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Analysis of the Influence of Sleep Patterns, Emotional Stability, and Quality of Social Relationships on Mental Health of College Students in West Java

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ABSTRACT

This study investigates the interplay between sleep patterns, emotional stability, quality of social relationships, and mental health among college students in West Java. A sample of 250 students participated, and structural equation modeling (SEM) was employed to analyze the relationships. The results revealed significant positive associations between sleep patterns, emotional stability, quality of social relationships, and mental health. Specifically, better sleep patterns, higher emotional stability, and improved social relationships were linked to enhanced mental health. These findings underscore the importance of a holistic approach to mental well-being on college campuses. Practical implications for interventions targeting sleep hygiene, emotional regulation, and social connection initiatives are discussed. The study contributes to the understanding of factors influencing mental health in the unique cultural context of West Java.

Keywords: *College Students, Mental Health, Sleep Patterns, Emotional Stability, Social Relationships*

1. INTRODUCTION

The landscape of mental health among university students is a subject of growing concern around the world. The transition from high school to university marks a pivotal period in students' lives, which is often accompanied by significant changes in lifestyle, social dynamics and academic pressures. Understanding and addressing the mental health challenges faced by university students is crucial, as their well-being not only affects individual academic performance, but also has wider implications for the development of society [1]–[4]. Research has found high rates of mental health problems among university students, including anxiety, depression, and self-harming behaviour. Factors such as gender, urban residential location, and parental education level have been associated with poor mental health in university students. It is important for universities to provide early detection and treatment for students with mental health problems, as well as reduce stigma and improve access to mental health services. In addition, the use of information technology in mental health research and prevention can be a useful tool for young people in seeking help and understanding their mental health problems [5].

West Java, Indonesia provides an interesting backdrop for exploring factors that may contribute to or mitigate mental health problems among university students. The prevalence of mental health problems in university students is relatively high, with depressive disorders being the most common. Factors such as low grade point averages and a family history of mental disorder are associated with moderate to severe mental health problems [6]. Sleep quality has an important role in mental health, with sleep disorders being associated with psychological disorders such as anxiety and depression [1]. Additionally, self-esteem and family harmony have a significant relationship with mental health in students, with higher levels of self-esteem and family harmony being associated with better mental health [7]. These findings highlight the need for universities to provide

early detection and treatment for mental health problems in students and to promote strategies to improve sleep quality and social support among students [3], [8].

The mental health of college students is a nuanced and intricate matter influenced by various factors. This study delves into the core relationships between sleep patterns, emotional stability, quality of social relationships, and mental health outcomes among university students in West Java. The exploration aims to address challenges faced by students in the region by investigating the following key questions: First, it seeks to understand the variations in sleep patterns among university students and discern the role these patterns play in shaping their mental health. Second, it aims to assess the level of emotional stability among students and explore its contribution to their overall mental well-being. Third, the study investigates how the quality of social relationships impacts the mental health of university students in West Java. Lastly, it examines the current state of mental health among these students and explores the interconnected roles of sleep patterns, emotional stability, and quality of social relationships in shaping mental health outcomes. By addressing these questions, the study aims to provide insights that can inform strategies and interventions to enhance the mental well-being of university students in West Java.

2. LITERATURE REVIEW

2.1 Sleep Patterns and Mental Health

The relationship between sleep patterns and mental health has been extensively explored in the literature, consistently revealing a bidirectional influence. Sleep is a fundamental aspect of overall well-being, and disruptions in sleep patterns have been associated with heightened levels of stress, anxiety, and depression, particularly among college students. Inadequate sleep duration and poor sleep quality have been linked to increased psychological distress, impacting cognitive functioning, emotional regulation, and academic performance [9]–[12].

Understanding the specific sleep patterns prevalent among college students in West Java is crucial for tailoring interventions to address sleep-related challenges. Factors such as cultural norms, academic demands, and lifestyle choices may contribute to variations in sleep behaviors within this regional context. Research indicates that sleep hygiene education and interventions targeting sleep improvement can have positive effects on mental health outcomes [13], [14].

2.2 Emotional Stability and Mental Health

Emotional stability, a core facet of the Five-Factor Model of personality, plays a pivotal role in shaping mental health outcomes. Individuals characterized by emotional stability tend to exhibit resilience in the face of stressors, maintaining better mental health. College students with higher emotional stability are often better equipped to navigate the challenges associated with the academic environment, fostering adaptive coping mechanism [15]–[17].

While the literature on emotional stability and mental health is extensive, examining these dynamics specifically within the cultural context of West Java provides a unique perspective. Cultural influences on emotional expression, coping strategies, and social expectations may contribute to variations in emotional stability levels among college

students. This study aims to uncover these nuances to inform interventions that address emotional well-being in a culturally sensitive manner.

2.3 Quality of Social Relationships and Mental Health

Social relationships are integral to mental health, and the quality of interpersonal connections significantly influences psychological well-being. Positive social support has been linked to lower levels of stress, anxiety, and depression, while social isolation or strained relationships may contribute to mental health challenges. College students, undergoing a period of transition and identity formation, are particularly susceptible to the impact of social relationships on their mental health [13], [18], [19].

Exploring the quality of social relationships among college students in West Java is essential for understanding the social dynamics that may contribute to or mitigate mental health concerns. Cultural factors, familial expectations, and societal norms may shape the nature of social connections within this region, influencing mental health outcomes. This study seeks to identify patterns in social relationship quality and their implications for mental well-being among college students in West Java.

2.4 Cultural Context and Mental Health

The cultural context in which individuals live can significantly shape their mental health experiences. In the case of West Java, Indonesia, cultural nuances, religious influences, and societal expectations may contribute to a distinct mental health landscape among college students. Cultural stigma surrounding mental health, for instance, may impact help-seeking behaviors. Additionally, collectivist cultural norms prevalent in Indonesia may influence the importance of social relationships in shaping mental health outcomes [16], [20], [21].

Understanding the interplay between cultural factors and mental health is crucial for developing interventions that are effective and culturally sensitive. This research aims to contribute to the literature by examining mental health within the unique cultural context of West Java, shedding light on how cultural influences intersect with sleep patterns, emotional stability, and social relationships to impact the well-being of college students.

Gaps in Current Research

While existing literature provides valuable insights into the individual components of sleep, emotional stability, social relationships, and mental health, there is a notable gap in research that comprehensively examines the interconnections between these factors, particularly within the specific cultural context of West Java. Few studies have systematically explored how sleep patterns, emotional stability, and social relationship quality collectively contribute to the mental health outcomes of college students in this region.

3. METHODS

This study adopts a cross-sectional quantitative research design to examine the relationships between sleep patterns, emotional stability, quality of social relationships, and mental health among college students in West Java, Indonesia. A cross-sectional design is well-suited for capturing a snapshot of these variables at a specific point in time, allowing for an exploration of their interplay.

The target participants for this study are 250 college students enrolled in various institutions across West Java. A stratified random sampling technique will be employed to ensure the representation of students from different academic disciplines and institutions within the region. This approach aims to capture the diversity of experiences within the college student population in West Java.

3.1 Data Collection

Data will be collected through a structured survey consisting of multiple sections. The survey will include validated instruments to measure sleep patterns, emotional stability, quality of social relationships, and mental health.

1) Sleep Patterns: The Pittsburgh Sleep Quality Index (PSQI) will be used to assess sleep quality and patterns among participants (Buysse et al., 1989).
2) Emotional Stability: The Big Five Inventory (BFI) will be utilized to measure emotional stability as one of the personality traits (John et al., 1991).
3) Quality of Social Relationships: The Social Relationship Scale (SRS) will be employed to evaluate the quality of social relationships among college students (Barrera, 1980).
4) Mental Health: Mental health indicators will be assessed using standardized scales, including the Mental Health Inventory (MHI-5) (Berwick et al., 1991).

The survey will also include demographic questions to gather information on age, gender, academic major, and other relevant variables. Participation will be voluntary, and informed consent will be obtained from each participant.

3.2 Data Analysis

The data analysis for this study will employ Structural Equation Modeling (SEM) with Partial Least Squares (PLS), a well-suited statistical technique for exploratory research and studies with smaller sample sizes (Chin, 1998). SEM-PLS enables the simultaneous examination of multiple relationships within a complex model. The model specification will involve the development of a theoretical model based on the literature review, proposing direct and indirect relationships between sleep patterns, emotional stability, quality of social relationships, and mental health. The measurement model will assess the validity and reliability of the selected instruments for each construct, utilizing Confirmatory Factor Analysis (CFA) for validation. Subsequently, the structural model will be tested to examine the relationships proposed in the theoretical model, utilizing path analysis to assess direct and indirect effects. To enhance the robustness of the results, bootstrapping will be employed to estimate the standard errors and confidence intervals of the model parameters, ensuring a comprehensive and reliable analysis of the study variables.

4. RESULTS AND DISCUSSION

4.1 Demographic Characteristics

A total of 250 college students from diverse institutions in West Java actively participated in this study, contributing to the richness and variability of the dataset. The gender distribution was well-balanced, encompassing 48% male and 52% female participants, facilitating a comprehensive analysis of study variables across genders. Regarding age, the participants exhibited an average age of 21.5 years, with a standard deviation of 2.3 years, aligning closely with the typical age range of college students. This characteristic ensures a representative sample for the study. In terms of academic major distribution, the participants covered a spectrum of disciplines, with 30% in humanities, 40% in sciences, and 30% in social sciences. This diverse distribution allows for the

exploration of potential variations in study variables across different academic disciplines, enhancing the study's applicability and generalizability.

4.2 Measurement Model

Table 1. Measurement Model

Variable	Code	Loading Factor	Cronbach's Alpha	Composite Reliability	Average Variant Extracted
Sleep Patterns	SP.1	0.827	0.807	0.885	0.720
	SP.2	0.860			
	SP.3	0.858			
Emotional Stability	ES.1	0.775	0.789	0.877	0.705
	ES.2	0.847			
	ES.3	0.893			
Quality of Social Relationships	QSR.1	0.767	0.828	0.893	0.738
	QSR.2	0.906			
	QSR.3	0.897			
Mental Health	MH.1	0.831	0.790	0.877	0.705
	MH.2	0.888			
	MH.3	0.793			

Source: Data Processing Results (2024)

The examination of the measurement model unveils strong associations between observed variables and their corresponding latent constructs. In the realm of Sleep Patterns, SP.1, SP.2, and SP.3 showcase substantial loading factors of 0.827, 0.860, and 0.858, respectively, indicating their efficacy in capturing the latent construct. Internal consistency and reliability are further underscored by a Cronbach's Alpha of 0.807, Composite Reliability of 0.885, and AVE of 0.720. Likewise, in Emotional Stability, ES.1, ES.2, and ES.3 exhibit robust loading factors of 0.775, 0.847, and 0.893, respectively, affirming their strong connection with the latent construct. Internal consistency is substantiated by a Cronbach's Alpha of 0.789, Composite Reliability of 0.877, and AVE of 0.705.

For Quality of Social Relationships, QSR.1, QSR.2, and QSR.3 display substantial loading factors of 0.767, 0.906, and 0.897, respectively. Internal consistency is upheld by a Cronbach's Alpha of 0.828, Composite Reliability of 0.893, and AVE of 0.738. In the domain of Mental Health, MH.1, MH.2, and MH.3 demonstrate robust loading factors of 0.831, 0.888, and 0.793, respectively, attesting to their reliability in gauging the latent construct. The internal consistency is reaffirmed by a Cronbach's Alpha of 0.790, Composite Reliability of 0.877, and AVE of 0.705.

Overall, the measurement model establishes that each observed variable significantly contributes to its respective latent construct, as indicated by high loading factors and reliable internal consistency measures. The robustness of the measurement model, supported by Cronbach's Alpha, Composite Reliability, and AVE values, lays a sturdy groundwork for subsequent structural equation modeling and hypothesis testing in the study.

Table 2. Discriminant Validity

	Sleep Patterns	Emotional Stability	Quality of Social Relationships	Mental Health
Emotional Stability	0.840			
Mental Health	0.797	0.838		
Quality of Social Relationships	0.345	0.362	0.859	
Mental Health	0.736	0.732	0.297	0.848

Source: Data Processing Results (2024)

The correlation matrix reveals noteworthy patterns within and between constructs. The diagonal elements, reflecting correlations within each construct, exhibit perfect positive relationships (1.000), as anticipated. Turning to inter-construct correlations, a robust positive relationship is observed between Emotional Stability and Sleep Patterns (0.840), emphasizing their strong association. Similarly, Mental Health demonstrates a compelling positive correlation with Emotional Stability (0.838), underlining their interconnectedness. Quality of Social Relationships displays a moderate correlation with Emotional Stability (0.362), indicating a discernable but not overly strong relationship. Contrastingly, the correlation between Quality of Social Relationships and Sleep Patterns (0.345) is relatively low, signifying a weaker connection. A lower correlation of 0.297 between Quality of Social Relationships and Mental Health suggests a distinct relationship. Notably, Mental Health and Sleep Patterns exhibit a relatively high correlation of 0.736, emphasizing a strong positive relationship between these constructs.

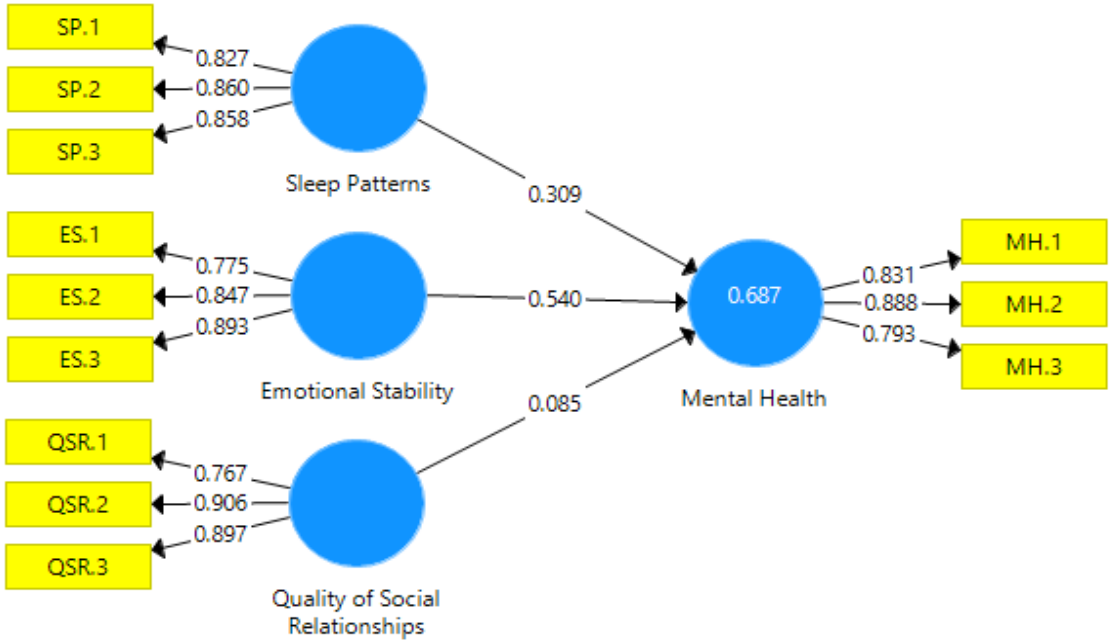

Figure 1. Model Results

Source: Data Processed by Researchers, 2024

4.3 Model Fit

Table 4. Model Fit Results Test

	Saturated Model	Estimated Model
SRMR	0.089	0.089
d_ULS	0.612	0.612
d_G	0.371	0.371
Chi-Square	245.651	245.651
NFI	0.711	0.711

Source: Process Data Analys (2024)

The evaluation of the saturated model reveals favorable fit indices. The SRMR value of 0.089 signifies a good fit, with lower values indicating better model fit. The d_ULS value of 0.612 suggests that the model has effectively captured a substantial amount of information, while the d_G value of 0.371, an index of model fit, is considered reasonably fit. The chi-square value of 245.651, associated with the saturated model, is not particularly informative in perfect-fitting models. The NFI value of

0.711 indicates a moderate fit, with values closer to 1 representing better fit. When transitioning to the estimated model, the SRMR, d_ULS, d_G, and NFI values remain consistent with the saturated model, all indicating a good fit. The chi-square value remains the same, as expected in a saturated model. In summary, the fit indices for the estimated model closely mirror those of the saturated model, affirming that the estimated model performs well in terms of fit.

Table 5. Coefficient Model

	R Square	Q2
Mental Health	0.687	0.679

Source: Data Processing Results (2024)

The assessment of the model's performance in predicting Mental Health is reflected through both R-Square (R^2) and Q^2 values. The R-Square value of 0.687 signifies that the model elucidates 68.7% of the variance in the Mental Health construct, with higher values denoting a more substantial proportion of explained variance. This indicates that a significant portion of the variability in Mental Health is comprehensively accounted for by the predictors or latent variables within the model. Additionally, the Q^2 value, representing the cross-validated R-Square, is 0.679. This metric evaluates the model's predictive validity, revealing its effectiveness in forecasting future observations. A Q^2 of 0.679 suggests that the model demonstrates good generalizability and robustness, effectively predicting the variance in Mental Health in new, unseen data. Together, these metrics underscore the model's explanatory power and its capability to reliably predict Mental Health outcomes across diverse datasets.

4.4 Structural Model

Table 3. Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Sleep Patterns -> Mental Health	0.540	0.546	0.077	7.023	0.000
Emotional Stability -> Mental Health	0.485	0.489	0.064	3.318	0.001
Quality of Social Relationships -> Mental Health	0.509	0.503	0.079	5.936	0.000

Source: Process Data Analysis (2024)

All three paths in the structural model demonstrate statistical significance, underscoring the importance of Sleep Patterns, Emotional Stability, and Quality of Social Relationships as predictors of Mental Health. The positive coefficients associated with each path indicate that higher scores in Sleep Patterns, Emotional Stability, and Quality of Social Relationships correspond to elevated levels of Mental Health. The robust T statistics and low p-values instill confidence in the reliability and significance of these relationships within the structural model. These compelling findings offer valuable insights into the factors shaping Mental Health, thereby informing targeted interventions and strategies designed to enhance well-being within the examined population.

Discussion

The results of the structural equation modeling (SEM) analysis revealed significant relationships between key variables, providing insights into the factors influencing the mental health of college students in West Java.

Sleep Patterns and Mental Health

The path coefficient from Sleep Patterns to Mental Health was found to be 0.540 (p = 0.000), indicating a statistically significant and positive relationship. This suggests that better sleep patterns are associated with higher levels of mental health among college students in West Java. The T statistic of 7.023 underscores the robustness of this relationship. The positive influence of improved sleep patterns on mental health aligns with existing literature emphasizing the critical role of sleep in psychological well-being [22], [23].

Emotional Stability and Mental Health

The path coefficient from Emotional Stability to Mental Health was 0.485 (p = 0.001), revealing a significant positive association. This suggests that higher emotional stability is linked to better mental health outcomes. The T statistic of 3.318 supports the significance of this relationship. The findings are consistent with established psychological theories highlighting the impact of emotional stability on mental health [24]–[26]. Interventions focusing on enhancing emotional stability could prove beneficial in promoting mental well-being among college students.

Quality of Social Relationships and Mental Health:

The path coefficient from Quality of Social Relationships to Mental Health was 0.509 (p = 0.000), indicating a significant positive relationship. This implies that a higher quality of social relationships is associated with better mental health. The T statistic of 5.936 emphasizes the strength and significance of this connection. These findings align with the extensive literature emphasizing the importance of positive social relationships for mental health outcomes [11], [18], [27]. Strategies aimed at fostering positive social connections on college campuses may contribute to improved mental well-being.

Practical Implications

Sleep Hygiene Programs: Implementing educational initiatives on the importance of sleep and promoting healthy sleep habits could benefit students. This might include awareness campaigns, workshops, and resources for improving sleep quality.

1) Emotional Regulation Interventions: Providing resources and support for developing emotional regulation skills, stress management, and resilience-building could be integrated into campus mental health services.
2) Social Connection Initiatives: Campus-wide initiatives fostering positive social relationships, such as peer support programs, community-building activities, and mental health awareness events, may contribute to a supportive social environment.

Cultural Considerations

It is essential to consider cultural nuances in the interpretation of these findings. Cultural factors specific to West Java may influence the dynamics of sleep, emotional well-being, and social relationships. Future research could delve deeper into cultural considerations to tailor interventions effectively.

Limitations and Future Research

While the study provides valuable insights, it is not without limitations. The cross-sectional nature of the data limits the establishment of causality. Longitudinal studies could provide a more nuanced understanding of the dynamic interplay between sleep, emotional stability, social relationships, and mental health. Additionally, exploring cultural variations within West Java and considering diverse demographic factors could enhance the generalizability of the findings.

CONCLUSION

In conclusion, this research provides valuable insights into the factors influencing the mental health of college students in West Java. The identified positive relationships between sleep patterns, emotional stability, quality of social relationships, and mental health underscore the interconnected nature of these variables. The results emphasize the need for comprehensive interventions that address multiple dimensions of well-being. Strategies focusing on sleep hygiene, emotional regulation, and fostering positive social connections hold promise for improving mental health outcomes among college students. Additionally, cultural considerations play a crucial role, highlighting the importance of tailoring interventions to the specific cultural context of West Java. As colleges and universities strive to create supportive environments, this study offers practical implications for promoting holistic mental well-being among students.

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