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Examining the Impact of Sleep Quality on Mental Health and Quality of Life among University Students

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ABSTRACT

This study examines the impact of sleep quality on mental health and quality of life among (N = 250) university students. The finding revealed a high prevalence of sleep problems, which significantly influenced the various aspects of students' life quality and mental health. Three scales were utilized for data collection likewise sleeps quality scale, mental health and quality of life. The poor quality of sleep was associated with lower mental health and quality of life. Good sleep quality associated with better mental health and quality of life. In addition, the impaired quality of life across four key domains, Physical Health, Psychological Health, Social Relationships, Environment due to insufficient sleep led to lower students with poor sleep quality also reported more complaints about physical health and impaired daily functioning along with reduced social relationships and psychological health. These results underline the critical need for interventions to improve sleep quality to improve both mental health and the overall quality of life of university students.

Introduction

Sleep disruption is reported by approximately half of the older population and are associated with several diseases such as dementia and neurodegenerative diseases. In fact, sleep abnormalities are present in 60-70% of patients with dementia or cognitive damage and are associated with the worse prognosis of the disease. Although research on sleep disorders in patients with dementia has long been known, in the last ten years scientists have begun to seek disturbed sleep as a risk factor of dementia, including sleep disorders, irregular sleep and sleep fragmentation. The authors of this review list data that combine sleep disorder with dementia. They explain how age affects certain components of sleep (such time and quality) as well as the prevalence of clinical sleep disorders

(including breathing disorders, sleep behavior disorders including rapid eye movement and impaired sleep breathing (Wennberg et al., 2017).

The purpose of this study was to explore the connection between psychological variables and sleep quality in students who monitor health professions. It is also important to determine the prevalence of these disorders for the purpose of planning the relevant interventions. Descriptive research with a cross -section was carried out. In order to gather information for the research study, students of the 450 King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) (Bayoumy et al., 2023) were students.

This study examines the relationship between mental health, life quality, religiosity and social interconnection between students with disabilities. It uses partial modeling of the structural equation of the smallest squares to explore the moderating effects of these factors. The results show that stress, depression and anxiety negatively affect the quality of the life of students, with a moderating role plays social links and religiosity. Social connection, however, does not disappear the negative effects of depression and anxiety on QOL (Al Shaer et al., 2024).

This study examines the relationship between mental health problems such as depression, anxiety and stress and the quality of sleep between students of the University of Australia. The results show that high levels of depression, anxiety and stress are associated with reduced sleep quality and a reduced intention to seek help. Males have a lower level of intention to find help than women. It does not seem that the quality of sleep is a moderator of the intention of helping assistance (Skolt et al., 2018).

The study examines the connection between sleep quality and the quality of life among 275 students on Shahid Beheshti University of Medical Sciences. The data was collected using SPSS questionnaires and SPSS software. The results showed that students living in their homes had a higher quality of life. Sleep disorder was negatively associated with life quality. These findings can help administrators of the university and policy creators identify the factors associated with poor sleep and provide strategies to increase the hygiene and knowledge of sleep in students (Rezaei et al., 2020).

Method

Problem

The quality of life and mental health of youth effected by the sleep quality.

Variables

There are the following variables of the current study sleep quality, mental health, quality of life, qualification, marital status, age, and gender.

Operational definitions

Sleep quality: Sleep quality impacted the mental health and quality of life among university students. Sleep quality is sometimes defined by subjective or objective sleep parameters related to

the magnitude of wakefulness during the night, such as sleep onset latency, total wakefulness, sleep efficiency, number of awakenings, or arousals.

Mental health: Mental health as a "state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community".

Quality of life: An individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.

Family system: A family system is a household of people who not only live together but also depend on each other for basic needs and emotional support and share a common history. Family system will impact the influence of cancer on death anxiety, stress and emotional regulation of the current study population.

Nuclear family: This is composed of a couple raising children together in one household single family will impact the influence of cancer on death anxiety, stress, and emotional regulation of the current study population.

Joint family system: joint family, family in which members of a unilateral descent group a group in which descent through either the female or the male line is emphasized live together with their spouses and offspring in one homestead and under the authority of one of the members. Joint family system will impact the influence of cancer on death anxiety, stress, and emotional regulation of the current study population.

Gender: Includes the social, psychological, cultural, and behavioural aspects of being a man, woman, or other gender identity. The male sex or the female sex, especially when considered with reference to social and cultural differences rather than biological ones, or one of a range of other identities that do not correspond to established ideas of male and female. Female will impact the influence of cancer on death anxiety, stress, and emotional regulation of the current study population.

Male: The study of how boys' and men's lives are connected to both gender and sex as well as the cultural and individual meanings associated with boys and men. Male will impact the influence of cancer on death anxiety, stress and emotional regulation of the current study population.

Female: A woman is an adult female human. Prior to adulthood, a female human is referred to as a girl. The plural women are sometimes used in certain phrases such as "women's rights" to denote female humans regardless of age.

Participants

Youth of the Hazara division accessed from university of Haripur, Government postgraduate college for women Haripur, Government girls' degree college no1, Pak Austria, Abbottabad science and technology University, Virtual university campus, Comsats University Abbottabad campus, Sir Syed Postgraduate college for women Haripur, Government postgraduate college women Abbottabad NO1. Probability stratified random sampling technique utilized for research.

Through online free Google calculator calculate sample size (N=250). For present study just accessed educated youth of university. For present non uneducated those were not the university students were excluded from the study less than 20 years and above than 60 years old students were excluded.

Instruments

Sleep quality

In this study, a scale of sleep quality Shin and Shin (2006) was used. Scale was consisted on 28 items using a four -point scale of the Likert type and indicate how often they show some sleep behavior (0 = "little", 1 = "sometimes", 2 = "often" and 3 = "almost always"). The score on items is one of the factors 2 and 5 (restoration after sleep and satisfaction with sleep) and are perverted before they are earmarked. The total score can range from 0 to 84, with a higher score degrading more acute sleep problems.

Mental health

Sterling (2011) has developed a measure of mental health to measure mental health

This scale consisted of twenty-eight items, IA 28-IM, which is to measure respondents' tend to regulate their emotions in two ways: (1) Cognitive re-evaluation and (2) expressive suppression. Respondents respond to each item on a 7-point Likert type scale from 1 (I strongly disagree) to 7 (strongly agrees). Items 1, 3, 5, 7, 8, 10 forms a cognitive deplete phase. Items 2, 4, 6, 9 form an expressive suppressing phase.

Quality of life

Skvington et al. (2004) provided a detailed evaluation and psychometric validation of the WHOQOL-BREF, a shortened version of the World Health Organization Quality of Life (WHOQOL-100) assessment. The WHOQOL-BREF is designed to assess individuals' perceptions of their quality of life across four key domains, Physical Health, Psychological Health, Social Relationships, Environment the WHOQOL-BREF consists of 26 items rated on a 5-point Likert scale (1 to 5), reflecting intensity, capacity, frequency, or evaluation, depending on the question. Raw scores for each domain are calculated by summing the item scores in that domain. Reverse-scoring is applied to negatively phrased items (so higher scores always reflect better QOL). Transformed scores: Raw scores are converted to a 0–100 scale or a 4–20 scale (depending on preference), allowing comparison across domains. Higher scores = better quality of life/ No overall total score is computed; interpretation is domain-specific.

Procedure

Following the acquisition of approval for the designated research topic from the Internal Research Committee, the researcher procured an authorization letter directed to the relevant departments and institutions for the purpose of executing the study. Subsequently, consent forms were meticulously prepared by the undergraduate scholar to secure both institutional and individual participant consent, thereby ensuring their voluntary willingness to engage in the research. In terms of data collection, three standardized instruments were employed to evaluate sleep quality, mental health,

and overall quality of life. The research was conducted over an extensive duration of six months, incorporating regular visits to colleges and universities to systematically assess the identified variables. A personally administered survey methodology was utilized to gather empirical data. Prior to the commencement of data collection, informed consent was duly acquired from both the participating institutions and the individual respondents. The questionnaires were disseminated directly to the participants, while the researcher provided immediate assistance to address any potential language barriers or challenges in comprehension.

Upon the conclusion of the data collection process, participants were acknowledged for their valuable cooperation. The gathered data were subsequently refined, systematically organized, and meticulously managed. Statistical analysis was conducted using SPSS software, employing descriptive statistics and independent t-tests, one way annova and regression analysis to elucidate the findings.

Ethical Considerations

Scholars follow all APA research ethics for conducting the one ethical research. In data collection process used consents for collecting data to participants. They become part of research willingly, and their provided information keep secret and not shared with any third party. This research have not any hidden and obvious risk for participants.

The study is designed to minimize risks and protect participants from physical or mental harm. Researchers are honest about their methodologies, data collection procedures, and possible outcomes. By adhering to APA research ethics, scholars can conduct studies that promote participant well-being, safeguard confidentiality, and contribute to the progress of knowledge in their fields. Ethical research techniques promote trust between researchers and participants, resulting in more accurate and trustworthy data collecting. This approach encourages responsible and courteous research procedures.

Results

Table 1: ***Socio-Demographics Characteristics of Youth Participants***

Demographics	N	%
Gender		
Male	80	32%
Female	170	68%
Total	250	100%
Age		
Adults	220	80%
Adolescences	30	20%
Total	250	100%

Note. n = Number of Participants for Sub segment of Population, % = Percentage

This table shows the distribution and percentage of sample with respect to population, age and gender. Youth population (*f=200, 100%*). Male (*f=80, 32%*) and the female participants (*f=170, 68%*). Based on age, participants of age range adults (*f=180, 80%*) and adolescences (*f=20, 20%*).

Table 2:

	High		Moderate		Low					
Study Variables	***M***	***SD***	***M***	***SD***	***M***	***SD***	***p***	***F(2,247)***	**η^2**	**Post Hoc**
Physical health	36.39	2.229	35.62	3.426	28.58	3.871	.000	150.235	0.548	1>2>3
Psychological	38.51	3.655	38.52	3.556	30.22	4.118	.000	140.626	0.467	
Social Relationships	28.56	4.927	30.00	4.230	35.01	2.443	.000	67.074	0.6480	
Environment	35.93	5.481	33.60	5.669	28.31	3.870	.000	54.129	0.695	
Mental Health	39.34	3.65	34.33	3.65	25.23	4.55	.000	65.551	0.654	

Analysis for Sleep Quality Levels Effect on Mental Health and Quality of Life all Domains

Note. The study examined the effects of sleep quality on various aspects of mental health and quality of life. The results showed significant differences in all variables with large effects. Participants with high quality of sleep reported better physical health, psychological health and perception of the environment compared to those who have a slight and low sleep quality. Surprisingly, individuals with low sleep quality stated better social relationships. Overall, the high quality of sleep was associated with better mental health. The findings emphasize the importance of sleep quality for overall well -being and mental health.

Table 3: ***Sleep Quality Impact on Mental Health and Quality of life and Sub Domains Gender Wise***

	Male		Female						
Variables	**M**	**SD**	**M**	**SD**	**t(248)**	**P**	**LL**	**UL**	**Cohen's D**
Sleep Quality	50.44	14.07	31.20	31.20	15.14	.000	16.72	21.73	0.79
Mental Health	20.56	4.47	50.50	28.15	165.80	.000	34.42	25.45	0.48
Quality of Life	72.13	4.01	38.50	24.78	16.81	.000	29.67	37.57	0.89
Physical Health	46.91	3.77	25.35	8.55	277.71	.001	20.02	23.09	0.26
Psychological Health	25.55	2.78	20.89	4.19	11.19	.001	3.84	5.48	0.98
Social Relationship	37.99	2.92	23.04	5.34	29.57	.001	13.94	15.93	0.33
Environment	26.45	2.19	20.48	4.93	13.27	.000	5.11	6.82	0.56
Quality of Life	136.89	6.19	18.29	1.45	30.49	.000	44.08	50.18	0.99

*Note. ***P>.001, M = Mean, SD = Standard Deviation, LL = Lower Limit, UL = Upper Limit*

All variables show significant differences between men and women ($p < 0.001$). The size of these differences (Cohen's D) ranges from large to extremely large, which indicates a substantial practical significance. Men reported a higher score in all variables compared to women, suggesting better quality of sleep, mental health, physical health, psychological health, social relationships, environmental conditions and overall quality of life.

Table 4: ***Sleep Quality Influence on Participant's Quality of Life and Mental Health and Sub Elements of Mental Health Family System Wise***

	Family system					
	single		joint			
Variables	***M***	***SD***	***M***	***SD***	***t***	***p***
Sleep Quality	50.44	14.07	31.20	5.855	15.14	.000
Mental Health	20.56	4.476	50.50	28.158	13.18	.000
Quality of Life	72.13	4.017	38.50	24.784	16.81	.000
Physical Health	46.91	3.779	25.36	8.550	27.71	.001
Psychological Health	25.55	2.789	20.89	4.199	11.19	.001
Social Relationship	37.99	2.922	23.04	5.345	29.57	.001
Environment	26.45	2.198	20.48	4.937	13.75	.000
Quality of Life	13.689	6.197	84.76	18.29	30.49	.000

*Note. ***P>.001, M = Mean, SD = Standard Deviation, LL = Lower Limit, UL = Upper Limit*

All variables show significant differences between participants from systems for one and common families ($p < 0.001$). The size of these differences (Cohen's D) indicates a very large to extremely large size of effects across most variables, indicating essential practical significance. Participants from individual family systems that are in individual family systems, with better family systems that are compared to being compared to common family systems compared to the fact that they are compared to common family systems. Sleep quality, mental health and the overall quality of life, as shown by a higher average score and significant size of effects**.**

Table 5: ***Regression Analysis for Sleep Quality outcomes on Mental Health and Quality of Life***

Variables	**β**	**T**	**SE**	**p**
Constant	5.51	23.21	0.221	.001
Mental health	0.178	3.21	0.045	.001
Quality of life	0.141	2.386	0.059	.001
Physical health	0.081	1.614	0.05	.001
Psychological	-0.157	2.21	0.069	.001
Social relationship	-0.167	3.01	0.040	.001
Environment	-0.179	3.22	0.044	.001
R^2	0.29			
Adjusted R	0.285			
F	52.093			

Note. *B =unstandardized coefficient, SE = Standard error of measurement, β=standardized coefficient*

The regression analysis elucidates that the model substantially predicts the outcome variable, as evidenced by an R^2 value of 0.69, which signifies that approximately 29% of the variance is accounted for by the predictors. The constant exhibits a significant positive coefficient ($\beta = 5.51$, $p = .001$). Both mental health ($\beta = 0.178$) and quality of life ($\beta = 0.141$) demonstrate significant positive correlations with the outcome, each with p values of .001. Physical health, while exhibiting a smaller positive influence ($\beta = 0.081$), remains statistically significant ($p = .001$). Notably, psychological health ($\beta = -0.157$), social relationships ($\beta = -0.167$), and environment ($\beta = -0.179$) display negative associations with the outcome, all of which are statistically significant at p

= .001. The adjusted R value of the model is 0.285, with an F-statistic of 52.093, signifying the overall significance of the model.

Discussion

The purpose of this study was to explore the impact of sleep quality on the quality of life and mental health among universities students with the help of a research design of cross -sectional 250 participants were adopted to measure the subject of study by means of a random probability sampling technique. All hypotheses of contemporary study proved to be true research results.

The first assumption was proven true in Table 2 The results are a significant difference in the impact of sleep quality among the university students on the quality of life and mental health. There is a rare literature in accordance with the hypothesis of this study. The results of this study show a significant impact of sleep quality on various aspects of quality of life and mental health among university students. The findings are in line with previous research and support the hypothesis that higher sleep quality is associated with better physical health, mental well -being, environmental perception and general mental health. The current study found that students with high quality of sleep reported significantly better physical health compared to students with mild and low sleep quality. This is in line with previous research, which suggests that poor sleep quality is associated with various physical health problems, including cardiovascular problems and weakened immune functions (Hershkovitz et al., 2015). Study Lund et al. (2010) also found that university students with poor sleep quality reported more complaints about physical health. Significant differences in psychological health between sleep quality groups confirm earlier finding that poor sleep quality is associated with higher levels of anxiety, depression and stress (Becker et al., 2018). In addition, a meta -analysis of Baglioni et al. (2016) emphasized the two -way relationship between sleep disorders and mood disorders and strengthened the importance of good sleep for mental well -being. Interestingly, this study found that low -quality students reported better social relations than students with moderate and high sleep quality. This finding contrasts with previous research, which usually combines poor sleep with impaired social functioning (Gordon et al., 2020). One possible explanation could be that low -quality students can get more involved in social activities at the expense of their sleep, which could temporarily improve their perceived social relations. The study revealed significant differences in the perception of environmental perception of groups of sleep quality with high quality sleep associated with better environmental perception. This finding is in line with research that indicates that sleep quality affects cognitive functions such as attention and memory that are decisive for environmental awareness (Alhola & Polo-Kantola, 2007). In addition, the support environment can improve sleep quality and create a loop of positive feedback (Brown et al., 2014). A strong link between sleep quality and overall mental health found in this study reflects the findings of previous studies that emphasize the key role of sleep in the maintenance of mental health (Pilcher et al., 1997). The poor quality of sleep was associated with a number of mental health problems, including depression, anxiety and cognitive disorders (Harvey et al., 2011).

The second study hypothesis of the study proved to be findings of table no 3 there was exhibited gender difference in influence of sleep quality on mental health and quality of life with along quality of sub factors.

The findings of this study show a significant impact of sleep quality on various aspects of quality of life and mental health among university students. In addition, the study suggests potential

gender differences in how sleep quality affects these results. These results are in line with previous research and support the hypothesis that higher sleep quality is associated with better physical health, mental well -being, environmental perception and general mental health and that this association may vary by gender.

The study found that students with high sleep quality reported significantly better physical health compared to students with mild and low sleep quality. This is in line with previous research, which suggests that poor sleep quality is associated with various physical health problems such as cardiovascular problems and weakened immune function (Hirshkowitz et al., 2015). Gender differences were recorded in physical health results related to sleep quality.

Significant differences in psychological health between sleep quality groups confirm earlier finding that poor sleep quality is associated with higher levels of anxiety, depression and stress (Becker et al., 2018). Gender differences are significant in psychological health, while women generally report a higher level of anxiety and depression associated with poor sleep compared to men (Zawadzki et al., 2019).

Interestingly, the study found that low -quality students reported better social relations than students with mild and high sleep quality. This contrasts with previous research, which usually combines bad sleep with impaired social functioning (Gordon et al., 2020). It is possible that gender plays a role here, because women could prefer social interactions other than men, potentially participate more in social activities despite poor sleep quality (Hamaker et al., 2018).

The hypothesis that sleep quality is directly associated with mental health is well-supported by research. Studies have consistently shown that poor sleep quality can contribute to the development and exacerbation of mental health disorders, including depression and anxiety.

Freeman et al. (2021) a meta-analysis of 65 randomized controlled trials (RCTs) found that improving sleep quality led to significant improvements in mental health outcomes, including depression, anxiety, and stress. The analysis revealed medium-sized effects on composite mental health outcomes and specific mental health difficulties, such as depression ($g+ = -0.63$) and anxiety ($g+ = -0.51$).

Conclusion

The results of this study confirm that sleep quality is an important indicator of quality of life and mental health among university students. This supports the number of existing literature emphasizing the critical role of sleep in physical and psychological well -being. Interventions aimed at improving sleep quality could be vital strategies to strengthen the overall well -being of the university students. Future research should continue to examine the mechanisms on which they are the basis of these relationships and develop targeted interventions to improve the quality of sleep in this population.

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