding demographics that affect work-life balance and guide targeted interventions for medical student well-being.

Discussion

The analysis reveals that social-emotional competence significantly affects various aspects of medical students' lives. Our findings align with previous research, indicating that higher social-emotional competence is associated with better academic performance and reduced stress levels. The social-emotional competence scale used in this study demonstrated high reliability (α = .81), suggesting that this is a robust measure for assessing these skills in medical students (Chew et al., 2014).

Work-life balance emerged as a crucial factor influencing the overall well-being of medical students. The work-life balance scale showed moderate reliability (α = .70), and our regression analysis identified significant predictors of work-life balance. Specifically, WLB4 (workload management) and WLB10 (social support) were significant predictors, with negative and positive impacts, respectively. This indicates that effective workload management and robust social support systems are vital for maintaining a healthy work-life balance was found to be a critical component of students' overall health and academic performance (Hoffmann-Burdzińska & Rutkowska, 2015).

The PSQI exhibited high reliability (α = .83). Our correlation analysis demonstrated significant relationships between sleep quality, social-emotional competence, and work-life balance. Poor sleep quality was significantly associated with lower academic performance and higher stress levels, confirming hypotheses that underscore the importance of adequate sleep for medical studentso (Pilz et al., 2018).

Hypothesis 1: Relationship Between Sleep Disturbances, Stress, and Academic Outcomes

Pearson correlation values (e.g., r = .274, p < .001) suggest that students with poor sleep quality experience higher stress and lower academic performance (Armand et al., 2021).

Hypothesis 2: Barriers and Facilitators of Work-Life Balance

Regression analysis highlighted that specific factor, such as workload management (WLB4) and social support (WLB10), act as significant barriers or facilitators to achieving a healthy work-life balance. The significant predictors in our model (p < .001 for WLB4 and WLB10) emphasize the need for targeted interventions to support students in these areas. Our findings support the hypothesis that medical students face significant challenges related to workload, clinical rotations, and personal commitments. These challenges are reflected in the significant relationships between various WLB scale items and overall work-life balance (Rashid et al., 2022).

Hypothesis 3: Gender and Age Differences

The analysis of demographic differences (tables 6, 7 and 8) revealed that age and family system significantly impact work-life balance, while fields of study, house job status, socio-economic status, marital status, and gender do not. This suggests that younger students and those from different family backgrounds may require additional. Future research should explore longitudinal effects of these variables and consider larger, more diverse samples to generalize findings across different medical schools and cultural contexts. Investigating the impact of specific interventions designed to improve social-emotional competence, work-life balance, and sleep quality can further our understanding and support the development of targeted strategies to enhance medical students' well-being (Abouammoh et al., 2020).

This discussion underscores the complex interplay between social-emotional competence, work-life balance, and sleep quality among medical students. By identifying key factors that influence

these variables, we can better understand the challenges faced by medical students and develop effective interventions to support their well-being and academic success (Weurlander et al., 2019).

Conclusion

This study comprehensive work-life balance and sleep quality among medical students. The findings highlight the importance of these factors in shaping students' overall well-being and academic performance. Social-emotional competence, work-life balance, and sleep quality are interrelated and significantly affect the well-being. Poor sleep quality is linked to higher stress levels and poorer academic outcomes. Barriers such as excessive workload and lack of support are significant barriers to achieving a healthy work-life balance. Interventions aimed at improving social-emotional skills and reducing sleep disturbances can enhance students' overall well-being and academic achievement.

First, the study concludes that asset for medical students. High levels of this ability are better equipped to handle the emotional and social demands of clinical training, leading to better work-life balance and improved sleep quality. This suggests that enhancing social-emotional skills through targeted interventions may be beneficial. Secondly, achieving medical students. People who balance their academic responsibilities with personal life activities report better sleep quality and lower stress levels. This study identifies key barriers and facilitators to achieving this balance, highlighting the need for medical schools to provide flexible schedules and strong support systems. Finally, the study emphasizes students' health and academic outcomes. Poor sleep quality is found in medical students and is associated with higher stress levels and poorer academic performance. This point to the need to promote good sleep hygiene and address factors that disrupt sleep. In conclusion, this research highlights the interrelationship of social-emotional competence, work-life balance and sleep quality in medical students. By addressing these areas holistically, medical schools can enhance the well-being and academic success of their students.

Recommendations

Based on the findings and conclusions of this study, several recommendations can be made to improve the well-being in terms of socio-emotional competence, work-life balance and sleep quality. Medical schools should implement training programs focused on developing social-emotional skills. Workshops and seminars on emotional intelligence, stress management, and interpersonal communication can equip students with the tools they need to navigate the emotional demands of their training. Establishing mentorship programs where experienced professionals provide guidance and support can help students build resilience and improve their social-emotional skills.

Medical institutions should consider more flexible scheduling options to help students manage their academic workload alongside personal commitments. This may include online learning options or staggered exam schedules. Providing strong support services, including counselling and academic advising, can help students manage stress and healthy balance between their studies and personal life. Medical institutions should educate. This can be done through orientation programs or dedicated health seminars.

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