



THE RELATIONSHIP BETWEEN COPING STRATEGIES, SELF-CONTROL AND
SLEEP QUALITY AMONG UNIVERSITY STUDENTS IN MALAYSIA

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The Relationship Between Coping Strategies, Self-Control and
Sleep Quality Among University Students in Malaysia

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This research project is submitted in partial fulfilment of the requirements for the Bachelor of Social Science (Hons) Psychology, Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman. Submitted on April 2026.

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Approval Form

This research paper attached hereto, entitled “The Relationship Between Coping Strategies, Self-Control and Sleep Quality Among University Students in Malaysia” prepared and submitted by Lee Kell Win and Lim Say Khai in partial fulfilment of the requirements for the Bachelor of Social Science (Hons) Psychology is hereby accepted.



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Date: 20 April 2026

Abstract

Sleep quality is a crucial aspect of overall well-being, especially for university students who often experience academic stress, inconsistent routines, and stressors that can interfere with their sleep. Based on the Personality Coping Outcome Theory, the present study utilised a cross-sectional quantitative approach to investigate the relationships between self-control, coping strategies, and sleep quality among university students in Malaysia. Participants were recruited through purposive, snowball, and convenience sampling methods, which allowed for a comprehensive and diverse participant pool. The sample consisted of 160 university students, aged 19 to 28 years ($M = 22.10$, $SD = 1.42$), predominantly male (51.9%) and full-time students (98.1%). Most were from private universities (61.3%), with the majority being Chinese (58.1%), followed by Malay (21.9%) and Indian (19.4%). Data were collected using the Brief Self-Control Scale (BSCS), the Brief COPE, and the Pittsburgh Sleep Quality Index (PSQI). The results indicated a positive correlation between self-control and adaptive coping strategies ($r = 0.165$, $p = 0.037$) and a negative correlation with maladaptive coping ($r = -0.462$, $p < 0.001$). Furthermore, self-control was positively associated with better sleep quality, as evidenced by lower PSQI scores ($r = -0.303$, $p < 0.001$). Conversely, adaptive coping was not significantly correlated with sleep quality ($r = -0.140$, $p = 0.078$), while maladaptive coping showed a significant positive correlation with poorer sleep quality ($r = 0.385$, $p < 0.001$). These findings underscore the pivotal role of self-control in shaping coping responses and sleep quality, and suggest that interventions targeting self-control, alongside the promotion of more adaptive coping strategies, may help improve sleep outcomes and overall mental well-being among university students in Malaysia.

Keywords: maladaptive coping, adaptive coping, self-control, sleep quality, university students

Subject area: H1-99 Social Sciences (General)

Declaration

We declare that the material contained in this paper is the end result of our own work and that due acknowledgement has been given in the bibliography and references to ALL sources be they printed, electronic or personal.

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List of Abbreviation**Abbreviations**

- | | | |
|-----|------------|--|
| 1. | Brief COPE | Brief Coping Orientation to Problems Experienced Inventory |
| 2. | BSCS | Brief Self-Control Scale |
| 3. | CS | Coping Strategy |
| 4. | IBM | International Business Machines Corporation |
| 5. | IMU | International Medical University |
| 6. | KS-Test | Kolmogorov–Smirnov test |
| 7. | PCO | Personality Coping Outcome |
| 8. | PPMC | Pearson Product-Moment Correlation |
| 9. | PSQI | Pittsburgh Sleep Quality Index |
| 10. | QQ Plot | Quantile-Quantile plot |
| 11. | SC | Self-Control |
| 12. | SPSS | Statistical Package for the Social Sciences |
| 13. | SQ | Sleep Quality |
| 14. | UKM | Universiti Kebangsaan Malaysia |
| 15. | UM | Universiti Malaya |
| 16. | UPM | Universiti Putra Malaysia |
| 17. | UTAR | Universiti Tunku Abdul Rahman |

Chapter I

Introduction

Background of the Study

Sleep quality is a vital aspect of psychological and physical functioning, as it plays a crucial role in emotional stability, concentration, memory retention, and immune function (Feingold & Smiley, 2022). When sleep patterns are consistently disrupted, it often leads to negative outcomes such as increased fatigue, irritability, and difficulties with concentration, all of which can contribute to decreased academic performance (Midinova & Thirumoorthy, 2024). These ongoing sleep disturbances not only affect cognitive and emotional functioning but also have a broader negative impact on overall well-being. In accordance with Wu et al. (2022), university students are especially susceptible to sleep disturbances, as their routines are shaped by coursework demands, irregular schedules, and intensive use of digital devices. Moreover, studies conducted in various countries indicate that young adults often experience shortened sleep durations, irregular sleep patterns, and excessive daytime sleepiness (Mubeen et al., 2025; Rubin et al., 2023). Similar patterns are observed among Malaysian students, who commonly report difficulty falling asleep, fragmented rest and daytime impairment resulting from academic pressure and late-night study habits (Ismail et al., 2021; Khor et al., 2024).

This sleep-related stress may be further compounded by self-control, a psychological construct that influences how university students manage their daily behaviours and respond to stress. According to Alkhirbash (2025), self-control refers to the capacity to inhibit impulsive actions, resist distractions and prioritise long-term goals over immediate temptations. Students with strong self-control often maintain structured routines and limit digital distractions, enabling effective planning around academic responsibilities. These behaviours promote disengagement from stimulating activities at night and the maintenance

of consistent sleep schedules, thus enhancing the quality of rest (Jakowski, 2022; Yin et al., 2025). In contrast, individuals with lower self-control are often prone to procrastination and irregular daily habits, which can worsen sleep disturbances. For example, engaging in short-term pleasurable activities, such as gaming or social media use, tends to delay sleep onset, disrupt the sleep cycle, and reduce sleep quality (Yin et al., 2025; Zhang, 2024). Overall, these findings highlight the crucial role of self-control in shaping sleep-related behaviours, either supporting or hindering healthy rest.

In addition to self-control, coping strategies contribute to variations in sleep quality among students. According to Bondarchuk et al. (2024), coping refers to the cognitive and behavioural efforts individuals employ to manage stress or challenging situations, which can be categorised into adaptive and maladaptive strategies. Adaptive coping strategies, such as planning, seeking information and problem-solving, enable students to manage stress effectively and reduce emotional strain. These strategies facilitate healthier functioning and support consistent sleep patterns by minimising intrusive thoughts and pre-sleep arousal (Attia et al., 2022; Calebs, 2022). Conversely, maladaptive coping strategies, including avoidance, rumination and disengagement, tend to prolong stress and hinder effective emotional regulation. Students who predominantly use these strategies often experience elevated pre-sleep arousal, persistent worry and disrupted sleep continuity, which impair sleep onset, reduce overall sleep quality and increase daytime impairment (Calebs, 2022; Thompson et al., 2023).

Beyond their independent effects on sleep, self-control and coping strategies are interrelated. Individuals with higher self-control tend to adopt adaptive coping behaviours, such as planning or cognitive reframing, which involve deliberate emotional regulation and action to achieve long-term objectives (Werner & Ford, 2023). In contrast, individuals with lower self-control are more prone to employ maladaptive coping strategies, including denial,

disengagement or self-blame, which offer temporary relief but fail to address underlying stressors (Boals et al., 2011; Padmanabhanunni & Pretorius, 2025). These dynamics provide insights into why some students are more successful in managing stress, whereas others struggle when confronted with academic or personal demands.

Although these behavioural factors have been examined independently, research that simultaneously examines the interplay between self-control, coping strategies and sleep quality among university students in Malaysia remains limited. Existing literature has primarily focused on individual predictors, such as lifestyle patterns or stress, without considering how students' self-control and coping strategies jointly relate to sleep outcomes. This understanding is particularly crucial given the unique academic, cultural, and environmental pressures faced by university students in Malaysia, which shape their coping behaviours and self-regulatory processes in daily life. Therefore, the present study aims to explore the relationships between self-control, coping strategies and sleep quality among university students in Malaysia, guided by the following research objectives, questions and hypotheses.

Research Objectives

1. To determine the correlation between self-control and coping strategies among university students in Malaysia.
2. To determine the correlation between coping strategies and sleep quality among university students in Malaysia.
3. To determine the correlation between self-control and sleep quality among university students in Malaysia.

Research Questions

1. Is self-control correlated with coping strategies among university students in Malaysia?
2. Is coping strategy correlated with sleep quality among university students in Malaysia?
3. Is self-control correlated with sleep quality among university students in Malaysia?

Hypotheses

- H_{1a}. Self-control is positively correlated with adaptive coping strategies among university students in Malaysia.
- H_{1b}. Self-control is negatively correlated with maladaptive coping strategies among university students in Malaysia.
- H_{2a}. Adaptive coping strategies are positively correlated with better sleep quality among university students in Malaysia.
- H_{2b}. Maladaptive coping strategies are negatively correlated with better sleep quality among university students in Malaysia.
- H₃. Self-control is positively correlated with better sleep quality among university students in Malaysia.

Problem Statements

Suicide has become an increasingly serious public health concern in Malaysia, with national data revealing a rise from 641 cases in 2020 to 1,068 cases in 2023 (Department of Statistics Malaysia, 2024). This alarming rise is closely associated with the growing

prevalence of depression, a major psychological factor contributing to suicidal behaviour.

According to the Ministry of Health Malaysia (2024), 4.6% of Malaysians aged 16 years and above are affected by depression, with the prevalence doubling since 2019 and nearly half of those affected experiencing thoughts of self-harm or suicide. The severity of depression is expected to increase over time, as it has been projected to become a leading contributor to the global burden of disease by 2030 (Wang et al., 2024). As noted by Hou et al. (2019), a well-established risk factor for depression is chronic poor sleep, as insufficient and low-quality sleep can disrupt emotional regulation and increase vulnerability to psychological disorders.

In Malaysia, insufficient sleep is a widespread issue, with two in five adults failing to obtain the recommended average of seven hours of sleep daily, and approximately 38% of individuals aged 20 to 29 years reporting inadequate sleep duration (Ministry of Health Malaysia, 2024). This issue is especially concerning among university students, who fall within this age range and have been found to experience disproportionately higher sleep problems, with 82.5% reporting poor sleep quality and an average sleep duration of only 6.26 hours per night (Thakshila & Suraweera, 2022). According to Yin et al. (2025), university students are particularly vulnerable due to the transitional nature of this life stage, where they face increased academic demands, lifestyle changes, and psychosocial stressors while adapting to a new environment. This vulnerability is further evident in mental health outcomes, with studies indicating that the prevalence of suicidal ideation among university students varies between 1.3% and 32.7% (Chan & Ch'ng, 2022).

Given the critical role of sleep in supporting mental well-being and daily functioning, it is important to examine the psychological factors that may influence sleep quality. In particular, self-control and coping strategies have been identified as key determinants in the management of stress and the maintenance of healthy sleep patterns (Lin & Chung, 2022; Wang et al., 2020). However, findings on the relationship between self-control and coping

strategies among university students remain inconsistent. Some studies suggest that higher self-control is associated with adaptive coping strategies, indicating that self-control facilitates the adoption of constructive approaches to stressful situations (Li et al., 2016). Nevertheless, this association has not been consistently supported across research findings. Agbaria and Mokh (2023) reported no significant relationship between self-control and coping strategies, whether adaptive or maladaptive. These contradictory results indicate that the role of self-control on coping strategy selection among university students remains unclear, highlighting an empirical gap that warrants further investigation.

Research examining the relationship between self-control and sleep quality has expanded in recent years, but majority of the findings originates from non-Malaysian contexts. Prior research has primarily focused on Chinese adolescents and university students (Ling et al., 2024; Yin et al., 2024; Zhao et al., 2022; Zhu et al., 2019). Similarly, Lin and Chung (2022) examined this relationship among adults in Hong Kong, while Tafuya et al. (2023) conducted research with university students in Mexico. Despite offering valuable insights, these studies may not be directly generalisable to university students in Malaysia due to differences in cultural environment, academic pressure, digital device usage patterns, and sleep-related behaviours. Thus, these contextual differences may shape both self-control and sleep quality in unique ways. Despite this, empirical evidence specifically addressing this relationship within the context of university students in Malaysia remains scarce. This lack of context-specific research highlights a clear population gap and underscores the need for further investigation within the higher education setting in Malaysia.

Furthermore, the relationship between coping strategies and sleep quality has been examined in previous research involving university students. However, variations in sample selection and differences in research emphasis have restricted the generalisability of the findings. For instance, a study by Thakshila and Suraweera (2022) explored this association

using only female university students. While their findings provided meaningful insight, the use of a single-gender sample restricts applicability to the broader student population. In contrast, Wang et al. (2020) involved both male and female university students but explored coping strategies and sleep quality within a learning burnout framework, where coping strategies were positioned as a mediator rather than as the primary focus of investigation. Consequently, the direct association between coping strategies and sleep quality was not thoroughly examined as a central research topic. These limitations highlight the need for further research that directly examines the relationship between coping strategies and sleep quality, using a more inclusive university student sample to ensure that the findings are both representative and contextually relevant.

Significance of the Study

The present study offers a valuable contribution to understanding sleep quality among university students in Malaysia by examining the influences of self-control and coping strategies. It enhances existing literature by providing empirical evidence specific to the Malaysian context, which clarifies the relationship between these psychological factors and sleep quality in an under-represented population. By situating these variables within the Malaysian university context, this research helps address both cultural and population gaps in prior studies and clarifies inconsistencies regarding the influence of self-control and coping strategies on sleep-related outcomes.

Beyond knowledge contributions, the study holds practical significance for university students, who are at a formative developmental stage and represent the future workforce of the nation. By highlighting the role of self-control and coping, the findings encourage students to recognise how their internal processes can shape sleep behaviour, stress tolerance

and academic functioning. Greater awareness of these mechanisms may motivate students to reflect on their current habits, adopt adaptive coping patterns and manage psychological stressors more proactively, thereby improving sleep quality and overall mental well-being.

Importantly, the present study also addresses a gap in sleep-related interventions in Malaysia. As noted by Yin et al. (2025) and Vijayan et al. (2025), existing programmes predominantly emphasise sleep hygiene education, lifestyle modifications and stress management techniques, while overlooking underlying psychological determinants that influence behaviour. By identifying self-control and coping strategies as meaningful correlates of sleep quality, the findings provide empirical support for incorporating these constructs into intervention design. Additionally, university counselling services, mental health professionals and student development departments may apply these insights by developing workshops, psychoeducational modules or therapeutic programmes aimed at strengthening self-control and adaptive coping capacities.

In summary, this study contributes both academically and practically. It advances current knowledge by foregrounding psychological determinants of sleep within university students in Malaysia and provides actionable implications for designing holistic, evidence-based interventions. By focusing on modifiable psychological mechanisms, the research has the potential to support healthier sleep patterns, reduce the risk of psychological distress and enhance overall well-being, demonstrating that sustainable improvements in student health require attention to both behavioural and psychological dimensions.

Conceptual Definition

Self-Control

Self-control refers to a personality trait that reflects an individual's capacity to regulate thoughts, emotions and behaviours in accordance with lasting goals rather than immediate impulses. It involves consistent patterns of behavioural regulation that enable individuals to inhibit counterproductive actions, maintain focus and remain aligned with personal objectives across a range of situations. Individuals with higher self-control tend to use deliberate strategies to manage distractions, resist temptations and follow through on intended actions, whereas lower self-control is characterised by impulsivity, difficulty in sustaining goal-directed behaviour and susceptibility to immediate gratification (Milosevic, 2024).

Coping Strategies

Coping strategies refers to the mental and behavioural techniques people employ to deal with stressful conditions or emotionally challenging situations. In this study, coping is defined as adaptive or maladaptive, where adaptive strategies involve constructive responses such as planning, positive reframing or seeking social support, while maladaptive strategies involve avoidance, denial, disengagement or self-blame (Chaaya et al., 2025).

Sleep Quality

Sleep quality refers to a person's subjective experience of sleep, which includes falling asleep, staying asleep and feeling rested during the day. Good sleep quality supports daily functioning, whereas poor sleep quality involves difficulty initiating or maintaining sleep and reduced daytime effectiveness (Buysse et al., 1989).

Operational Definition

Self-Control

Self-control will be assessed using the 13-item Brief Self-Control Scale created by Tangney et al. (2004) and adapted by Lin and Chung (2022). Each statement is rated on a five-point scale that reflects how accurately the item describes the respondent, where lower values indicate weaker alignment with the behaviour and higher values indicate stronger alignment. Several items undergo reverse coding before scoring to ensure accurate measurement. After reverse coding, the scores for all items are summed, and the total score is averaged to obtain a mean self-control score. Higher mean scores reflect stronger self-control, signifying a greater ability to regulate impulses and maintain focus on long-term goals.

Coping Strategies

Coping strategies will be assessed using the Brief COPE developed by Carver (1997). This tool consists of 28 items organised into 14 subscales, with each subscale containing two statements. Respondents rate these statements on a four-point scale that reflects the frequency of use for each coping approach. In this study, the subscales are categorized into adaptive and maladaptive strategies, as applied by Chaaya et al. (2025). Elevated scores in the adaptive category indicate a higher frequency of constructive coping, while higher scores in the maladaptive category suggest a greater tendency to rely on avoidance or disengagement in response to stress.

Sleep Quality

Sleep quality in this study will be measured using the Pittsburgh Sleep Quality Index developed by Buysse et al. (1989). This instrument evaluates seven components of sleep, including time to fall asleep, sleep duration, sleep continuity, and daytime functioning. The

scores for each component are summed to generate a global score ranging from 0 to 21.

Higher scores reflect poorer sleep quality, with a global score above five used to classify respondents as experiencing poor sleep.

Chapter II

Literature Review

Self-Control and Coping Strategy

A considerable body of research supports the assertion that self-control contributes significantly to the selection and application of adaptive coping strategies. For instance, research by Englert et al. (2011), which included 163 secondary school students and 98 university students, found that people with greater self-control showed improved emotional regulation and were more likely to use adaptive coping strategies, like problem-solving and cognitive reappraisal. These strategies allowed them to confront challenges with a more constructive mindset, resulting in better stress management outcomes. In line with this, Massar et al. (2022) argued that individuals with higher self-control are more prone to use proactive coping strategies, such as seeking social support and making plans in advance, which foster long-term resilience by addressing the root causes of stress.

Conversely, individuals exhibiting low self-control are more likely to resort to maladaptive coping strategies. Research by Çelikkaleli and Güzel (2025) highlighted that individuals with lower self-control, particularly those struggling with internet addiction, were more prone to using maladaptive coping strategies, such as emotional avoidance rather than adopting proactive coping mechanisms like problem-solving. This tendency to avoid confronting stressors directly may exacerbate negative emotional states and increase psychological strain over time. In a similar vein, Lucke et al. (2024) discovered that undergraduate students with lower self-control were more inclined to use alcohol consumption, which served as an avoidance-based coping mechanism for dealing with stress. These behaviours may provide temporary relief but reinforce ineffective coping patterns that undermine long-term stress regulation. Overall, the evidence suggests that low self-control can lead to the adoption of maladaptive coping strategies, which may amplify stress, disrupt

daily functioning, and negatively affect outcomes such as sleep quality and overall well-being (Çelikkaleli & Güzel, 2025; Lucke et al., 2024).

Furthermore, ego depletion plays a crucial role in shaping the association between self-control and coping strategies. According to Baumeister et al. (2007), ego depletion refers to the concept that self-control operates as a finite resource that can be exhausted through prolonged cognitive, emotional, or behavioural exertion. As self-control resources become depleted, individuals experience diminished ability to regulate their emotions and behaviours, which impairs their capacity to employ adaptive coping strategies. This impairment is particularly evident when individuals experience prolonged stress or uncertainty. As an illustration, Li and Song (2024) found that university students experiencing ego depletion were more likely to resort to maladaptive coping strategies, such as avoidance and denial, which aggravated stress over time. This finding highlights the compounded effects of ego depletion, where the depletion of self-control not only undermines effective coping but also increases susceptibility to maladaptive behaviours, ultimately escalating psychological distress.

Ultimately, the relationship between self-control and coping strategies is multifaceted, encompassing both the protective and limiting roles of self-control in emotional regulation and stress management. As self-control facilitates adaptive coping strategies, it not only promotes resilience but also serves as a safeguard against maladaptive behaviours that can compound psychological distress. However, the influence of ego depletion highlights the vulnerability of self-control, emphasising that the ability to maintain adaptive coping strategies is contingent upon the preservation of self-control. Collectively, these highlights the critical role of self-control in determining the effectiveness of coping strategies and its significant impact on psychological well-being.

Coping Strategy and Sleep Quality

Coping strategies, whether adaptive or maladaptive, have been shown to impact sleep quality, with individuals' stress management techniques serving as key determinants of both sleep disturbances and restorative sleep. A study by Thakshila and Suraweera (2022), which involved 200 first-year female university students at the University of Colombo, Sri Lanka revealed that students who engaged in maladaptive coping behaviours, such as self-blame and venting, experienced poorer sleep quality. These students reported more sleep disturbances and greater daytime dysfunction compared to their peers. In contrast, students who employed adaptive coping strategies, such as planning, positive reframing, and acceptance, maintained better sleep patterns. However, it was noted that excessive planning was slightly linked to daytime alertness issues, suggesting that the nature of adaptive coping may also impact sleep regulation in more complex ways (Thakshila & Suraweera, 2022).

This relationship is further supported by Wang et al. (2020), who studied the relationship between coping strategies, sleep quality, and learning burnout among 228 Chinese university students. The study showed that students who employed adaptive coping strategies, such as seeking help and planning, experienced lower levels of burnout and improved sleep quality. On the other hand, students who engaged in maladaptive coping strategies, such as avoidance and denial, exhibited higher levels of burnout and poorer sleep quality. In a similar vein, Wang et al. (2021) found that students who utilised maladaptive coping strategies, particularly avoidance and emotion-orientated approaches, had poorer sleep quality as indicated by higher PSQI scores. Conversely, the use of adaptive coping strategies, including problem-solving and positive reframing, was associated with better sleep outcomes. This consistent pattern indicates that maladaptive coping strategies exacerbate sleep disturbances, while adaptive coping promotes healthier sleep.

In addition, Kim et al. (2022) revealed that maladaptive coping, particularly avoidance, significantly mediated the relationship between stress and poor sleep quality. Their findings indicate that coping strategies influence sleep quality only when stress is present. Exposure to stress appears to activate avoidance-based responses, such as emotional withdrawal and denial, which prolong physiological arousal and consequently interfere with the ability to achieve restorative sleep. This notion is further supported by Hou et al. (2019), who investigated a sample of 838 university students across ten institutions in Guangdong Province, China. The study found that maladaptive coping strategies, including avoidance and withdrawal, exacerbated the effect of life stressors on sleep quality. Thus, students who employed these strategies reported significantly poorer sleep quality compared to those who used more adaptive strategies. Both studies converge on the idea that maladaptive coping amplifies the negative effects of stress on sleep, while adaptive strategies serve as a protective buffer, promoting healthier sleep patterns by fostering emotional regulation. However, Majeno et al. (2023) argued that the effectiveness of adaptive coping diminishes in the face of uncontrollable stressors, such as personal loss or interpersonal conflict, which can exacerbate frustration and distress rather than alleviating them.

Ultimately, the relationship between coping strategies and sleep quality underscores the pivotal role of emotional regulation in achieving restorative sleep. Adaptive coping mechanisms, such as problem-solving and acceptance, facilitate stress reduction and lower physiological arousal, thereby improving sleep quality. Conversely, maladaptive strategies, such as avoidance and self-blame, tend to escalate stress and increase physiological arousal, which disrupts the ability to fall and stay asleep. Although maladaptive strategies are generally harmful to sleep quality, they may be less disruptive when combined with adaptive strategies, which help to regulate emotional responses more effectively (Majeno et al., 2023).

This balance highlights the importance of cultivating adaptive coping skills, as they play a crucial role in improving sleep health and overall well-being.

Self-Control and Sleep Quality

Self-control plays an important role in maintaining healthy sleep patterns. Individuals with higher self-control are often able to limit late-night activities, reduce screen use before bed and follow more consistent schedules, which support restorative sleep (Vu & Tagliabue, 2025). Baumeister et al. (2018) emphasise that self-control facilitates the regulation of thoughts, emotions and behaviours in ways that protect sleep continuity and minimise disruptions throughout the night. Students with stronger self-control are better able to resist late-night device use, avoid irregular sleep timing and disengage from prolonged online activities that interfere with rest (Hong et al., 2024). Through these behavioural mechanisms, self-control supports goal-directed actions that preserve healthy sleep habits and contribute to improved sleep quality.

These behavioural observations are further reinforced by empirical research, which demonstrates that differences in self-control are reflected in measurable sleep outcomes. For instance, Yin et al. (2025) examined 2,274 university students from 34 universities across seven major regions in China and found that stronger self-control was associated with better sleep quality. These students were more likely to maintain healthy lifestyle habits, such as regular physical activity, stress and emotion management, dietary regulation, and consistent routines which directly support better sleep quality. At the same time, they were more effective at avoiding behaviours that disrupt sleep, including electronic distractions, bedtime procrastination, irregular sleep-wake patterns, and excessive caffeine intake, further promoting restorative and uninterrupted rest.

In a similar vein, Lin and Chung (2022) found that trait self-control predicted sleep quality, as students with stronger self-control were more successful in keeping steady bedtime routines. This relationship is further explained by neuroscience research, which shows that insufficient sleep impairs prefrontal brain activity, a region crucial for self-regulation. When sleep is disrupted, even slightly, the capacity for self-control is reduced, making it harder to maintain healthy sleep habits. This creates a cycle in which self-control and sleep quality influence each other (Anastasiades et al., 2022; Wang et al., 2024). Overall, these findings point to how self-control helps people maintain healthier sleep habits and steadier cognitive functioning.

Although self-control is widely recognised as a key factor influencing sleep quality, some studies suggest that this relationship may be influenced by external pressures, such as academic stress, particularly among Asian university students. For instance, Berger (2024) found that students with high self-control frequently sacrifice sleep due to substantial academic demands. This finding highlights that self-control does not operate in isolation but is shaped by broader social and environmental influences. Specifically, real-world pressures, such as academic deadlines, workload, and performance expectations can constrain an individual's capacity to exercise self-control effectively. As a result, while self-control remains an important contributor to sleep quality, its effectiveness may be significantly reduced when students are overwhelmed by external stressors.

In summary, the existing evidence indicates that self-control is an important behavioural resource that supports healthier sleep patterns. Students who demonstrate higher self-control often organise their daily activities more consistently, limit stimulating behaviours before bedtime such as prolonged screen use, and follow routines that support better sleep. Conversely, lower self-control is often associated with irregular schedules,

impulsive bedtime decisions and behaviours that interfere with sleep, such as prolonged online activity or avoidance of restorative habits. Taken together, these findings show that self-control can help individuals regulate their behaviour in ways that encourage better-quality sleep. Thus, self-control represents a key psychological mechanism that may help explain why some university students maintain healthier sleep behaviours than others.

Theoretical Framework

Personality Coping Outcome Theory

The Personality Coping Outcome Theory posits that personality characteristics influence individuals' coping strategies during stressful situations, and these coping responses subsequently influence adjustment outcomes (Xu et al., 2017). According to Xu et al. (2017), personality is recognised as a central factor in stress management, as it forms the basis of an individual's perceived ability to handle unexpected challenges. It shapes both the appraisal of stress at the point of exposure and the subsequent emotional and behavioural reactions. Within this context, self-control is conceptualised as a stable personality trait, representing consistent patterns of regulating thoughts, emotions and actions to align with long-term goals rather than immediate impulses (Napolitano et al., 2024). Moreover, the development of self-control occurs progressively through repeated instances of momentary self-regulation. Individuals who frequently use proactive strategies, such as modifying their environment or redirecting attention to avoid distractions, tend to demonstrate higher trait self-control and lower impulsivity (Napolitano et al., 2024).

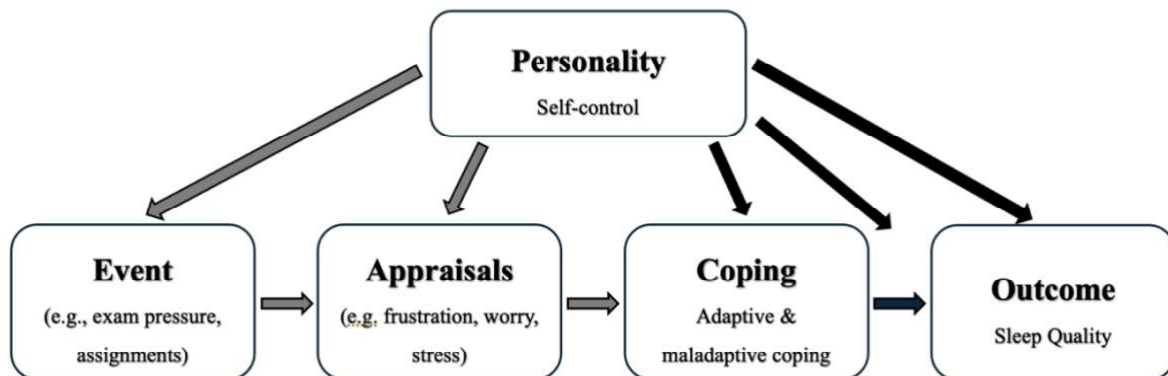
When encountering stress or challenges, these self-regulatory tendencies guide the type of coping strategies individuals adopt. Coping involves conscious efforts to manage one's physiological, cognitive, emotional and behavioural reactions to difficult circumstances

and functions as a core mechanism through which personality traits influence outcomes (Xu et al., 2017). As individuals high in self-control are generally better at regulating impulses and maintaining goal alignment, they are more inclined to select adaptive coping strategies, such as problem-solving and cognitive restructuring, rather than resorting to avoidance or emotion-driven responses. Prior findings support that constructive regulation of stress is more prevalent among individuals with high trait self-control, reinforcing the idea that personality factors shape coping patterns over time (Englert et al., 2011; Massar et al., 2022).

Consequently, these coping strategies play a crucial role in shaping sleep quality, which serves as the outcome variable in this study. Lin and Chung (2022) suggest that individuals with higher self-control tend to practise healthier pre-sleep behaviours, such as reducing late-night screen exposure or adhering to structured routines, which directly contribute to better sleep quality. Furthermore, the adoption of adaptive coping methods helps reduce stress-related cognitive and emotional disturbances, such as rumination and tension, which often disrupt sleep processes (Kozusznik et al., 2020). Therefore, trait self-control not only promotes better sleep through direct behavioural regulation but also indirectly improves sleep quality through its influence on coping styles. In line with the Personality Coping Outcome Theory, this framework proposes that self-control influences sleep quality through its impact on coping tendencies, whereby effective coping responses facilitate improved physiological and psychological conditions conducive to restorative sleep (Xu et al., 2017).

Figure 1.1

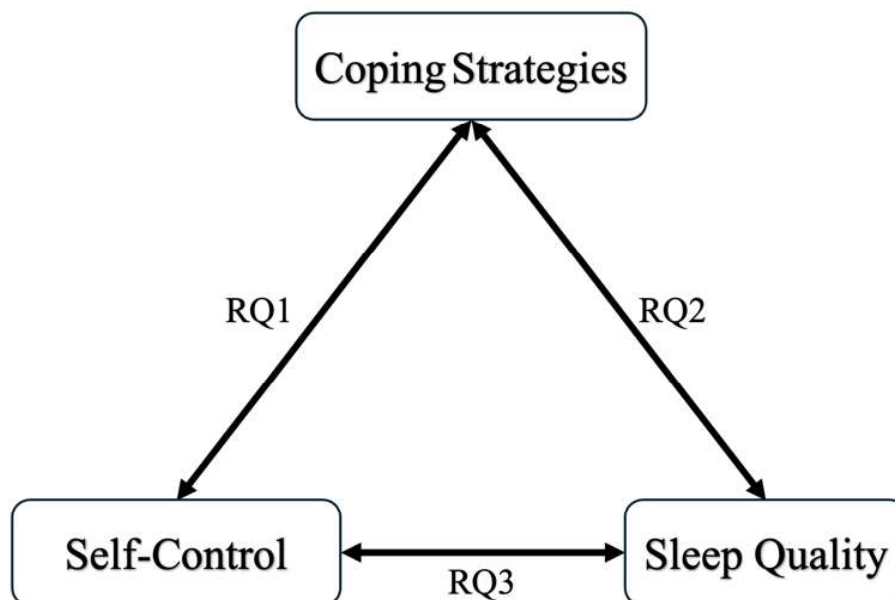
The Theoretical Framework for Personality Coping Outcome Theory in the Present Study



Conceptual Framework

Figure 1.2

The Conceptual Framework of the Relationship between Self-Control, Coping Strategies and Sleep Quality Among University Students in Malaysia



The conceptual framework illustrates the proposed relationships between self-control, coping strategies and sleep quality among university students in Malaysia. It is grounded in the Personality Coping Outcome Theory, which posits that personality characteristics shape

how individuals perceive and respond to stress (Xu et al., 2017). Within this framework, self-control is considered a stable personality trait that influences how effectively individuals manage stressful situations. According to Napolitano et al. (2024) Individuals exhibiting higher levels of self-control are more likely to utilise adaptive coping strategies when faced with stressors, facilitating regulation of emotional responses and preventing stress from escalating. These adaptive strategies can reduce the cognitive and emotional disturbances that commonly interfere with sleep, thereby promoting better overall sleep quality (Thakshila & Suraweera, 2022).

In addition to this indirect pathway, self-control is further proposed to influence sleep quality directly, as individuals who demonstrate stronger self-control are more inclined to engage in behaviours that support healthier sleep routines, such as maintaining regular bedtimes, limiting exposure to stimulating activities before sleep, and managing daily obligations in a way that reduces late-night stress (Englert et al., 2011). By fostering these disciplined habits, self-control can directly enhance both the duration and restorative quality of sleep, independent of its role in shaping coping strategies. Overall, the framework suggests that self-control improves sleep quality through both adaptive coping responses and direct behavioural regulation, ultimately encouraging healthier sleep patterns.

Chapter III

Methodology

Research Design

The present study adopted a quantitative research design, which utilises the structured gathering and statistical evaluation of quantifiable metrics to enable an objective examination of relationships between variables (Watson, 2015). Specifically, to examine how self-control, coping strategies, and sleep quality correlate within the university students in Malaysia, a cross-sectional study was conducted. This cross-sectional approach captures information at one specific moment, making it highly effective for recognising variable patterns and relationships without requiring longitudinal follow-up. This design was chosen as it offers an efficient, feasible, and cost-effective means of collecting data from a substantial number of participants within a limited period (Setia, 2016; Wang & Cheng, 2020).

In line with the cross-sectional nature of the study, responses were gathered through a structured self-administered online questionnaire. This method was chosen because it enabled efficient data collection while providing convenience and accessibility for participants (Shaughnessy et al., 2015). The online format ensured anonymity, which helped protect participants' confidentiality and reduce response bias, while allowing them to respond at their own pace for more thoughtful and accurate responses. Moreover, leveraging digital platforms and social media for distribution complemented these benefits by expanding the study's reach, enabling participation from students across multiple universities and regions in Malaysia (Menon & Muraleedharan, 2020; Regmi et al., 2017). Overall, this approach provided a cost effective, accessible, and ethically appropriate method of data collection, while facilitating the generation of consistent and reliable data for subsequent statistical analysis.

Sampling Procedures

Sampling Method

A non-probability sampling approach was employed in the present study, incorporating purposive, snowball and convenience sampling techniques to obtain a broader participant pool (Makwana et al., 2023). To guarantee that participation was restricted to individuals satisfying the pre-established inclusion criteria, purposive sampling was initially utilised. Such a technique allows researchers to intentionally recruit participants possessing traits highly pertinent to the study's primary objectives (Ahmad & Wilkins, 2024). For the current research, university students in Malaysia served as the target population, as they are frequently exposed to academic pressure, irregular routines, and psychosocial demands that may affect sleep quality. According to Ahmad and Wilkins (2024), selecting participants intentionally ensured that responses were obtained from individuals who aligned with the research focus, which improves the relevance of the dataset collected.

Furthermore, the snowball sampling technique was employed to expand the participant pool. Participants who fulfilled the inclusion criteria at the initial stage were invited to refer other eligible individuals, thereby facilitating the expansion of the sample. (Parker et al., 2019). These participants are encouraged to share the survey link or QR code with their peers, such as friends, classmates, or acquaintances who also met the study criteria and were currently enrolled in universities in Malaysia. According to Parker et al. (2019), snowball sampling is particularly useful for reaching participants who may be difficult to reach through conventional methods. This approach proves valuable in accessing hard-to-reach populations beyond the immediate network of the researcher. By employing this strategy, the study was able to recruit participants from a wide array of educational

institutions across Malaysia, making the outcomes more generalisable across the broader university student demographic.

Lastly, convenience sampling enabled the recruitment of participants who were easily reached and willing to take part in the study, making it a practical approach for quantitative research involving large participant groups, such as university students. This approach enables efficient distribution of questionnaires through online platforms, reducing the time, cost, and resource demands typically associated with data collection (Golzar et al., 2022). In the present study, convenience sampling is particularly beneficial due to the researcher's affiliation with University Tunku Abdul Rahman (UTAR), which provides direct access to student communities and established academic networks. This institutional connection allows for engagement with potential participants both online and in person, minimizing recruitment costs and logistical challenges.

The digital survey link and QR code were distributed via multiple online platforms, including Microsoft Teams and popular social media applications such as Instagram, Facebook, and WhatsApp. These channels enabled the study to reach a broad and diverse range of participants. Additionally, in-person recruitment efforts took place on the UTAR Kampar campus, facilitating direct engagement with students within shared academic and social environments. This combined strategy of digital and face to face recruitment provided an efficient and cost-effective approach to participant recruitment, allowing the study to obtain a substantial sample within a relatively short period.

Study Location

The present study employed a combination of online and in-person recruitment methods to target university students residing in Malaysia. Online recruitment was conducted through the distribution of the survey across several social media platforms, including Microsoft Teams, Facebook or Instagram. This approach enabled the study to reach students from multiple universities across different states, including Perak, thereby supporting the inclusion of participants from various regions of the country. In addition to online recruitment, face to face recruitment was conducted at the Universiti Tunku Abdul Rahman (UTAR) Kampar campus, where the researcher had direct access to students within the academic setting. The use of both recruitment methods allowed responses to be obtained from a broader range of students, which strengthened sample representativeness and supported an efficient response collection process across both digital and physical settings.

Ethical Approval

Ethical approval for this study was granted from Ethical Review Committee (SERC) U/SERC/78-685/2026 of UTAR. Before the commencement of data collection, the complete research proposal and all supporting documents, including the survey instrument, participant information sheet, consent form, and recruitment materials were submitted for ethical review and was approved successfully. This procedure ensures that the study is carried out in accordance with established ethical standards. The application covers key ethical principles, including confidentiality, voluntary participation, informed consent, anonymity, and the secure management of research information. Moreover, recruitment and data collection were commenced after formal approval has been granted by SERC, ensuring adherence to ethical requirements throughout the research process.

Sample Size, Power, and Precision

The minimum sample size for the present study was calculated using G*Power 3.1, a statistical tool designed for power analysis and frequently used in social, behavioural, and biomedical research (Faul et al., 2009). This software is freely available for both Windows and MacOS platforms and enables researchers to calculate minimum sample sizes prior to data collection based on predetermined statistical criteria.

For this study, the anticipated effect size was set at $r = 0.30$, which is regarded as a medium effect based on Cohen's guideline and is widely accepted as a meaningful correlation in psychological research. Consistent with the recommendations by Bujang (2024), adopting an effect size of 0.30 supports the determination of a sufficiently robust sample size to detect at least moderate to strong associations with adequate statistical power.

Furthermore, adequate analytical sensitivity was ensured by specifying a statistical power set at 0.95 and a significance level set at $\alpha = 0.05$. These parameters were selected to minimise the risk of both Type I and Type II errors in hypothesis testing, in line with recommendations for maintaining robust statistical validity (Faul et al., 2009). Based on these parameters, the a priori analysis indicated that at least 115 participants were necessary to achieve adequate statistical power (refer to Appendix A).

As part of ensuring the reliability of the sample and to minimise potential data issues such as incomplete responses, the minimum required sample size was adjusted beyond the initial estimate. In accordance with Siew et al. (2021), a 10 to 15 percent increase in sample size was recommended to minimise potential biases. Following this guidance, the sample size was conservatively increased from 115 to approximately 132 participants, allowing the study to maintain adequate statistical power while preserving the overall reliability of the collected data.

Data Collection Procedures

Inclusion and exclusion criteria

The response collection process was guided by clearly defined inclusion and exclusion criteria to ensure consistency with the objectives of the study. The inclusion criteria were as follows:

1. Current enrolment as a university student in Malaysia, either in a public or private institution.
2. Proficiency in understanding and completing the questionnaire in English.
3. Have read the information sheet and provided informed consent, indicating voluntary participation in the study.

These inclusion criteria ensure that participants accurately reflect the target population of university students in Malaysia, who are subject to the academic, behavioural, and lifestyle environments relevant to this research topic. In addition, selecting respondents capable of comprehending the questionnaire in English ensures that the measures used are interpreted correctly, reducing misunderstandings and improving data reliability. By requiring participants to indicate informed consent, the study ensures ethical participation and compliance with scientific research standards. Participants will be excluded from the study if:

1. Non-fulfilment of the stated inclusion criteria.
2. Submission of invalid or low-quality responses, including an incorrect response to an attention check item (e.g., specifically instructed scale response).
3. Prior participation in the pilot test of the study instrument.

The first exclusion criterion is intended to ensure that only respondents who are consistent with the research objectives are included. Individuals who do not meet the inclusion criteria may introduce variability that is not relevant to the scope of the current

study. The attention check item is used to identify inattentive or randomly responding participants, which helps reduce noise in the dataset and enhances the accuracy of the findings. Finally, excluding individuals who participated in the pilot phase prevents familiarity bias and safeguards the integrity of the responses, as their prior exposure to the questionnaire could influence the way they answer the items during the main study.

Procedures of Obtaining Consent

The consent process was carried out in accordance with established ethical guidelines to ensure that participants were fully informed and voluntarily agreed to take part in the study. Before accessing the questionnaire, participants were presented with an information sheet describing the purpose of the study, the nature of their involvement, the procedures for maintaining confidentiality, and the voluntary basis of participation. Additionally, the information sheet clarified that participants had the right to withdraw from the study at any point without penalty and provided the contact details of the researcher for any further enquiries or clarification.

Following the review of the information provided, participants were required to indicate their consent before proceeding. Informed consent was formally documented through a compulsory response at the end of the information sheet, whereby participants indicated their agreement by selecting the statement, “I have been notified and hereby understand, consent, and agree as per UTAR’s above notice”. Only respondents who selected this option were granted access to the questionnaire. This procedure ensured voluntary participation, proper informed consent, and compliance with institutional ethical standards for recording consent.

Description of Data Collection Procedures

Ethical approval will be obtained from the Scientific and Ethical Review Committee (SERC) of UTAR prior to the commencement of response collection. The application will be submitted through the research supervisor, Dr. Siah Poh Chua, and the Head of the Department of Psychology and Counselling, Dr. Lee Wan Ying, together with all supporting research materials. These materials include the finalised questionnaire, participant information sheet, informed consent form and the measurement instruments used to assess self-control, coping strategies and sleep quality. The ethical review process guarantees that participants are treated with respect, responses are kept confidential, and no harm or coercion is imposed. This process ensures the integrity of the study and upholds ethical standards. Data collection will proceed only after formal approval is granted, ensuring that all procedures align with these established guidelines.

Prior to initiating the main study, a pilot study will be conducted to evaluate the clarity, usability, and overall flow of the research instruments. In this context, a pilot study is considered “underpowered” if it includes too few participants to reliably detect the effect being studied, with less than 60% statistical power used as the threshold for adequacy. Based on the framework proposed by Tseng and Sim (2021), a pilot study with 25 participants carries the lowest underpower risk, with only a 10% probability that the pilot’s variance estimates could mislead the planning of the main study. Thus, the pilot study will involve a total of 30 university students in Malaysia who meet the predefined inclusion criteria. By including an additional five participants beyond the recommended minimum, the study not only further reduces the risk of underpower but also strengthens the preliminary reliability assessment of multi-item scales. Altogether, this carefully chosen sample size ensures a

robust and feasible evaluation, allowing the pilot study to provide reliable insights that will guide and optimize the design of the main study.

Participants invited to this preliminary phase were required to complete a pilot version of the questionnaire, which included the study introduction, informed consent form, demographic questions, and scales assessing self-control, coping strategies, and sleep quality. Once the survey is completed, participants are encouraged to report any difficulties or uncertainties encountered, ensuring thorough feedback. This feedback will be carefully reviewed and used to make necessary revisions, including adjustments to item wording, sequence, or formatting. By addressing these issues, the researcher can refine the instrument and improve its clarity, usability, and overall effectiveness. Importantly, the data collected during the pilot phase will be used solely for instrument refinement and will be excluded in the analysis of the main study.

Following the attainment of ethical approval and the refinement of the research instruments, responses for the main study were collected through an online questionnaire developed using Qualtrics, a secure web-based survey platform from 10 January 2026 to 3 March 2026. The survey commenced with the participant information sheet and an informed consent statement to ensure transparency and voluntary participation. Next, participants will answer demographic questions, which will be followed by the validated measures assessing self-control, coping strategies, and sleep quality. For ease of access, participants will be able to open the survey using a QR code or a digital invitation, allowing them to complete it on their personal devices at their convenience.

Additionally, two attention-check items were incorporated within the survey to identify inattentive or automated responses. Any responses failing to meet the inclusion criteria, failing either attention-check item, or incomplete responses were removed during the

data-cleaning process. Following data cleaning, valid responses were securely processed and analysed using IBM SPSS Statistics version 30. Throughout this process, strict confidentiality will be maintained, and access to the dataset will be restricted to authorised personnel, ensuring that participants' information is protected at all stages of the study. This systematic approach ensures that responses are collected in an ethical, consistent, and rigorous manner, thereby strengthening the validity and reliability of the study findings.

Instruments

Brief Self-Control Scale (BSCS-13)

Trait self-control was measured using the 13-item Brief Self-Control Scale (BSCS-13), originally developed by Tangney et al. (2004) and later adapted by Lin and Chung (2022). The instrument assesses an individual's capacity for impulse regulation, self-discipline, and goal-directed behaviour. It includes both positively and negatively worded items, which help reduce acquiescence bias and strengthen the validity of the measurement.

Participants responded to each item using a 5-point Likert scale, ranging from 1 ('not descriptive at all') to 5 ('very much descriptive'). Example items include statements such as 'I am able to work effectively toward long-term goals' and 'I wish I had more self-discipline' (reverse-coded). The scale consists of both directly scored and reverse-scored items to enhance measurement accuracy and reduce bias. Specifically, four items (Items 1, 6, 8, and 11) were scored directly, while the remaining nine items (Items 2, 3, 4, 5, 7, 9, 10, 12, and 13) were reverse-scored. This scoring approach helps minimise acquiescence bias and provides a more precise assessment of self-regulatory ability. After reverse coding, item scores were summed to generate a total score ranging from 13 to 65. The total score was then

averaged to derive a mean self-control score, where higher values reflect greater levels of trait self-control and stronger self-regulatory capacity.

The initial validation by Tangney et al. (2004) demonstrated strong internal consistency and acceptable test-retest reliability, along with robust predictive validity across academic, emotional, and interpersonal domains. In the adaptation by Lin and Chung (2022), the scale exhibited high reliability, with a Cronbach's α of .83, further confirming its strong psychometric properties in contemporary samples.

Brief COPE Scale (Brief COPE-28)

The Brief COPE is a 28-item self-report measure developed to evaluate individual coping responses (Carver, 1997). Participants respond to each item using a 4-point Likert scale, ranging from 1 ('I have not been doing this at all') to 4 ('I have been doing this a lot'). The measure is categorised into two higher-order coping dimensions, namely Adaptive Coping and Maladaptive Coping. Adaptive Coping consists of six subscales that represent constructive coping responses, including Active Coping, Positive Reframing, Planning, Acceptance, Emotional Support, and Instrumental Support. Conversely, Maladaptive Coping comprises four subscales that reflect disengaging or less constructive coping tendencies, namely Denial, Behavioural Disengagement, Self-Blame, and Substance Use. Each subscale contains two items, and the score for each subscale is derived by summing the responses to the relevant item pair (Carver, 1997).

The factor scores are computed by summing the totals of the relevant subscales, with higher scores reflecting greater reliance on the corresponding coping dimension, whether adaptive or maladaptive (Kadi et al., 2023). In line with Chaaya et al. (2025), the subscales Venting, Humour, Religion, and Self-Distraction were excluded, as they did not consistently

align with either the adaptive or maladaptive coping factors. This exclusion helps ensure the instrument's focus on the most relevant and reliable coping dimensions. Previous studies have demonstrated strong reliability for the Brief COPE, with adaptive coping showing a Cronbach's α of .837 and maladaptive coping showing a Cronbach's α of .819 (Chaaya et al., 2025).

Pittsburgh Sleep Quality Index (PSQI)

The Pittsburgh Sleep Quality Index (PSQI) is a widely used and standardised self-report instrument developed by Buysse et al. (1989) to assess sleep quality. It comprises 19 self-rated items that evaluate an individual's overall sleep quality over the past month. However, Item 10, which evaluates sleep behaviours observed by a bed partner or roommate, is optional and excluded from the scoring. Thus, a total of 18 items contribute to the calculation of the seven component scores and the global PSQI score (Buysse et al., 1989).

These components are designed to capture various aspects of sleep, including subjective sleep quality (Item 6), which measures a person's perception of how well they have slept, and sleep latency (Items 2 and 5a), which refers to the time it takes to fall asleep and how often difficulty falling asleep occurs. Sleep duration (Item 4) records the total number of hours a person sleeps per night, while habitual sleep efficiency (Items 1, 3, 4) is calculated by determining the ratio between total sleep time and time spent in bed, based on usual bedtime (Item 1), wake time (Item 3), and actual hours of sleep (Item 4).

Additionally, the PSQI assesses sleep disturbances (Items 5b to 5j), which capture how often sleep is interrupted by factors such as waking in the night, needing to use the bathroom, difficulty breathing, temperature discomfort, pain, or bad dreams. The use of sleeping medication (Item 7) identifies whether individuals rely on medication to help them

sleep, and daytime dysfunction (Items 8 and 9) assesses how sleep problems affect concentration, alertness, and energy levels during the day.

For scoring, Items 1 to 4 do not use direct 0-3 response categories but are quantified indirectly. Usual bedtime (Item 1) and wake time (Item 3) are used to calculate the time spent in bed, which is combined with actual sleep hours (Item 4) to determine habitual sleep efficiency. The number of minutes required to fall asleep (Item 2) is then converted into a 0-3 score based on standard latency thresholds: 0 to 15 minutes equals 0, 16 to 30 minutes equals 1, 31 to 60 minutes equals 2, and more than 60 minutes equals 3. Items 5a to 5j, representing sleep disturbance indicators, are directly scored using the PSQI frequency scale, with 0 representing not during the past month, 1 representing less than once a week, 2 representing once or twice a week, and 3 representing three or more times a week. Notably, Item 5a also contributes to the sleep latency component. Finally, Items 6, 7, 8, and 9 are scored directly on a 0-3 rating scale, where higher scores indicate more severe sleep difficulties.

Accordingly, each scored item contributes to a component score ranging from 0 to 3, and the seven component scores are summed to obtain a global PSQI score ranging from 0 to 21. A global score of 5 or below reflects good sleep quality, whereas a score above 5 reflects poor sleep quality. This scoring system provides a reliable and comprehensive evaluation of both sleep quantity and the subjective experience of sleep, which has contributed to the PSQI being widely used in sleep research and clinical assessment. In accordance with Saalwirth and Leipold (2021), the PSQI has demonstrated excellent internal consistency, with a Cronbach's α of .930, further supporting its reliability.

Chapter IV

Results

Reliability Tests for Pilot Study and Actual Study

Pilot Study

To evaluate the reliability of the intended measurement instruments, an initial pilot study involved 30 participants who met the predetermined inclusion criteria. The internal consistency for these scales was specifically calculated via the Cronbach's alpha coefficient (α). According to accepted standards, reaching a Cronbach's alpha of .70 or above indicates acceptable reliability, whereas scores exceeding .80 reflect good reliability (Hair et al., 2010).

Results indicated that the 13-item Brief Self Control Scale (BSCS-13) yielded a Cronbach's alpha of $\alpha = .812$, signifying good reliability. This value exceeded the .80 threshold, indicating good internal consistency in measuring the construct of self-control.

For coping strategies, the Brief COPE was utilised to evaluate both the Maladaptive and Adaptive Coping domains. Comprising 12 items, the Adaptive Coping sub scale achieved an acceptable reliability level, generating a Cronbach's alpha of $\alpha = .796$, which surpasses the standard .70 baseline. Conversely, the 8-item Maladaptive Coping section showed good internal consistency by producing an α coefficient of .811. Consequently, both dimensions proved to be highly reliable for assessing coping strategies within this specific research.

Furthermore, the current research incorporated 7 components from the Pittsburgh Sleep Quality Index (PSQI). This instrument demonstrated an acceptable degree of dependability by yielding an $\alpha = .781$. This result suggests that the instrument was adequately consistent in assessing sleep quality among the participants.

Overall, the Cronbach's alpha values for all instruments ranged from $\alpha = .781$ to $\alpha = .812$, establishing that every assessment tool achieved adequate to good internal reliability

(refer to Table 4.1). Consequently, these questionnaires were confirmed as highly dependable and fully appropriate for deployment in the primary data collection phase.

Actual study

For this actual study, the reliability of the measurement instruments was evaluated via data obtained from 160 participants after the data cleaning process. The Brief Self-Control scale (BSCS-13), comprising 13 items, produced an α coefficient of $\alpha = .707$, reflecting a satisfactory degree of dependability.

With respect towards coping strategies, the Brief COPE demonstrated acceptable reliability across both subscales. The Adaptive Coping subscale consisted of 12 items, generated an internal consistency value equalling $\alpha = .704$, whereas the Maladaptive Coping subscale, comprising 8 items yielded an α value of $\alpha = .768$. Both coefficients exceeded the recommended threshold of .70, thereby supporting the reliability of the coping measures employed for the current research.

Similarly, the sleep assessment index (PSQI), which included 7 components for this research, showed acceptable dependability, recording an α value equalling $\alpha = .703$. This finding indicates that the instrument possessed adequate internal consistency in measuring sleep quality.

Taken together, the reliability coefficients for the instruments ranged from $\alpha = .703$ to $\alpha = .768$, suggesting that all measures demonstrated acceptable levels of internal consistency and were therefore considered suitable for subsequent statistical analyses (refer to Table 4.1).

Table 4.1*Reliability Tests for Pilot Study and Actual Study*

Scales	N of items	Pilot Study (N = 30)	Actual Study (N = 160)
		Cronbach 's α	Cronbach's α
Brief Self-Control Scale (BSCS)	13	.812	.707
Brief COPE (Adaptive Coping Strategy)	12	.796	.704
Brief COPE (Maladaptive Coping Strategy)	8	.811	.768
Pittsburgh Sleep Quality Index (PSQI)	18	.781	.703

Descriptive Statistics***Demographic Information of Participants***

The study involved 160 university students from Malaysia. As presented in Table 4.2, participants were aged between 19 and 28 years, with a mean age of 22.10 years ($SD = 1.42$). In terms of gender, the sample was relatively balanced, comprising 83 males (51.9%) and 77 females (48.1%). With regard to ethnicity, Chinese participants constituted the dominant group, accounting for 93 respondents (58.1%), followed by Malay participants with 35 respondents (21.9%) and Indian participants with 31 respondents (19.4%) and Iban with 1 respondent (0.6%), representing the smallest proportion of the sample.

Regarding the type of university, most participants were enrolled in private universities, comprising 98 respondents (61.3%), including institutions such as Asia Pacific University and HELP University, whereas 62 respondents (38.8%) attended public universities, such as Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), and

Universiti Putra Malaysia (UPM). With respect to the mode of study, full time students constituted the overwhelming majority of the sample, with 157 respondents (98.1%), while part time students represented only a very small minority, with 3 respondents (1.9%).

Table 4.2

Descriptive Statistics for the Demographic Information of Respondents (N = 160)

	N	%	M	SD	Min.	Max.
Age	160	100	22.10	1.42	19	28
Gender						
Male	83	51.9				
Female	77	48.1				
Ethnicity						
Chinese	93	58.1				
Malay	35	21.9				
Indian	31	19.4				
Iban	1	0.6				
Type of University						
Public University	62	38.8				
Private University	98	61.3				
Mode of Study						
Full-time	157	98.1				
Part-time	3	1.9				

Note. N = number of cases; % = percentage; *M* = Mean; *SD* = Standard Deviation; Min = Minimum; Max = Maximum

Topic Specific Characteristics

Descriptive statistics were conducted to examine the central tendency and variability of the primary study variables, namely self-control, adaptive coping, maladaptive coping, and sleep quality, as presented in Table 4.3. The findings revealed that participants obtained a mean score of 3.00 ($SD = 0.48$) for self-control, reflecting a moderate level of self-control within the sample.

In relation to coping strategies, adaptive coping strategy yielded a mean score of 33.84 ($SD = 4.57$), while maladaptive coping strategy produced a mean score of 17.95 ($SD = 4.61$). The higher mean score for adaptive coping strategy suggests that participants were more inclined to employ adaptive coping strategies than maladaptive coping strategies when dealing with stress.

With regard to sleep quality, the mean global PSQI score was 7.40 ($SD = 3.04$). Based on the PSQI scoring guideline, a score above 5 is indicative of poor sleep quality (Buysse et al., 1989). Therefore, the mean score obtained in the present study suggests that the participants generally experienced poor sleep quality.

Overall, the results indicate that participants showed a moderate level of self-control and a greater tendency to use adaptive coping strategies. Despite this, the average level of sleep quality remained poor, suggesting that sleep related difficulties were present within the sample.

Table 4.3*Descriptive Statistics for Study Variables*

Variable	<i>M</i>	<i>SD</i>	Min.	Max.
Self-Control	3.00	0.48	2	4
Adaptive Coping Strategy	33.84	4.57	20	44

Maladaptive Coping Strategy	17.95	4.61	8	27
Sleep Quality	7.40	3.04	0	17

Note. $N = 160$; M = Mean; SD = Standard Deviation; Min = Minimum; Max = Maximum

Data Management

A total of 211 responses were recorded during the data collection period. These responses were screened and cleaned by utilising IBM SPSS Statistics version 30 before statistical analysis was conducted. During the initial screening, 20 responses were excluded due to considerable missing data, as the incomplete questionnaires indicated withdrawal before survey completion. Following the exclusion of these cases, 191 responses were retained for further analysis, resulting in a response rate of 90.5%. As the remaining dataset contained minimal missing values, no imputation was performed and complete case analysis was applied.

The 191 retained responses were then screened for eligibility, straight lining, and attention check performance. First, 12 responses were excluded for failing to meet the study inclusion criteria, as the respondents were not university students. Next, nine responses were removed due to straight lining behaviour, which referred to the repeated selection of the same response option across items. This response pattern indicated inattentive answering, posed a threat to data quality, and could undermine the validity of the study findings (Meade & Craig, 2012). In addition, 10 responses were excluded due to failure on the two attention check items, indicating insufficient attention to the questionnaire content. Following the removal of invalid responses, the final dataset included 160 valid responses, surpassing the minimum required sample size of 132. This screening procedure ensured the accuracy, validity, and reliability of the data for subsequent statistical analysis.

Normality Assumptions

Prior to performing Pearson Product-Moment Correlation (PPMC), the normality of the data was assessed using both visual and statistical approaches. Q-Q Plots and Histograms were examined to evaluate the variables' distribution, while the Kolmogorov-Smirnov test was conducted to provide a statistical assessment of normality. Furthermore, skewness and kurtosis values were examined, where values within the acceptable range indicated approximate normal distribution.

Histograms

The histograms for self-control, adaptive coping strategy, maladaptive coping strategy, and sleep quality presented in appendix H showed approximately bell shaped and symmetrical distributions. For each variable, scores were clustered around the central values, with frequencies gradually decreasing toward both ends. This pattern indicates that the data followed an approximately normal distribution (George & Mallery, 2010). Therefore, visual inspection of the histograms suggested that the normality assumption was met.

Quantile-Quantile (Q-Q) plot

As presented in appendix G, the Quantile-Quantile (Q-Q) plot for self-control, adaptive coping, maladaptive coping, and sleep quality showed that the data points closely followed the diagonal reference line, with no significant deviations from normality. This pattern suggests that the distributions were approximately normal (George & Mallery, 2010). Thus, the assumption of normality was considered to be satisfied based on visual inspection of the Q-Q plots.

Kolmogorov-Smirnov test (K-S test)

As indicated by the Kolmogorov-Smirnov (K-S) test in Table 4.4, all four study variables showed a departure from normality, including self-control, adaptive coping strategy, maladaptive coping strategy, and sleep quality. Specifically, the distributions of self-control, $D(160) = 0.091$, $p = .002$, adaptive coping strategy, $D(160) = 0.088$, $p = .004$, maladaptive coping strategy, $D(160) = 0.153$, $p < .001$, and sleep quality, $D(160) = 0.088$, $p = .004$, showed significant deviations from normality, with all significance values falling below .05 (Field, 2009).

Table 4.4

Kolmogorov-Smirnov test (K-S test) for Each Variable

Variables	Statistic	df	Sig.
Self-control	.091	160	.002
Adaptive Coping Strategy	.088	160	.004
Maladaptive Coping Strategy	.153	160	<.001
Sleep Quality	.088	160	.004

Skewness and Kurtosis

Further assessment of the variables' normality was carried out using skewness and kurtosis values. As presented in Table 4.5, the skewness values for self-control, adaptive coping strategy, maladaptive coping strategy, and sleep quality ranged from $-.387$ to $.363$, whereas the kurtosis values ranged from $-.733$ to $.044$. All values were within the acceptable range of ± 2 , indicating that the distributions of the four variables were approximately normal (George & Mallery, 2010).

Table 4.5*Skewness and Kurtosis for Each Variable*

Variables	Skewness	Kurtosis
Self-Control	.363	-.251
Adaptive Coping Strategy	-.004	.044
Maladaptive Coping Strategy	-.387	-.733
Sleep Quality	.265	-.111

Conclusion of Normality Assumptions

A comprehensive assessment of the normality of the dataset was carried out using five indicators, namely histograms, Quantile-Quantile (Q-Q) plot, skewness, kurtosis, and the Kolmogorov-Smirnov (K-S) test. The findings showed that self-control, adaptive coping, maladaptive coping, and sleep quality satisfied the normality assumption based on the histogram, Q-Q plot, skewness and kurtosis results. Although the Kolmogorov-Smirnov test indicated violations of normality for all four variables, no substantial violations were observed across the remaining indicators. Therefore, the dataset was considered to be approximately normally distributed, as each variable met the normality criterion with at least three indicators showing no violation.

Pearson Product Moment Correlation (PPMC) analysis

To examine the relationships among self-control, adaptive coping strategy, maladaptive coping strategy, and sleep quality (see Table 4.6), a Pearson's correlation analysis was conducted. The results showed that self-control shared significant correlations with all three variables. A weak positive correlation was observed between self-control and adaptive coping ($r = .165, p = .037$), suggesting that elevated self-control corresponded to

greater use of adaptive coping strategies. In contrast, a moderate negative correlation was observed between self-control and maladaptive coping strategy ($r = -.462, p < .001$), indicating that those with higher self-control were less inclined to engage in maladaptive coping strategies. Additionally, a significant negative correlation was observed between self-control and PSQI scores ($r = -.303, p < .001$). Since lower PSQI scores reflect better sleep quality, this result suggests that greater self-control was associated with improved sleep quality. Collectively, these findings supported Hypothesis 1a, Hypothesis 1b, and Hypothesis 3.

With regard to coping-related associations, adaptive coping demonstrated a moderate negative correlation with maladaptive coping strategy ($r = -.379, p < .001$), indicating an inverse relationship between the two coping dimensions. However, the association between adaptive coping strategy and sleep quality was not statistically significant ($r = -.140, p = .078$), as the p value exceeded the .05 significance threshold (George & Mallery, 2010). Therefore, Hypothesis 2a was not supported.

In contrast, Hypothesis 2b was supported by the significant moderately positive correlation linking maladaptive coping strategy with PSQI scores ($r = .385, p < .001$). Because elevated PSQI values reflect reduced sleep quality, this outcome suggests that a greater reliance on these maladaptive coping strategies corresponded to worsened sleep quality.

Table 4.6*Pearson Correlations Among Study Variables*

Variable	1	2	3	4
1. Self-Control	—			
2. Adaptive Coping Strategy	.165*	—		
3. Maladaptive Coping Strategy	-.462**	-.379**	—	
4. Sleep Quality	-.303**	-.140	.385**	—

Note. N = 160. $p < .05$ ** $p < .01$

Chapter V

Discussion and Conclusion

H_{1a}. Self-control is positively correlated with adaptive coping strategies among university students in Malaysia.

Current outcomes validated the hypothesis proposing self-control remains directly associated to adaptive coping strategies within the university students in Malaysia demographic. This result proves consistent alongside previous research indicating those possessing higher trait self-control demonstrate a higher tendency to regulate stress effectively (Englert et al., 2011; Massar et al., 2022). One possible explanation for this relationship is that elevated self-control allows learners to handle academic stress through a more organised as well as deliberate manner. In other words, learners exhibiting superior self-control are often more equipped to respond to unexpected challenges calmly, thereby preventing academic stress from developing into heightened emotional strain.

Furthermore, self-control reflects a stable ability to govern internal thoughts, affective states, alongside behaviours via ways that prioritise future-oriented objectives over immediate impulses (Baumeister et al., 2007). As a result, it may facilitate the application of techniques like problem-solving, as well as proactive planning (Alker, 2025). This regulatory capacity helps students respond to university stressors with greater organisation and focus (Lohani et al., 2022), reducing the emotional impact of stressful experiences and prevent feelings of anxiety or frustration from triggering impulsive reactions (Pan et al., 2023). When students address academic demands directly or modify their environment to avoid distractions, they are consciously managing their cognitive reactions (Di & Gu, 2024; Theobald et al., 2026). Thus, they may approach complex tasks in a more regulated state, which is conducive to better academic and personal adjustment (Gfellner & Cordoba, 2025).

Beyond its role in reducing impulsive reactions, self-control may also foster adaptive coping by lowering cognitive arousal over time. Among university students in Malaysia, stress related to deadlines, rigorous examinations, and social pressures requires continuous management. The progressive development of self-control allows students to maintain their focus and respond to challenges systematically. This process can enhance their sense of mastery over stressful situations, allowing them to approach stressors in a constructive manner. When a stressor is appraised as manageable through the lens of strong self-discipline, it decreases the likelihood of distress persisting throughout the day, fostering conditions that support overall psychological well-being.

H_{1b}. Self-control is negatively correlated with maladaptive coping strategies among university students in Malaysia

The outcome supported the hypothesis that self-control is negatively associated to maladaptive coping strategies within the university students in Malaysia demographic. This result proves consistent alongside earlier literature showing those possessing higher trait self-control appear less likely to depend on emotion-driven and avoidant coping responses (Napolitano et al., 2024; Xu et al., 2017). One possible explanation is that self-control helps students regulate impulses to avoid stress before it develops into unhelpful behavioural reactions. More specifically, students with stronger self-regulatory tendencies may be better able to prevent daily academic stress from giving rise to self-defeating behaviours such as denial, substance use, or behavioural disengagement.

Furthermore, characteristics such as impulse regulation, sustained attention, and goal alignment can help students respond to stressors with greater restraint and discipline. This may reduce the urge to escape stressful experiences and prevent feelings of anxiety,

frustration, helplessness, or sadness from dictating their immediate actions. In line with this view, Fuente & Cardelle-Elawar (2011) emphasised that strong self-control benefits students by lowering the likelihood of adopting avoidance strategies when faced with adversity, as it helps shape a more constructive appraisal of challenges. Similarly, Hagger et al. (2026) and Napolitano et al. (2024) reported that higher trait self-control and lower impulsivity prevent individuals from resorting to immediate, short-term relief. When students pause to evaluate problems rather than reacting impulsively, they avoid compounding their difficulties. As a result, they may approach challenging situations in a more grounded state, which is far less conducive to maladaptive coping.

Beyond its role in curbing impulsive reactions, self-control may also reduce maladaptive coping by lowering overall emotional distress over time. According to Qi et al. (2025), among university students, stress related to deadlines, examinations, interpersonal pressures, and uncertainty about the future may become overwhelming when individuals resort to short-term escapes rather than constructive management. As these unaddressed concerns compound, students may experience greater difficulty managing their psychological burden and regulating their behaviour. In this context, self-control enables students to resist immediate gratification and tolerate temporary discomfort in pursuit of long-term benefits (Chen & Woody, 2025). This process can enhance their resilience against stressful situations, allowing them to bypass avoidant responses in a more disciplined manner. When the impulse to disengage is successfully suppressed, it can prevent the stressor from worsening and facilitate better adjustment even if the core issue remains unresolved. This behavioural regulation not only prevents stress from spiralling but also decreases the likelihood of students falling into repetitive cycles of denial. As a result, avoiding these short-term escapes prevents the accumulation of unresolved stress, reducing cognitive disturbances such as

rumination and tension, and cultivating conditions that support better overall psychological well-being (Xue et al., 2025).

H_{2a}. Adaptive coping strategies are positively correlated with better sleep quality among university students in Malaysia.

The results of the present study did not provide support for Hypothesis 2a, as no statistically significant relationship was found between adaptive coping strategies and sleep quality among university students in Malaysia. This finding suggests that the use of adaptive coping strategies may not be directly related to sleep quality in the current sample.

One possible explanation is that adaptive coping may not influence sleep quality directly, but may instead affect it indirectly through the reduction of stress and emotional distress (Kozusznik et al., 2021; Wang et al., 2024). Therefore, the extent to which adaptive coping contributes to better sleep may depend on its ability to reduce unresolved stress before bedtime. In accordance with Kato (2025), adaptive coping enables individuals to identify problems, formulate action plans, and respond to stressors in a more manageable manner, thereby enhancing perceived control and reducing cognitive arousal at night. However, when stressors persist or remain unresolved, the use of adaptive coping strategies may not be sufficient to prevent stress-related thoughts from extending into the evening. Moreover, sleep quality is shaped by multiple factors, including academic demands, irregular sleep schedules, screen exposure, caffeine intake, and psychological distress. Thus, the influence of adaptive coping on sleep quality may have been attenuated by these additional factors.

Another plausible explanation relates to the multifaceted nature of adaptive coping, as its association with sleep quality may be indirect and vary across different coping strategies. According to Carver (1997), adaptive coping encompasses various behaviours, like active

coping, planning, acceptance, and seeking emotional or instrumental support, which may not exert equivalent effects on sleep outcomes. While they may assist students in managing stress more constructively and maintaining daily functioning, adaptive coping may not necessarily alleviate bedtime rumination or the cognitive and physiological arousal associated to poor sleep (Kato, 2025; Kozusznik et al., 2020). As a result, treating adaptive coping as a single construct may have weakened the relationship between adaptive coping and sleep quality in the present study.

Furthermore, the non-significant result may partly be explained by the ethnic composition of the sample, which was predominantly Chinese (refer to Table 4.2). Earlier research has shown that sleep quality may differ across ethnic groups, with Malay individuals reported to have a greater likelihood of experiencing poor sleep quality (Ee & Gan, 2022). This suggests that ethnicity may be one factor associated with variations in sleep quality. Given the relatively homogeneous ethnic composition of the present sample, the range of variation in sleep quality may have been limited, which may have reduced the strength of the relationship between adaptive coping and sleep quality and contributed to the non-significant finding.

Overall, the present findings suggest that adaptive coping may not be directly associated with sleep quality among university students in Malaysia. Instead, its association with sleep quality may operate indirectly and may depend on the context, the particular coping responses used, and other demographic, behavioural, and psychological influences. These factors may help account for the absence of a significant association between adaptive coping and sleep quality in the present study.

H_{2b}. Maladaptive coping strategies are negatively correlated with better sleep quality among university students in Malaysia.

The present study provided support for the hypothesis that greater use of maladaptive coping strategies is associated with poorer sleep quality among university students in Malaysia. This finding is in line with earlier studies suggesting that maladaptive ways of coping are linked to less favourable sleep outcomes. For example, Hagemann et al. (2023) reported that specific maladaptive responses, including disengagement and avoidance, which focus on evading stress rather than addressing it, can significantly impair sleep quality over time.

One possible explanation for this relationship is that maladaptive coping may interfere with effective stress reduction and adjustment. Kim et al. (2022) supported this perspective by demonstrating that coping strategies, particularly avoidance coping, played a role in explaining the association between perceived stress and poor sleep quality. This suggests that the way stress is managed can determine whether its negative effects are reduced or sustained. Maladaptive coping strategies such as avoidance, denial, behavioural disengagement, and passive coping may provide short-term psychological relief by enabling individuals to avoid confronting distress. Although this may ease discomfort momentarily, it does not directly address the underlying source of stress. Consequently, the underlying stressor remains unresolved, leading to prolonged tension over time. In turn, this may hinder emotional recovery because the individual is not moving toward problem resolution or meaningful adjustment, thereby increasing the likelihood of poorer sleep quality.

Another plausible mechanism underlying the negative association between maladaptive coping and better sleep quality is heightened cognitive arousal before bedtime. Students who depend on maladaptive coping strategies often have difficulty organizing their thoughts, reframing stressful situations, or adopting effective problem-solving approaches.

Consequently, stressors may remain unresolved and continue to preoccupy their minds, leading to heightened worry and rumination. When these concerns persist into the evening, students may experience greater difficulty disengaging mentally from their stressors before sleep. Prolonged cognitive arousal during the pre-sleep period may delay sleep onset and disrupt the transition into restful sleep. This interpretation is supported by previous research demonstrating that rumination is closely linked to arousal processes in insomnia, while hyperarousal has been identified as a key mechanism underlying sleep disruption (Palagini et al., 2017). In this way, maladaptive coping appears to undermine sleep quality by prolonging mental activation at night.

Furthermore, maladaptive coping may impair sleep quality by intensifying emotional distress. Instead of supporting effective emotional regulation, maladaptive coping responses may heighten feelings of anxiety, helplessness, frustration, or sadness. When this emotional distress is not adequately resolved during the day, it may persist into the night and interfere with rest. According to Hagemann et al. (2023), maladaptive forms of coping were associated with reduced sleep quality across several consecutive days, indicating that the emotional strain associated with these coping mechanisms may accumulate over time, rather than being limited to individual stressors. In a similar way, Hartley et al. (2014) reported that passive coping strategies, including self-blame and denial, intensified the negative relationship between stress and sleep quality. Collectively, these findings suggest that maladaptive coping not only fails to alleviate stress effectively but also exacerbates its emotional consequences in ways that disrupt sleep.

H₃. Self-control is positively correlated with better sleep quality among university students in Malaysia.

The present study supported the hypothesis that self-control is positively associated with better sleep quality among university students in Malaysia. This finding suggests that self-control may promote better sleep by helping students regulate behaviours that directly support healthy sleep patterns. Given that university students are often exposed to academic demands, social commitments, and digital distractions, the ability to exercise self-control may be especially important in enabling them to prioritise rest and maintain behaviours conducive to better sleep quality (Todd & Mullan, 2012; Wang et al., 2023).

This relationship may be explained by the role of self-control in helping students regulate their behaviour, particularly during the period before sleep. Individuals with higher self-control may be more capable of resisting immediate temptation, such as extended smartphone use, entertainment, or other non-essential activities, allowing them to adhere to their planned sleep routines. This may reduce the likelihood of bedtime procrastination, which has been identified as a form of self-regulation failure associated with poorer sleep outcomes (Kroese et al., 2014). In the context of university life, where students often have greater autonomy over their daily routines, stronger self-control may help minimise unnecessary delays in bedtime and contribute to better overall sleep quality.

Beyond its impact on bedtime behaviors, self-control may also enhance sleep quality by shaping broader routines and habits that influence sleep over time. Students with greater self-control are more inclined to manage their daily schedules in a disciplined manner, including maintaining regular sleep and wake patterns while limiting behaviours that could disrupt sleep. This broader pattern of behavioural consistency may help support more stable sleep patterns across time, rather than relying only on bedtime regulation. Previous research

has shown that self-control is associated with better sleep hygiene among university students, suggesting that self-control may help individuals both avoid behaviours that disrupt sleep and sustain habits conducive to more restorative sleep (Todd & Mullan, 2012).

Furthermore, the influence of self-control on sleep quality may extend beyond the regulation of observable behaviour. According to Wang et al. (2023) and Yin et al. (2025), self-control may contribute to better sleep quality by helping students regulate internal states before sleep. The period preceding bedtime is often marked by academic concerns, personal worries, and other forms of cognitive or emotional activation that interfere with the ability to unwind. In these circumstances, students with higher levels of self-control may be better able to manage intrusive thoughts, reduce emotional arousal, and disengage from unnecessary mental activity at night. Consequently, they may approach bedtime in a calmer and more regulated psychological state, which may contribute to better sleep quality.

Implications

The implications of this study provide valuable contributions to both theoretical and practical domains. By exploring the relationships between self-control, coping strategies, and sleep quality among university students in Malaysia, the findings not only enhance existing literature but also offer actionable insights for improving student well-being. This section discusses the theoretical implications for future research, identifying potential directions for extending and refining existing frameworks. It also addresses the practical implications for programs and policies, suggesting ways to apply these findings in real-world interventions and strategies focused on promoting healthier sleep and stress management among university students.

Theoretical Implications for future research

The findings of this study provide valuable support for the Personality Coping Outcome Theory (PCO Theory), highlighting the pivotal role of self-control in shaping coping strategies and sleep quality. This study is consistent with previous research, which indicates that individuals with higher self-control tend to adopt more adaptive coping strategies, which are associated with better sleep quality (Englert et al., 2011; Xu et al., 2017). These results validate the core principles of the PCO Theory, underscoring the importance of self-control in promoting positive coping behaviours that enhance sleep quality. Nevertheless, several theoretical implications emerge from these findings, pointing to potential directions for further work to extend and refine the existing framework.

A key area for future investigation is the multidimensional nature of self-control. While this study conceptualizes self-control as a general trait, future studies should consider expanding the PCO Theory by examining its distinct dimensions, such as cognitive, emotional, and behavioural control. These different dimensions may interact with coping strategies in unique ways and contribute to sleep outcomes in various manners. Research by Baumeister et al. (2007) suggests that cognitive self-control influences goal-directed behaviours and decision-making, while emotional control affects how individuals manage their emotional responses to stress. Therefore, further exploration into these dimensions of self-control could refine the PCO Theory, enabling a more nuanced understanding of how specific aspects of self-control contribute to different coping strategies. This would allow researchers to pinpoint which dimensions of self-control are most crucial in facilitating adaptive coping and improving sleep quality, providing a more detailed model of self-control's influence on well-being.

In addition to self-control, other personality traits should also be considered to enrich the theoretical framework. Specifically, traits such as neuroticism, conscientiousness, and

emotional stability could provide important insights into the variability of coping strategies and sleep quality. These personality traits affect how individuals appraise and respond to stress, which in turn shapes their coping behaviours and sleep outcomes. For instance, neuroticism has been associated with heightened emotional reactivity and maladaptive coping, which can negatively impact sleep quality (Jeronimus et al., 2014). Conversely, conscientiousness tends to be linked with adaptive coping strategies and better health outcomes, including improved sleep quality (Roberts et al., 2005). By incorporating these traits into the Personality Coping Outcome Theory, future studies could offer a deeper understanding of how different personality traits affect the adoption of coping strategies and their impact on sleep quality.

Moreover, the connection between coping strategies, self-control, and sleep quality requires further exploration. Although this study identified a positive correlation between adaptive coping strategies and better sleep quality, the particular coping mechanisms that most strongly affect sleep outcomes have yet to be fully determined. Consistent with Carver (1997) and Aldao et al. (2010), active coping and emotion-focused coping have been associated with better mental health and more favourable sleep outcomes, whereas avoidance and disengagement have been linked to poorer sleep quality. Despite these insights, it remains uncertain which coping strategies are most closely correlated with sleep quality. Therefore, future research should focus on identifying specific coping strategies, such as cognitive restructuring and seeking social support, that demonstrate the strongest associations with sleep quality. In addition, subsequent investigations may examine how these coping mechanisms are related to sleep quality among individuals with differing levels of self-control, which may further refine the PCO Theory by clarifying which coping strategies are most closely associated with better sleep outcomes.

Overall, the findings of this study provide support for the Personality Coping Outcome Theory (PCO Theory), emphasizing the pivotal role of self-control in shaping coping strategies and improving sleep quality. The present study contributes to existing body of literature by demonstrating that individuals with higher levels of self-control are more likely to engage in adaptive coping strategies, which are associated with better sleep quality. Nonetheless, further investigation is needed to extend the PCO Theory by examining the multidimensional nature of self-control, incorporating additional personality traits such as neuroticism, conscientiousness, and emotional stability, and identifying the specific coping strategies most strongly associated with sleep quality. By refining the theoretical framework to include these factors, future studies will provide more profound insights into the intricate relationships between personality traits, coping strategies, and sleep quality, thereby contributing to a more holistic understanding of the factors that affect sleep and overall well-being among university students.

Practical implication for programs and policies

The findings of this study offer valuable insights for strengthening existing programmes and policies at universities in Malaysia, particularly those related to self-control, coping strategies, and sleep quality. Given the high prevalence of sleep disturbances and mental health concerns among university students in Malaysia, the present study highlights the urgent need for universities to integrate sleep hygiene education into student wellness initiatives. Previous research indicates that numerous students struggle with poor sleep quality, which is often associated with academic stress, inconsistent sleep patterns, and excessive digital media use (Vu & Tagliabue, 2025). In line with these findings, the study emphasizes the importance of universities implementing structured educational programs on

sleep hygiene that focus on strategies such as maintaining consistent bedtimes, minimizing stimulant intake before sleep, and reducing evening screen exposure (Lakshme et al., 2025). By encouraging healthier sleep habits, these initiatives could help students establish more consistent routines, thereby improving their overall sleep quality and well-being.

In addition to sleep education, the study emphasizes the need to expand and enhance counselling and psychological support services on university campuses. According to Malaysian Mental Health Association (2020), many university students in Malaysia experience mental health difficulties, yet they may be reluctant to seek professional help due to stigma or insufficient awareness of available resources. Thus, the findings of the study advocate for the integrating peer support programs, such as the IMU Peer Support Club, where trained students provide emotional support and organise mental health awareness initiatives, including events like 'Mental Health Week' (IMU University, 2025). These peer-led initiatives have proven effective in reducing the stigma surrounding help-seeking behaviours and providing students with informal but valuable support. Thus, expanding these programs would create a more inclusive and supportive environment, encouraging students to seek professional help and enhancing the overall accessibility of mental health resources.

Moreover, the findings of the present study reveal a positive association between adaptive coping strategies and sleep quality, indicating that students who utilise effective coping methods are more likely to experience better sleep. This underscores the potential benefits for universities to integrate stress management and self-regulation training into both academic and co-curricular programs. Specifically, the findings suggest that students who adopt coping approaches, including problem-solving and seeking support are more likely to maintain healthier sleep patterns. Therefore, universities should consider implementing programs that encourage the development of adaptive coping mechanisms, including mindfulness, time management, and emotional regulation. These initiatives would not only

help students manage stress but also improve their sleep quality and foster resilience.

According to HELP University (2023), wellness programs that include yoga sessions, stress-relief workshops, and peer mentoring provide effective models for integrating these strategies into university offerings. By incorporating these programs into co-curricular activities or academic structures, universities can equip students with practical tools to manage academic and personal challenges more effectively.

Furthermore, the present study highlights the importance of integrating data-driven policy development into student wellness programmes. Through regular assessments of student well-being, particularly in relation to sleep quality, stress levels, and coping strategies, universities may develop a more comprehensive understanding of the specific needs of their student populations. This enables institutions to tailor interventions and address student challenges more effectively. One example is Universiti Kebangsaan Malaysia (UKM), which conducts annual surveys to evaluate the mental health and overall well-being of its students. Findings from these surveys provide valuable evidence that informs the modification of wellness programmes at the university (Universiti Kebangsaan Malaysia, 2024). This evidence-based approach enables UKM to ensure that its wellness initiatives remain relevant and effective, while supporting the continuous refinement of programmes in response to the evolving needs of students.

Ultimately, the findings from the present study offer valuable recommendations for improving student wellness programs in universities across Malaysia. The study emphasizes the need to incorporate sleep hygiene education, strengthen mental health support services, and promote adaptive coping strategies to better support the well-being of university students. Besides, the integration of data-driven approaches is crucial for ensuring that wellness initiatives are tailored to the specific needs of the student population. Implementing these strategies would foster a more supportive environment, helping students manage stress

effectively, improve sleep quality, and enhance both academic performance and personal development.

Limitations

Despite the valuable findings obtained in this study, several limitations should be acknowledged. First, the present study did not control for a range of potential confounding variables that may affect sleep quality, including perceived stress, caffeine consumption, screen time, physical activity, and mental health-related factors. In accordance with Busa et al. (2023) and Wang and Bíró (2021), sleep quality among university students is shaped by a wide range of lifestyle, psychological, social, and physical determinants. Therefore, the relationships observed between self-control, coping strategies, and sleep quality may have been partially influenced by these unmeasured factors.

Second, the current study did not collect data regarding participants' specific academic majors or their current year of study, which limits the ability to account for the heterogeneous nature of university stress. According to Banu et al. (2015), the source and severity of academic stressors can fluctuate across different academic disciplines and stages of a degree program. Without controlling for these educational demographics, it is difficult to pinpoint the underlying environmental factors contributing to the students' psychological burden. Therefore, the extent to which specific academic contexts shaped the participants' reliance on self-control, coping strategies, and subsequent sleep quality remains unclear.

Third, the present study relied exclusively on self-report questionnaires, which are widely used and practical in psychological research. Nevertheless, these measures are vulnerable to several forms of response bias, including social desirability bias, recall bias, and inaccuracies in self-perception (Brenner & DeLamater, 2016; Karpen, 2018; Latkin et al., 2017). Under these conditions, participants may have provided responses they considered

socially acceptable, rather than responses that fully reflected their actual thoughts or behaviours. Beyond this, they may also have encountered difficulties in accurately recalling the frequency or severity of their coping behaviours and sleep related problems. This issue is particularly relevant when individuals are required to reflect on subjective experiences over time. Furthermore, self-evaluations of self-control and coping may not always correspond closely with actual behavioural tendencies in everyday situations. Taken together, these concerns may have introduced measurement error and reduced the precision of the data collected. These methodological issues are not unique to the present study, as similar concerns have also been highlighted in previous research on student sleep and psychological functioning that relied on self-reported measures (Wang & Bíró, 2021). Therefore, the limitations associated with self-report instruments must be considered when interpreting the present findings.

Finally, the findings of this study are geographically and culturally restricted, as the sample was exclusively composed of university students residing in Malaysia. Consequently, the relationships observed between self-control, coping strategies, and sleep quality may be shaped by educational pressures, societal expectations, and cultural norms specific to the Malaysian context. In particular, cultural values such as individualism and collectivism may play an important role in influencing the coping strategies adopted by individuals (Klein et al., 2024). As Malaysia is generally characterised as a collectivist society, students in this context may be more inclined to rely on social support and interpersonal harmony when managing stress (Ee et al., 2025). In contrast, individuals from more individualist cultures may be more likely to adopt independent and direct problem-solving strategies. This cultural constraint limits the broader generalisability of the findings, as the stress appraisals and coping mechanisms utilised by the current sample may differ significantly from those of international student populations in distinct cultural and educational settings.

Recommendations

Given the limitations identified in the present study, several recommendations are proposed for future studies. First, subsequent investigations should account for a wider range of variables that may impact sleep quality, including perceived stress, physical activity, and caffeine intake (Claydon et al., 2023), as well as screen time and psychological distress (Wang et al., 2025). By taking these additional factors into account, subsequent studies may be better positioned to capture the multifaceted nature of sleep quality and examine the distinct contributions of self-control and coping strategies with greater precision. This would allow for a more comprehensive understanding of the relationships among the study variables, while minimizing the impact of unmeasured confounding factors.

Second, future research should incorporate more detailed educational demographic information, particularly participants' academic majors and year of study. These educational characteristics may influence the nature and intensity of stress experienced by university students. For instance, first year students may face stress related to adapting to a new academic and social environment, whereas final year students may experience pressure linked to internships, thesis completion, and preparation for future careers (Cage et al., 2021; Lommatzsch, 2025). In addition, students from different academic disciplines may be exposed to different workload demands and performance expectations. This methodological adjustment would clarify whether specific educational environments moderate the relationship between self-control, coping strategies, and sleep quality, paving the way for more targeted, faculty-specific psychological interventions.

Third, future studies are encouraged to employ multiple methods of data collection in order to complement self-report measures. Although self-report questionnaires are commonly used and practical in psychological research, reliance on a single method of assessment may limit the accuracy and comprehensiveness of the data obtained (Podsakoff et al., 2003, 2012).

Thus, future researchers may consider incorporating additional approaches such as behavioural assessments, informant reports, sleep diaries, or objective sleep monitoring tools, including actigraphy or wearable sleep tracking devices. These approaches may provide more comprehensive and objective insights into participants' behavioural patterns and sleep experiences, rather than depending solely on subjective self-evaluations. Taken together, the integration of multiple assessment methods may help reduce common method bias and strengthen the overall validity of the findings (Podsakoff et al., 2012).

Finally, future research should seek to replicate the present findings across broader cultural and geographical contexts to solve the limited generalisability of the present study. Since the sample was comprised solely of university students in Malaysia, the observed relationships may reflect contextual influences associated with the local educational environment, societal expectations, and culturally shaped coping patterns. In particular, cultural orientation has been recognised as an important factor influencing how individuals appraise stress and respond to it (Chun et al., 2006; Kuo, 2010). Therefore, future studies may benefit from adopting cross-cultural comparative designs that include student populations from societies with different cultural orientations. For instance, comparing students in Western, individualist institutions with those from collectivist Asian countries may serve as a valuable initial step toward establishing broader generalisability (Hansen & Heu, 2020). This would enable researchers to study whether the associations between self-control, coping strategies, and sleep quality remain stable across settings or vary according to cultural and educational conditions. In turn, this would provide a clearer understanding of whether the present findings are more broadly applicable to university students or are more specifically tied to the context of higher education in Malaysia.

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Appendices

Appendix A

Sample Size Calculation using G*Power version 3.1

