

# Sleeping on Success: How Sleep Quality Shapes the Psychological Well-Being of Malaysian Undergraduates

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## Abstract

*This study examines the relationship between sleep quality and psychological well-being among 110 Malaysian undergraduate students recruited through convenience sampling. Utilizing a self-reported questionnaire, sleep quality was assessed through the Pittsburgh Sleep Quality Index (PSQI), while the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) measured psychological well-being. Pearson correlation and independent sample t-tests were conducted to analyze the data. Results indicate a weak negative correlation between sleep quality and psychological well-being ( $r = -0.318$ ,  $p < 0.001$ ), suggesting that poor sleep quality is associated with reduced well-being. No significant differences were observed in sleep quality between on-campus and off-campus students ( $p = 0.298$ ); however, students living on-campus reported significantly higher psychological well-being ( $p = 0.015$ ). These findings highlight the need for targeted interventions, such as class schedule adjustments, to enhance overall student well-being in Malaysian higher education settings.*

**Keywords:** Sleep quality, Psychological well-being, Students living on-campus, Students living off-campus, Commuting.

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## 1. INTRODUCTION

Amid the complexities of university life, where academic pressures intersect with personal development and new experiences, sleep frequently becomes a neglected aspect of student life. However, it plays a crucial role in maintaining well-being, stabilizing emotions, enhancing cognitive function, and supporting mental health. As students strive to balance academic obligations, social engagements, and future ambitions, their sleep quality significantly influences their capacity to adapt and succeed. The purpose of this study is to investigate the significant connection between undergraduate undergraduates' psychological health and sleep quality in Malaysia, particularly in the context of varying residential statuses and commuting patterns that may further affect this relationship.

In the world of higher education, striving for academic success is commendable, yet it frequently comes at the cost of adequate sleep. This trade-off between academic performance and sleep often leads to sleep deprivation, which in turn heightens the risk of poor sleep quality. Approximately 10% of young adults experience poor sleep quality, making it a common concern. Voelker (as cited in Zhai et al., 2018) emphasised the disruption of biological sleep cycles in college students because they work late at night to complete assignments, which is further exacerbated by environmental noise during sleep and later compounded by social integration demands.

In Malaysian research by Ismail et al. (2021), sleep deprivation among medical students in Malaysia found that about 15.9 per cent of medical students have trouble falling asleep because of the

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academic demands of their training and because they use electronics right before bed. The study clarified how sleep deprivation contributed to morning fatigue in students and discovered a notable difference between sleep deprivation and human functioning among medical students concerning alertness and academic performance. Furthermore, 84 per cent of undergraduate Malaysian pharmacy students in Hanapi et al. (2021) study had an average of poor sleep quality, associated with noticeably worse emotional well-being compared to people who slept well. Therefore, a crucial concern arises over the quality of sleep that Malaysian students receive.

Since most studies on the relationship between sleep quality and psychological well-being among Malaysian university students concentrate on medical and health sciences students, there is a severe insufficient understanding about the experiences of students enrolled in different undergraduate programs (Hanapi et al., 2021; Haque et al., 2018). It is important to examine medical and health sciences students because of their demanding academic and clinical responsibilities; nevertheless, concentrating just on this demographic restricts the generalizability of results to a broader group of university students (Haque et al., 2018). Thus, comprehensive studies involving students from a variety of undergraduate programmes are required for a broader comprehension of the elements impacting well-being and quality of sleep throughout Malaysia.

Another important factor is in the context of students living residence emphasizing on those who live on-campus and off-campus. Financial reasons, being close to family, and the lack of on-campus accommodation are some of the factors that impact this decision (Nelson et al.; U.S. Department of Education, as cited in Jamil et al., 2022). According to a study by Nomoto et al. (as cited in Hori et al., 2020), students living off-campus commutes longer which appear to be associated with shorter sleep lengths. This is consistent with research conducted in the European Union, which found that commute times have an impact on the daily resting period which result in stress and poorer quality sleep (Dokkedal-Silva et al., 2022).

Although commuting is an essential aspect of college life, less is known about how it affects sleep quality and psychological well-being among Malaysian students. Even with the increasing number of studies looking at university students' sleep patterns and mental health (Armand et al., 2021; Chiang et al., 2020; Hanapi et al., 2021; Liu et al., 2022; Zhai et al., 2018), there is still a research gap about how living residence affect psychological well-being. Even though various factors affecting sleep and well-being have been studied, there is a research gap when it comes to the unique challenges experienced by students who lives off-campus compared to on-campus. The duration and mode of commute, and the difficulties they had travelling to campus can all have a big impact on how students sleep and function overall.

In the following, in order to comprehend how sleep quality affects Malaysian undergraduate students' psychological health, the researcher promptly went over the theoretical basis of the research. The current study was based on George Engel's Biopsychosocial Model, which could be utilised to understand how complex connections between biological, psychological, and social variables can affect sleep quality. The biopsychosocial model integrates biological, psychological, and social dimensions in the analysis of health outcomes. To operationalise the biopsychosocial framework in this study, the biological dimension was captured through the physiological and behavioural indicators of sleep embedded within the seven PSQI components — namely subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disruptions, use of sleep medication, and daytime dysfunction. The psychological dimension was assessed through the Warwick-Edinburgh Mental Well-Being Scale, which captures subjective psychological well-being through cognitive and emotional regulation indicators. Although the social dimension was not directly measured using a standardised instrument, residential status (on-campus versus off-campus) was included in Section A of the questionnaire as a contextual social factor that may influence both sleep quality and psychological well-being through differences in commuting experiences. This explicit alignment between the three theoretical dimensions and the selected instruments strengthens the conceptual coherence of the present study.

Falup Pecurariu et al. (2021) have emphasised that sleep is an essential restorative behavioural state that requires precise coordination of multiple biological and chemical systems. Secondly,

according to Kortesoja et al. (2020), psychological dimensions further contribute to the understanding of sleep quality, encompassing cognitive processes and emotional regulation whereby insufficient sleep length and disorders are linked to internalising and externalising challenges, affecting mood, focus, and cognitive abilities. Lastly, social factors are integral components of sleep patterns, as according to Xiao et al. (2020), social capital affects both sleep quality and mental well-being which include social support, peer interactions, and societal expectations. When responsibilities and demands from both work and personal life overlap, conflict may occur. Recognizing the dynamic nature of these factors, the theoretical framework acknowledges correlative influences and feedback loops. Interactions among biological, psychological, and social dimensions creates a system where disturbances in one domain can affect the others negatively. The objectives, research questions and hypotheses of the research are shown in Table 1.

Table 1. Summary of research objectives, research questions and hypotheses

Research objectives	Research questions	Hypotheses
<b>To investigate the relationship between sleep quality and the psychological well-being among Malaysian undergraduate students</b>	What is the relationship between sleep quality and psychological well-being among Malaysian undergraduate students?	<b>H<sub>1</sub>:</b> There is a significant relationship between sleep quality and the psychological well-being of Malaysian undergraduate students.
<b>To examine the difference in sleep quality and psychological well-being between students who live on-campus and students who live off-campus in Malaysia.</b>	Is there a significant difference in sleep quality and psychological well-being between students who live on-campus and students who live off-campus in Malaysia?	<b>H<sub>2</sub>:</b> There is a significant difference in sleep quality and psychological well-being between students who live on-campus and students who live off-campus in Malaysia.

## 2. MATERIALS AND METHODS

This research employed a cross-sectional quantitative method using quasi-experimental design where convenient sampling method was used. Data was collected by distributing the questionnaire through Google Forms, which was disseminated via various social media platforms (WhatsApp, Instagram, Facebook and Telegram) to Malaysian undergraduate students currently enrolled in public universities. Google Forms was selected for its accessibility, ease of distribution, and automated data exportation, which streamlined the data collection process and enhanced replicability. The Google Form was divided into three (3) sections: demographic, Pittsburgh Sleep Quality Index (PSQI) and Warwick Edinburgh Mental Wellbeing Scale (WEMWBS) with 33 items. The population sample was quantitatively summarised using descriptive statistic. To see if there is a relationship between psychological well-being and sleep quality, a Pearson Correlation test was also conducted. Additionally, the Independent Sample T-test is used to examine the differences in psychological well-being and sleep quality between Malaysian students who reside on and off campus. The online questionnaire's summary description is presented in Table 2.

### Section A: Demographic Profile

Gender, race, age, year of study, university, CGPA, socioeconomic status and residential were included in this section.

## Section B: Pittsburgh Sleep Quality Index (PSQI)

This section consists of the inventory formulated by Buysse et al. (1989). This self-reported inventory consists of 19 items that focus on seven components of sleep quality which are subjective sleep quality, subjective sleep latency, subjective sleep length, subjective sleep efficiency, sleep disruptions, usage of sleep medicine, and dysfunction during the day. Items in the inventory does not have a fixed scale point and some items are subjective. An overall poor sleep quality was indicated by a cut score of 5 or above (5-21), while a score below 5 (0-5) indicated good overall sleep quality. Items 1-4 are open-ended questions. Meanwhile, item 5 (5a – 5i) and item 6 and 7 in the inventory uses a 4-point Likert scale: 0 = “Not during the past month”, 1 = “Less than once a week”, 2 = “Once or twice a week” and 3 = “Three or more times a week” and only question 5j is open-ended. Item 8 4-point Likert scale ranging from 0 to 3 whereby 0 indicates “No problem at all”, 1 indicates “Only a very slight problem”, 2 indicates “Somewhat of a problem” and 3 indicates “A very big problem”. A Cronbach's  $\alpha$  value of 0.83 was obtained from the seven component scores, indicating a fair degree of internal consistency.

## Section C: Warwick Edinburgh Mental Wellbeing Scale (WEMWBS)

To measure psychological well-being, the study used a 14-item inventory formulated by Tennant et al. (2007) that focuses on both hedonic and eudaimonic components of well-being. All items were rated on a five-point Likert scale: 1 = “None of the time”, 2 = “Rarely”, 3 = “Some of the time”, 4 = “Often” and 5 = “All of the time”. The total score, which goes from a minimum of 14 to a maximum of 70, is the sum of the points for each item. A higher score implied higher degree of subjective well-being. This inventory has a Cronbach's  $\alpha$  coefficient of 0.89.

Table 2. Summary description of the online self-report questionnaire.

Variable	Number of items	Source of questionnaire
Demographic background	8	-
Pittsburgh Sleep Quality Index (PSQI)	19	Buysse et al. (1989)
Warwick Edinburgh Mental Wellbeing Scale (WEMWBS)	14	Tennant et al. (2007)
<b>Overall items</b>	<b>41</b>	

## 3. RESULTS

A total of 110 undergraduate students from public universities in Malaysia took part in the study. There were 20% (n = 22) male participants and 80% (n = 88) female participants, indicating an uneven gender representation in the sample. A significant portion of respondents (59.1%, n = 65) were between the ages of 19 and 22, and a majority identified as Bumiputera Sarawak (40.9%, n = 70). Additionally, a large subset of the sample consisted of third-year students (63.6%) from Universiti Malaysia Sarawak (UNIMAS) (72.7%, n = 80), and 59.1% (n = 65) had a CGPA of 3.50-4.00. Nearly half of the participants came from the B40 socioeconomic group (46.4%), and the residential distribution was relatively balanced, with 53.6% (n = 59) living on-campus and 46.4% (n = 51) living off-campus (see Table 3 for demographic details).

**Table 3.** Summary of demographic characteristics.

<b>Item</b>	<b><i>n</i></b>	<b>%</b>
<b>Gender</b>		
Male	22	20
Female	88	80
<b>Age</b>		
19 to 22	65	59.1
23 to 26	45	40.9
27 to 30	0	0
31 and above	0	0
<b>Race</b>		
Malay	41	40
Chinese	19	5.5
Indian	7	2.7
Bumiputera Sarawak	70	40.9
Bumiputera Sabah	38	10.9
<b>Academic Year</b>		
Year 1	13	11.8
Year 2	20	9.1
Year 3	70	63.6
Year 4	17	15.5
Year 5	0	0
<b>Institution</b>		
Institut Pendidikan Guru (IPG)	3	2.7
Polytechnic Institute	2	1.8
Universiti Islam Antarabangsa Malaysia (UiAM)	3	2.7
Universiti Teknologi MARA (UiTM)	15	13.6
Universiti Malaya (UM)	1	0.9
Universiti Malaysia Pahang (UMP)	1	0.9
Universiti Malaysia Sabah (UMS)	1	0.9
Universiti Malaysia Terengganu (UMT)	1	0.9
Universiti Malaysia Sarawak (UNIMAS)	80	72.7
Universiti Putra Malaysia (UPM)	1	0.9
Universiti Sains Islam Malaysia (USIM)	1	0.9
Universiti Sains Malaysia (USM)	1	0.9
<b>CGPA</b>		
2.49 and below	2	1.8
2.50 to 2.99	11	10
3.00 to 3.49	32	29.1
3.50 to 4.00	65	59.1
<b>Socioeconomic status</b>		
B40	51	46.4
M40	47	42.7
T20	12	10.9

**Residential**

On-campus	59	53.6
Off-campus	51	46.4
	<b>110</b>	<b>100</b>

The first hypothesis proposed that psychological well-being of Malaysian undergraduate students would be significantly correlated with the quality of their sleep. A weak negative association between psychological well-being and sleep quality was found by the Pearson correlation analysis ( $r(110) = -0.318, p < .001$ ; see Table 4). This weak association suggests that while better sleep quality (lower PSQI scores) is associated with higher psychological well-being (higher WEMWBS scores), the relationship is not strongly predictive. It is essential to note that the weak correlation implies that other factors not measured in this study could significantly contribute to psychological well-being, indicating a multifactorial influence beyond sleep quality alone.

Table 4. Pearson correlation between sleep quality (PSQI) and psychological well-being (WEMWBS).

Correlation		
	<i>p-value</i>	<i>r-value</i>
Sleep quality and psychological well-being	.001	-.318**

The second hypothesis predicted significant differences in both sleep quality and psychological well-being between students living on-campus and those living off-campus. For sleep quality, students living on-campus reported a mean PSQI score of  $M = 7.41$  ( $SD = 3.64$ ), whereas students living off-campus reported a mean score of  $M = 8.10$  ( $SD = 3.20$ ). Although students living off-campus demonstrated slightly poorer sleep quality, the independent-samples t-test indicated that this difference was not statistically significant,  $t(107) = -1.05, p = .298$  (see Table 5). This finding contradicts the assumption that off-campus students would have poorer sleep quality due to longer commute times and raises the question of whether factors such as academic workload, social activities, or environmental noise could influence sleep quality for both groups equally.

In contrast, a significant difference was found in psychological well-being between students living on-campus and those living off-campus. Students residing on-campus reported significantly higher psychological well-being ( $M = 44.95, SD = 10.54$ ) than students living off-campus ( $M = 39.94, SD = 10.56$ ),  $t(107) = 2.47, p = .015$ , Cohen's  $d = 0.48$ . The moderate effect size indicates that residential status had a meaningful influence on psychological well-being, with students living on-campus reporting better psychological well-being than those living off-campus. This finding is consistent with previous studies suggesting that commuting stress, travel time, and social support may contribute to differences in students' psychological well-being.

Table 5. Independent sample t-test of both sleep quality and psychological well-being between students who live on-campus and students who live off-campus in Malaysia.

Variables	On-campus		Off-campus		<i>t</i> (107)	<i>p-value</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Sleep quality	7.407	3.639	8.100	3.202	-1.046	.298	-.201
Psychological well-being	44.949	10.543	39.940	10.555	2.470	.015	.475

While sleep quality did not significantly differ based on residential status, the weak negative correlation with psychological well-being underscores the potential complexity of the factors influencing mental health. The significant difference in psychological well-being between on-campus and off-campus students highlights the need to explore additional factors such as social environment, commute duration, and daily routines that could contribute to these differences. To improve the accuracy of sleep quality ratings, future research should use objective sleep measurements and include a more balanced sample in terms of gender, university representation, and residential situation.

#### 4. DISCUSSION

Consistent with Hypothesis 1, the findings of the present study revealed a weak but significant negative relationship between sleep quality and psychological well-being among Malaysian undergraduate students. Specifically, poorer sleep quality was associated with lower psychological well-being, indicating that although the relationship was modest, sleep quality remains an important contributor to students' mental well-being. This finding supports the growing body of evidence suggesting that adequate sleep plays a crucial role in maintaining emotional regulation, cognitive functioning, and overall psychological health among university students.

Recent Malaysian studies provide strong support for this finding. Tian et al. (2025) reported that approximately 70% of Malaysian undergraduates were classified as poor sleepers, with poor sleep quality significantly associated with insomnia severity, daytime sleepiness, and maladaptive sleep beliefs. Similarly, Anuar et al. (2024) found that more than 80% of university students experienced poor sleep quality during the post-pandemic period, indicating that inadequate sleep is highly prevalent among Malaysian undergraduates. More importantly, Ali et al. (2025) demonstrated that students with depressive symptoms reported significantly poorer sleep quality and poorer health behaviours, while Shukri et al. (2025) found that sleep quality was indirectly associated with anxiety through self-esteem and perceived stress. Collectively, these findings suggest that sleep quality and psychological well-being are closely interconnected through behavioural and psychosocial mechanisms.

The present findings are also consistent with previous international research. Richter and Zhai et al. (as cited in Armand et al., 2021) reported that poorer sleep quality was associated with lower psychological well-being. Likewise, Stores et al. (2023) found that university students in the United Kingdom experienced high levels of sleep disturbance, daytime sleepiness, and reduced well-being compared with the general population. Similarly, Jamal (2022) reported a significant negative relationship between sleep quality and psychological well-being among Indian university students. Within the Malaysian context, Hanapi et al. (2021) and Haque et al. (2018) likewise found that students with poorer sleep quality reported significantly lower emotional and psychological well-being. Taken together, these findings reinforce the present study's conclusion that sleep quality is an important determinant of psychological well-being among university students across different cultural contexts.

Although gender was not examined as a primary variable in this study, the predominance of female participants (80%) may have influenced the observed relationship between sleep quality and psychological well-being. Previous studies have shown that biological factors, such as hormonal fluctuations affecting circadian rhythm and sleep regulation, may contribute to poorer sleep quality among female students (Rafi et al., 2021). In addition, psychosocial factors, including higher levels of perceived stress, anxiety, and depressive symptoms, have also been associated with sleep disturbances among female university students (Haque et al., 2018; Saat et al., 2021). Therefore, both biological and psychosocial factors may have contributed to the findings observed in the present study. However, as the current study employed a cross-sectional design, causal relationships cannot be established, and future longitudinal research is needed to examine these mechanisms further.

Regarding Hypothesis 2, no significant difference in sleep quality was found between students living on-campus and those living off-campus. This finding contradicts previous studies suggesting that off-campus students generally experience poorer sleep quality because of longer commuting times

and earlier waking schedules. However, recent Malaysian evidence indicates that sleep disturbances among university students are influenced by multiple factors beyond residential status. Murad and Jamaluddin (2024) found that academic workload, extracurricular commitments, and excessive screen time significantly contributed to poor sleep quality among Malaysian undergraduates.

Although sleep quality did not differ significantly between residential groups, psychological well-being was significantly higher among students living on-campus than those living off-campus. This finding suggests that factors beyond sleep quality may influence students' psychological well-being. Students residing on-campus may benefit from greater access to university facilities, stronger peer support, increased participation in campus activities, and reduced commuting burden, all of which may contribute positively to their overall well-being. Supporting this, Shukor et al. (2025) found that resident students reported higher levels of engagement with campus facilities and resources than non-resident students, highlighting that greater accessibility to university services and opportunities for social interaction may enhance students' overall well-being. Conversely, students living off-campus may experience additional stressors, including commuting time, transportation costs, and reduced opportunities for social interaction, which may negatively affect their psychological well-being despite having similar sleep quality (Simonn et al., 2025). Furthermore, Malaysian evidence suggests that students' living environments and family dynamics also play an important role in psychological health. Jaris et al. (2025) reported that home circumstances significantly influenced students' anxiety and emotional well-being, indicating that psychological well-being is shaped by multiple environmental and social factors beyond sleep quality alone. Collectively, these findings suggest that residential status may influence psychological well-being indirectly through differences in access to campus resources, commuting demands, and living environments rather than through sleep quality itself.

The present findings also suggest that on-campus residence does not necessarily protect students from poor sleep quality. Previous research by Foulkes et al. (2019) found that students living in university residences frequently reported sleep disturbances caused by environmental noise, peer activities, and social interactions, with many participants willingly sacrificing sleep to socialise with friends. Therefore, while the sources of sleep disruption may differ between residential groups, both on-campus and off-campus students appear to experience unique environmental and lifestyle challenges that contribute to similarly poor sleep quality.

## **5. IMPLICATIONS**

The study's findings showed implications that were needed to take place by university administrators and students themselves. Firstly, the findings demonstrated the need of addressing the complex relationship between sleep quality and psychological well-being among Malaysian undergraduate students. This underscored the need to guide students by holding interventions that emphasizes on sleep quality and stress effective time management techniques to raise awareness of poor sleeping habits and support students' psychological well-being.

The findings of this study highlight the importance of addressing sleep quality and psychological well-being among university students as a whole. While commuting and residential differences may contribute to variations in well-being, sleep-related challenges are relevant for both on-campus and off-campus students due to academic workload, lifestyle habits, and social demands. Therefore, universities may consider implementing later morning class start times to accommodate both on- and off-campus students' varying sleep needs and daily routines. In addition, the provision of recorded lectures or asynchronous learning materials could help students manage their schedules more effectively and reduce sleep disruption caused by early classes or academic overload. Overall, such institution-wide strategies may contribute to improved sleep quality, reduced stress, and enhanced psychological well-being for all students, regardless of residential status.

## 6. LIMITATIONS AND RECOMMENDATIONS

There were multiple limitations to this study. First, the use of convenience sampling restricts the generalisability of the findings to the wider population of Malaysian undergraduates. Notably, 72.7% of respondents were recruited from Universiti Malaysia Sarawak, which may have introduced regional and institutional bias; consequently, the academic demands, support systems, and extracurricular activities specific to UNIMAS may have disproportionately shaped participants' sleep quality and psychological well-being. Second, the cross-sectional design precludes any inference of causality between sleep quality and psychological well-being. Third, the reliance on self-reported data may have introduced recall bias or social desirability bias, particularly for sensitive items within the WEMWBS. Future research should therefore adopt random sampling techniques across multiple Malaysian public universities and employ longitudinal or experimental designs to establish temporal precedence and reduce self-report bias.

For more robust future research, objective assessments like polysomnography should be employed to improve the accuracy of sleep quality evaluation. Furthermore, to further understand the causal links between psychological well-being and sleep quality, longitudinal study designs are recommended in order to track changes over time.

## 7. CONCLUSION

This study clarifies the critical relationship between undergraduate students' psychological health and sleep quality in Malaysia. It is evident that improved psychological well-being is correlated with better sleep, highlighting the significance of treating sleep-related problems for general well-being. Contrary to expectations, sleep quality did not significantly differ between on-campus and off-campus students, challenging traditional views on how residence affects sleep. However, on-campus students exhibited higher psychological well-being, underscoring the impact of commuting and physical activity on mental health. As higher education evolves, prioritizing student well-being and fostering balanced lifestyles becomes essential. Future research is encouraged to expand on these findings and drive meaningful change for healthier student experiences.

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## CONFLICT OF INTEREST

We declare no conflict regarding the publication of the study.

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