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Covid-19 Endemic: Academic-Life Integration among Students in Malaysia

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ABSTRACT

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Keywords:

Academic-Life Integration, Coping Mechanism, COVID-19 Endemic, Multiple Linear Regression, Online Learning Satisfaction, Sociodemographic This study examined the factors influencing academic-life integration among university students in Malaysia during the post-COVID-19 endemic phase, which began on April 1, 2022. Data were collected from 386 respondents through a structured survey and analyzed using SPSS and Microsoft Excel. The independent variable includes socio-demographic factors (age, gender, residential status, and tertiary education level), general and spiritual coping mechanisms and online learning satisfaction. This study aims to explain the extent to which these factors contribute to achieve a harmonious integration of academic responsibilities with personal well-being during the post-COVID-19 endemic phase. The analysis is also expected to highlight the interplay between demographic characteristics, satisfaction with online learning, and the coping strategies employed by students. These results will offer valuable implications for educators and policymakers to design effective strategies that promote seamless academic and personal life integration in the evolving educational landscape.

1. Introduction

Academic-life integration refers to the concept by which students blend their academic responsibilities with their personal, social, and emotional lives. It emphasizes not only the ability to integrate these two areas but also their interconnected on how academic demands and personal experiences interact and influence one another. Successful integration is important for students in higher education, as they face greater academic demands while managing personal growth, social changes, and independence. The COVID-19 pandemic has significantly disrupted academic-life integration for students. With remote learning, the loss of traditional social interactions, and increased isolation making it harder to balance academic and personal lives. Moreover, since the pandemic, many individuals in academic and professional roles have reported challenges with work-life integration and childcare responsibilities, leading some to consider leaving their positions, as highlighted in a study by Matulevicius et al. [16]. Similarly, students might face similar challenges as they struggle to balance their academic responsibilities with personal and family obligations. The incidence of severe mental health symptoms, including depression, anxiety, and stress, rose

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dramatically during the COVID-19 pandemic, emphasizing the critical need for enhanced mental health support. Simultaneously, this crisis underscored the significance of flexibility and adaptability, as both students and universities had to explore innovative approaches to handle academic responsibilities and sustain social relationships.

During the lockdown period, all levels of education, from kindergarten to tertiary level were conducted online. Physical classes were prohibited until the situation was manageable. The shift to online classes after generations of traditional in-personal learning had a significant impact on both students and educators. Several factors need to be considered to ensure that online classes are effective for students. Hence, various risks associated with online education have led to several challenges for students, affecting them both physically and mentally.

The rigid regulations during the pandemic have their own set of advantages and disadvantages. One critical issue to address is students' self -awareness and ability to pursue their education online during these challenging times. The challenges in creating a well-balanced academic-life integration may evolve and vary as Malaysia transitions to endemic phase of Covid-19, which began on April 1st , 2022. The Prime Minister of Malaysia declared that the transition from the pandemic to the endemic phase would serve as an exit strategy, with the goal of returning to normalcy for Malaysian citizens following their extended battle with Covid-19. During this transition, regulations and guidelines have been relaxed. For instance, the government had lifted the restrictions on business hours, which had previously limited operations and reduced business revenue. Interstate travel is now permitted regardless of vaccination status, and religious activities are allowed to proceed without physical distancing rules. The transition was initially planned for earlier in the previous year but was delayed due to the surge in infections from the Omicron Variant.

Although prior studies have explored student well-being, coping strategies, and the impact of online learning during the COVID-19 pandemic, there are still several gaps that need to be addressed. Research on sociodemographic factors such as gender, age, and residential status has often examined their influence on student outcomes in general, but limited attention has been given to how these characteristics collectively shape students' ability to integrate academic and personal responsibilities in the Malaysian context during the transition to the COVID-19 endemic. Similarly, while coping mechanisms have been studied in relation to stress reduction and mental health, few studies have distinguished between general and spiritual coping mechanisms in understanding their contribution to academic-life integration. Furthermore, although online learning satisfaction has been linked to academic performance and psychosocial well-being, its role in facilitating academic-life integration as a holistic construct remains underexplored. These gaps highlight the need for a study that examines the influence of sociodemographic factors, coping mechanisms, and online learning satisfaction on academic-life integration among students in Malaysia.

Given these challenges, it is essential to explore strategies and resources that can help students integrate their academic and personal lives more effectively. These include time management skills, support networks, self-care practices, and institutional resources such as counselling and advising services. Therefore, the objectives of this study are:

- i. To examine the relationship between sociodemographic factors and academic-life integration.
- ii. To explore the connection between general and spiritual coping mechanisms with academic-life integration.
- iii. To examine the impact of online learning satisfaction on academic-life integration.

In line with these objectives, this study seeks to answer the following research questions:

- i. What is the relationship between sociodemographic factors and academic-life integration?
- ii. How do general and spiritual coping mechanisms influence academic-life integration?
- iii. How does online learning satisfaction impact academic-life integration?

By addressing these objectives, the study seeks to identify key factors contributing to the harmonious integration of academic and personal life, fostering both academic success and holistic well-being.

2. Literature Review

The shift from online learning back to in-person classes, caused by the transition from pandemic to endemic phase, requires students to not only adjust their academic habits but also reintegrate their personal life and social routines. These changes can impact their overall academic integration. Regarding this shift, despite being a return to a normal life, it requires students to adapt to yet another change in their routine after nearly three years of living under pandemic conditions from 2020 to 2022. A good understanding of the concept and regulations of the endemic phase can help students anticipate and prepare for the future. This transition may involve significant changes in students' academic routines, as they shift from the habits formed during online learning back to traditional in-person classes. According to Abd Rahman et al. [1], students demonstrated a high level of acceptance and preference for online distance learning and teaching during the pandemic and endemic phases, noting the flexibility and convenience offered by online platforms. However, as students transitioning back to in-person classes, the shift requires significant adjustments to their academic routines, which can impact their overall academic-life integration. This shift presents challenges in academic-life integration, requiring students to integrate academic pressures with personal well-being. Failure to adapt to these changes in academic routine can negatively impact students' academic performance, as well as their mental health and physical well-being. Therefore, it is essential to consider and examine various factors to effectively manage these risks to ensure the overall well-being of the student population.

2.1 Independent Variables

2.1.1 Sociodemographic Factors

This study highlighted that sociodemographic factors have a crucial impact on the aftereffect of academic-life integration, with notable differences in behaviour across various groups. Sociodemographic factors often play a crucial role in various contexts. Privileges in multiple factors, particularly financial and moral support from one's background, significantly contribute to personal development. These advantages indirectly facilitate the journey toward achieving one's goals. Possessing such privileges also opens more opportunities. This is supported by research from Abuhammad [3] by which he identified several issues perceived as barriers to online learning in a study on parents' perceptions. These barriers included technical challenges like insufficient computer equipment and poor internet connections. Moreover, logistical issues such as lack of student preparation, unwillingness with distance learning, unmet learning needs, and lack of flexibility worsen these problems. All these issues essentially stem from students' inability to afford appropriate technological tools and internet services.

Similarly, Huang et al. [11] who had examined distance online learning during the COVID-19 pandemic in the region of China suggested that the organization of online education relied heavily

on a specific strategy, with infrastructure being a key component. Since online learning depends on tools and electronic devices, it is essential to ensure that students at all levels can access these resources. Sociodemographic factors, particularly economic status, play a crucial role in shaping students' experiences and challenges during pandemic online learning session. These factors can influence their ability to manage and integrate academic and personal responsibilities effectively. Variations in economic status, alongside other sociodemographic factors, may contribute to differing levels of academic-life integration. This will leave impacts on students' satisfaction, performance and overall well-being during this period. Additionally, Bhat and Sheikh [5] found that male students experience more family pressure to study, while females tend to integrate their academic and personal life better. Students who effectively manage this integration perform better academically and experience personal growth. Sociodemographic are one of the fundamental roots of various issues since gender and age also reflect different proportions in the outcomes of psychosocial effects, as supported by Pieh et al. [20] and Peltzer et al. [19].

Undergraduate students at the earlier levels of tertiary education, particularly those transitioning directly from the school environment, often experience higher stress levels due to the significant differences between the two systems. These differences include new teaching methods, higher academic expectations, changes in social relationships, and adjustments to a more independent lifestyle. The psychological, academic, and social shock resulting from these changes can make the transition particularly challenging for students [12].

Moreover, research by Guo et al. [10] has shown that satisfaction with residential situation is a strong predictor of lower depression levels, even when accounting for life satisfaction. This finding highlights the importance of providing quality residential environments to support students' mental health and enhance their ability to achieve academic life integration. Investing in well-designed residential facilities can offer substantial benefits, particularly during periods of heightened stress, such as the COVID-19 pandemic.

Sociodemographic factors such as age, gender, educational level, and residential status were measured using categorical variables. Age was categorized into ranges, gender as male or female, educational level as pre-university, diploma, degree, and postgraduate, and residential status as oncampus, off-campus, or living with family. These factors have been shown in previous studies [3, 11] to influence students' access to online learning resources and their academic integration.

2.1.2 Coping Mechanisms

Coping mechanisms refer to the solutions and strategies used to manage and address related issues. In this context, this study examined potential coping mechanisms that could reduce challenges and improve the quality of academic-life integration among university students during online learning. Although these strategies may not fully resolve the problems, they can help minimize the negative effects of these risks. As previously discussed, financial struggles are one of the major challenges, hence, disadvantaged learners often rely on peer support [6]. They need assistance from classmates who have better access to devices and internet connectivity to support their studies. Additionally, universities can also provide resources such as loaner devices, subsidies for internet costs, and mental health support devices as these efforts can create a more equitable and supportable learning environment for all students.

Academic stress is a significant burden for many students, especially teenagers, who are often tasked with managing heavy workloads, homework, and preparation for school tests. This demanding situation can lead to mental exhaustion, frustration, and a sense of inadequacy. Over time, such stress can diminish their self-esteem and contribute to feelings of failure and disappointment that

can potentially be leading to long term-negative impacts on both their academic and emotional wellbeing [17]. When students struggle to cope with these pressures, they may attempt to escape from their responsibilities, which can worsen the stress and hinder their personal development. Students' efforts to cope with stress and mental health disorders, along with being well-informed about these issues, can lead to positive short and long-term outcomes, though the effectiveness of strategies may vary among individuals [9]. Ultimately, a multiphases approach to stress management that includes both emotional and practical strategies is essential for students facing academic challenges. By providing students with the tools that they need to cope effectively, they can build resilience, maintain their mental health, and thrive academically [24].

Spiritual coping mechanism have been shown to play a unique role in influencing psychosocial health, particularly in challenging situations. According to Toburen and Meier [23], priming individuals with God related concepts increases their persistence in competing tasks, regardless of their level of religiosity. This suggests that spirituality can motivate individuals to sustain effort and resilience even in demanding contexts. Additionally, Pargament et al., [18] highlight that religious coping styles are distinct from nonreligious coping styles that will offer some unique benefits to psychosocial wellbeing. Religion or spiritual mechanism can also serve as a means of avoiding direct confrontation with painful situations that provide individuals with emotional or cognitive strategies to manage stress effectively. When applied to academic-life integration, spiritual coping mechanism may help students to maintain balance by offering a source of motivation and perspective in mitigating challenges related with academic and personal demands. Coping mechanisms were commonly measured by assessing the strategies students use to manage stress. General coping was evaluated through self-reported behaviours like seeking peer support, problem-solving, and emotional regulation. Spiritual coping was measured by assessing the use of religious or spiritual practices in managing stress, with some studies using frequency scales to quantify the effectiveness of the coping mechanisms.

2.1.3 Online Learning Satisfaction

Before the COVID-19 pandemic, the world was largely unfamiliar with online learning, leading to significant challenges for everyone involved. Applications such as Zooms, Microsoft Teams, and Google Meet were not widely used, so it took time for people to become proficient with these tools. Both students and educators had to adapt and accept the efficiency of online learning. Despite these challenges, the efforts of all parties to adapt to this new way of life should be commended. The implementation of online learning due to COVID-19 received varied responses. Although this method had its shortcomings, it was introduced with the good intention of preventing the spread of the virus. In their study, Almusharraf and Khahro [4] found that a significant portion of post-secondary students in Saudi Arabia were satisfied with online learning, as it made them feel safe during the academic session. This virtual learning environment also beneficial as it reduced the duration of the academic session. Online learning satisfaction was measured using self-reported surveys, where students rated various aspects of their virtual learning experience, such as course content, teaching effectiveness, technological tools, and overall learning satisfaction. Similar to the study by Almusharraf and Khahro [4], which assessed the satisfaction levels of post-secondary students in Saudi Arabia, the present study explores satisfaction in relation to the adjustments and challenges faced in the current online learning environment.

At the onset of the pandemic, there were no effective medications or vaccines. Thus, it makes online learning a sensible option for maintaining public health. However, some negative consequences emerged. According to Abd Rahman et al. [1], students struggled to master subjects

as effectively as they did in physical classrooms. This difficulty was often due to the limited internet access, reduced discussion opportunities, and the less conducive nature of virtual interactions, which could lead to misunderstandings. Overall, the acceptance of online learning was mixed as different individuals faced various limitations and had different preferences. Thus, further study on this topic is essential to enhance and improve the quality of the educational system.

2.2 Dependent Variable

2.2.1 Academic-Life Integration

Academic-life integration is the interconnectedness between a student's academic responsibilities and their personal well-being, social interactions, and extracurricular activities. It reflects how academic and personal aspects of life influence and support one another which will contribute to overall well-being and academic success. Academic-life integration plays a crucial role in students' overall well-being and academic performance. Research has shown that academic resilience characterized by traits such as academic optimism and engagement is positively linked to students' ability to overcome challenges and perform better in their studies [15]. Students who are highly engaged in their academic work, maintain a positive outlook despite obstacles, and view failure as an opportunity for growth commonly tend to exhibit greater academic resilience and better performance. Sociodemographic factors such as age, economic status, and family background have also been shown to influence students' coping strategies and resilience. For example, students from higher socioeconomic backgrounds may have greater access to academic resources and emotional support, which can enhance their ability to cope with challenges [21].

Online learning can impact students in various ways. The flexibility of conducting classes from any location and at any time may contribute to a better study-life balance. This flexibility eliminates the need for students to rush to early morning classes. Additionally, recorded sessions allow students to rewatch lectures as often as needed for clarification. According to Soh et al. [22], most learners reported having comfortable space at home, efficient connectivity during online classes, and access to more learning materials from lecturers when studying from home.

Coping mechanisms employed by students significantly shape their academic performance. Study by Sarwar et al. [21] also highlighted a significant correlation between students' quality of life in terms of their mental health and academic performance. Students with higher academic performance often reported to have a better state of mental health. Conversely, those with lower mental health scores may experience ongoing stress that will eventually contribute to burnout and produce negative output toward their performance. Therefore, integrating healthy behaviours and adequate support system is essential for students in fostering both academic success and long-term well-being.

Academic-life integration was measured by assessing students' ability to balance academic responsibilities with personal well-being and extracurricular activities, often using surveys that evaluate students' engagement, stress levels, and coping strategies in managing both aspects of their life. This aligns with the research by Mahmoodimehr et al. [15], who explored the interconnectedness of academic and personal life, emphasizing how academic resilience and personal well-being influence students' overall success and mental health.

3. Methodology

This section provides an overview and detailed explanation of the methodology, and the data utilized in this study. With the primary objective of assessing academic-life integration among students during the transition of COVID-19 endemic phase, it is essential to comprehensively cover

the necessary data description and its application within the selected data analysis framework throughout the research process.

3.1 Data Collection and Research Design

This study utilized a survey method to collect data from tertiary level students regarding their sociodemographic characteristics, coping mechanisms, online learning satisfaction, and academic-life integration. The survey, in the form of a Google Form, was distributed online through various platforms, ensuring broad access for participants. The study employed a non-probability convenience sampling technique, where participants were selected based on their availability and willingness to participate. This approach was chosen due to its practicality and efficiency in gathering data from university students who were accessible through online platforms. Although convenience sampling does not guarantee a representative sample, it allows for a quick and cost-effective method of data collection from the targeted population, which in this case consisted of students from various academic levels and backgrounds.

The independent variables examined included sociodemographic, general coping mechanism, spiritual coping mechanism, and online learning satisfaction. General coping mechanism were assessed through four questions, each with a 5-point rating scale, resulting in a composite score. Spiritual coping mechanism were similarly measured with four questions, and online learning satisfaction was assessed using eight questions, each rated on a 5-point scale. The dependent variable, academic-life integration, was measured by questions that captured the extent to which students balanced academic and personal life. The survey was distributed to students through university messaging platform, social media groups, and other platforms to maximize reach. Participation was voluntary, with informed consent obtained from all respondents. Data analysis was conducted using regression analysis to explore the relationships between the independent variables and academic-life integration.

Contextually, all variables were treated as continuous data, through summing up the data for each respondent into creating a score, which supported the use of multiple linear regression (MLR) instead of probit regression. MLR was chosen because it is well-suited for continuous outcomes like academic-life integration and allows for direct interpretation of the relationship between predictors and the outcome variable. In contrast, probit regression is typically used for categorical or binary dependent variables, which was less likely to be applicable for this study.

Table 1Dependent and Independent Variables with Description.

Variables	Description
Age (Sociodemographic)	Coded numerically into three ranges: 18 to 29 (1), 30 to 39 (2), 40 and above (3).
Gender (Sociodemographic) Tertiary Level (Sociodemographic)	Coded numerically as male (1) and female (2). Coded numerically as pre-university/matriculation (1), diploma (2), bachelor's degree (3), and master or higher (4).
Residential Status (Sociodemographic)	Coded numerically as on-campus dormitory (1), off-campus rental (2), and family residence (3).
General Coping Mechanisms	Measures are derived by summing the responses to 4 questions, each with a 5-point rating range to form a composite score for analysis.
Spiritual Coping Mechanisms	Measures are derived by summing the responses to 4 questions, each with a 5-point rating range to form a composite score for analysis

Online Learning Satisfaction	Measures are derived by summing the responses to 8 questions, each with a 5-point rating range to form a composite score for analysis.
Academic-Life Integration	Measures are derived by summing the responses to 8 questions, each with a 5-point rating range to form a composite score for analysis.

3.2 Conceptual Framework

The research framework in Figure 1 illustrates the relationship between the independent and dependent variables of this study. The dependent variable is *academic-life integration*, which refers to students' ability to harmonize academic responsibilities with personal, social, and emotional demands. Three sets of independent variables are proposed to influence academic-life integration.

First, sociodemographic factors include age, gender, tertiary level, and residential status. These variables are considered to capture individual differences that may influence how students integrate their academic and personal lives.

Second, coping mechanisms are divided into general coping mechanisms and spiritual coping mechanisms. General coping strategies reflect students' everyday methods of managing academic and personal stressors, while spiritual coping mechanisms emphasize reliance on spiritual or faith-based approaches to overcome challenges.

Third, online learning satisfaction is included as a distinct independent variable, acknowledging the shift toward digital learning environments during and after the COVID-19 pandemic. Satisfaction with online learning experiences is expected to play a key role in shaping students' ability to manage both academic and personal commitments effectively.

This framework, as shown in Figure 1, provides a structured basis for the study, guiding the investigation into how sociodemographic factors, coping mechanisms, and online learning satisfaction influence academic-life integration among students in Malaysia.

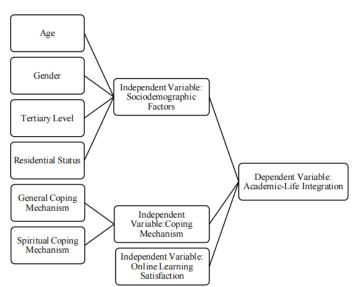


Fig. 1. Conceptual framework of Dependent and Independent Variables

3.3 Sample Data

The sample size for this study was determined using a formula designed for finite populations to ensure representativeness while accounting for population size and variability:

Sample size =
$$\frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + (\frac{z^2 \times p(1-p)}{e^2 N})}$$
 (1)

Parameters used in this calculation include:

 $Estimate\ proporttion = (p)$

 $Population\ size = (N)$

 $Margin\ of\ error = (e)$

 $Confidence\ level = 95\%$

$$Z - score (95\%) = 1.96$$

This methodology ensures that the selected sample size will adequately reflect the population characteristics, thereby increasing the reliability of the study's findings.

3.4 Reliability Test - Cronbach Alpha

The reliability test was conducted to assess the internal consistency of the items used to measure construct in this study. Ensuring reliability is essential to confirm that the scale items consistently reflect the underlying variable. Cronbach's Alpha was selected as the measure of reliability because it is widely used to evaluate the internal consistency of item sets. It provides an estimate of how well the items in a construct collectively measure the same concept. The constructs tested for reliability include online learning satisfaction, coping mechanisms, and academic-life integration with each comprising a set of items measured using a five-point scale. A composite score was calculated for each construct, and a Cronbach's Alpha value of 0.70 or higher was considered acceptable, based on the guidelines by Nunnally and Bernstein (1994). This analysis was conducted using SPSS to compute the respective Cronbach's Alpha for each construct.

3.5 Correlation Analysis

This study employs correlation analysis to examine the relationships between coping mechanisms, online learning satisfaction, and academic-life integration. The Pearson correlation coefficient (r) is used to measure the strength and direction of these linear relationships. Sociodemographic factors (age, gender, residential status, tertiary level) were not included in the correlation analysis because these variables are primarily categorical. The Pearson correlation coefficient, which is used in this study, is designed to measure the strength and direction of linear relationship between continuous variables. Including categorical variables in this analysis would violate the assumptions of the Pearson method and lead to invalid or meaningless results. Before

conducting the analysis, the data were checked for outliers, normality, and linearity to ensure the appropriateness of the Pearson method. This correlation was conducted and analyzed through SPSS. Correlation analysis is particularly useful in this study to identify the interdependencies between the variables and their potential influence on academic-life integration. The findings from this analysis will guide the interpretation of the relationships and contribute to addressing the research objectives.

3.6 Descriptive Statistic

Descriptive Statistics were performed to summarize the central tendency, dispersion, and overall distribution of the study variables. Key metrics such as mean, mode, median, standard deviation, variance, skewness, and kurtosis values were computed using SPSS software. This analysis provides insights into the general patterns of coping mechanisms, online learning satisfaction, and academic-life integration.

3.7 Diagnostic Test

Diagnostic tests were conducted to ensure that validity of the regression analysis. These tests included checks for multicollinearity and heteroskedasticity.

3.7.1 Multicollinearity Test – Variance Inflation Factor (VIF)

Multicollinearity was assessed using the Variance Inflation Factor (VIF), calculated for each independent variable. It measures how much the variance of an estimated regression coefficient is inflated due to collinearity with other predictors in the model. A VIF value exceeding 10 indicates high multicollinearity and suggests that the independent variable is highly correlated with other predictors, which may lead to unreliable coefficient estimates. SPSS software was employed for this test.

3.7.2 Heteroskedasticity - Breusch-Pagan Test

The Breusch-Pagan test was used to detect heteroskedasticity in the regression model. Heteroskedasticity refers to the situation where the variance of the residuals (errors) is not constant across all levels of the independent variables. This violation can lead to inefficient estimates and biased statistical tests. This test evaluates whether the variance of the residuals remains constant across all levels of the independent variables. A p-value less than 0.05 suggests the presence of heteroskedasticity, necessitating corrective measures.

3.8 Multiple Linear Regression

To explore the combined effect of multiple independent variables on academic-life integration, multiple linear regression analysis was performed. This method was chosen to assess how various predictors, including coping mechanisms, online learning satisfaction, and sociodemographic factors such as age, gender, residential status, tertiary education level, and collectively influence academic-life integration. By using multiple predictors in a single model, this analysis provides a more comprehensive understanding of the factors contributing to the dependent variable. Prior in performing the regression, the assumptions of linearity, independence of errors, homoscedasticity,

and normality and residuals were thoroughly examined. SPSS software was used for all computations, ensuring accurate parameter estimates. This approach allows for assessing the relative importance of each predictor while controlling others and helps identify the most significant factors affecting academic-life integration. Thus, the following equation is derived as the model of this study:

This section also outlines hypotheses developed for the study that will describe the proposed relationships between the dependent variable (Academic-Life Integration) and the independent variables. Each hypothesis is presented with the null hypothesis (H_0) and the alternative hypothesis (H_1), which will be tested to determine the significance and direction of these relationships. The summary in table 2 highlights the hypotheses and their expected outcomes.

Table 2Summary of Hypotheses Linking Dependent and Independent Variable

	H_0	H_1
x_1 — Gender	Gender does not have a significant relationship with the academic-life integration among students in Malaysia.	Gender does not have a significant relationship with the academic-life integration among students in Malaysia.
$x_2 - Age$	Age does not have a significant relationship with the academic-life integration among students in Malaysia.	Age does not have a significant relationship with the academic-life integration among students in Malaysia.
x ₃ — Tertiary Level	Tertiary level does not have a significant relationship with the academic-life integration among students in Malaysia.	Tertiary level does not have a significant relationship with the academic-life integration among students in Malaysia.
x ₄ — Residential Status	Residential status does not have a significant relationship with the academic-life integration among students in Malaysia.	Residential status does not have a significant relationship with the academic-life integration among students in Malaysia.
x ₅ — General Coping Mechanism	General coping mechanism does not have a significant relationship with the academic-life integration among students in Malaysia.	General coping mechanism does not have a significant relationship with the academic-life integration among students in Malaysia.
x ₆ — Spiritual Coping Mechanism	Spiritual coping mechanism does not have a significant relationship with the academic-life integration among students in Malaysia.	Spiritual coping mechanism does not have a significant relationship with the academic-life integration among students in Malaysia.
x ₇ — Online Learning Satisfaction	Spiritual coping mechanism does not have a significant relationship with the academic-life integration among students in Malaysia.	Spiritual coping mechanism does not have a significant relationship with the academic-life integration among students in Malaysia.

In this study, the hypotheses were tested by examining the significance values obtained from the statistical analyses. A significant level of 0.05 was established as the threshold for decision making. If

the p-value obtained from the test was less than or equal to 0.05, the null hypothesis (H_o) was rejected, indicating that the variable had a significant relationship with academic-life integration. Conversely, if the p-value was greater than 0.05, the null hypothesis was not rejected, suggesting that the variable did not have a significant relationship with academic-life integration. This approach ensured that the decisions were based on statistical evidence rather than assumptions, thereby maintaining the rigor and reliability of the study's findings.

4. Results and Discussions

The analysis conducted provided insights into the study's objectives through a detailed examination that will cover the sample characteristics, reliability tests, correlations analysis, descriptive statistics, diagnostic tests, and results from the multiple linear regression.

4.1 Sample Data

The most reliable and recent data for the number of students in both public and private higher institutions in Malaysia is from the year 2021. According to data from the Malaysia Informative Centre (MysIDC), the number of students in public institutions is a total of 690,280, while the number of students in private institutions is around 517,580. This brings the combined total to 1,207,860 students in 2021. Therefore, we can calculate the specific number of required sample data based on this total of population group for this research as:

Sample size =
$$\frac{\frac{1.96^2 \times 0.5 (1 - 0.5)}{0.05^2}}{1 + \left(\frac{1.96^2 \times 0.5 (1 - 0.5)}{0.05^2 \times 1,207,860}\right)}$$
(3)

$$Sample \ size = 384.0379 \approx 384 \tag{4}$$

Where:

Estimate proporttion(p) = 0.5 (for maximum smaple size)

Population size(N) = 1,207,860

 $Margin\ of\ error(e) = 0.05$

 $Confidence\ level = 95\%$

$$Z - score (95\%) = 1.96$$

4.2 Reliability Test – Cronbach's Alpha

The reliability of the scales used in this study was assessed using Cronbach's Alpha, which measures internal consistency of each variable. This analysis was conducted on the first 30 respondents. The results indicate varying levels of reliability across different variables, with most scales showing acceptable or excellent reliability. Table 3 is a summary of the Cronbach's Alpha values and the number of items for each scale used in this study. The general coping mechanism scale, with

four items exhibited a Cronbach's Alpha of 0.0703 which falls within acceptable range. While indicates sufficient internal consistency, it suggests that a slight version to the scale could enhance its reliability. In contrast, the spiritual coping mechanism scale that is also consisting of four items demonstrated excellent internal consistency with a Cronbach's Alpha value of 0.918. This high value suggests that the item on this scale is highly correlated and effectively measure the construct of spiritual coping. The online learning satisfaction scale that comprising eight items showed an acceptable reliability of 0.730 which indicate that the scale reliably measures satisfaction with online learning although there may be room for refinement. Finally, the academic-life integration scale, with eight items reported a Cronbach's Alpha of 0.903 that is reflecting good internal consistency. This suggests that the scale is well-designed and reliably measures the integration of academic and personal life. Overall, while most of the scales demonstrated adequate to excellent reliability, the general coping mechanism scale may benefit for further improvement to achieve a higher level of internal consistency.

Table 3Cronbach's Alpha Reliability Data

Variable	Cronbach's Alpa	No. of Items
General Coping Mechanism	0.703	4
Spiritual Coping mechanism	0.918	4
Online Learning Satisfaction	0.730	8
Academic-Life Integration	0.903	8

4.3 Correlation Analysis

Table 4 displays the correlation analysis results that is indicating the relationships between general coping mechanisms, spiritual coping mechanisms, online learning satisfaction and academic-life integration. The findings indicate that all variables are moderately correlated, with varying strengths of association. General coping mechanism is moderately correlated with spiritual coping mechanism (r = 0.493), indicating that students who use general coping strategies are somewhat likely to also employ spiritual coping strategies. General coping mechanism is also moderately correlated with online learning satisfaction (r = 0.299), indicating that students who utilize general coping mechanisms tend to experience a certain degree of satisfaction with online learning, though the relationship is relatively weaker. Additionally, general coping mechanism is moderately correlated with academic-life integration (r = 0.323), showing that general coping strategies help students integrate their academic and personal lives to a certain extent.

Spiritual coping mechanism has a moderate correlation with online learning satisfaction (r = 0.308), reflecting that student who use spiritual coping strategies are somewhat satisfied with their online learning experiences. Spiritual coping mechanism also has a moderate correlation with academic-life balance (r = 0.352), suggesting that spiritual strategies contribute to students' ability to balance academic and personal life, although this relationship is not as strong as others.

The strongest relationship is observed between online learning satisfaction and academic-life integration (r = 0.593). This indicates that students who are more satisfied with their online learning are better in managing and integrating their academic and personal lives. Overall, while coping mechanisms, both general and spiritual play an important role in supporting students, their impact on academic-life integration is comparatively smaller than the effect of online learning satisfaction.

Table 4Correlation Analysis Data

,	General Coping	Spiritual Coping mechanism	Online Learning Satisfaction	Academic-Life Integration
	Mechanism			_
General Coping Mechanism	1			
Spiritual Coping mechanism	0.493	1		
Online Learning Satisfaction	0.299	0.308	1	
Academic-Life Integration	0.323	0.352	0.593	1

4.4 Descriptive Statistics

The data shows that most respondents are female (61.4%) while males make up to 38.6%. Most participants are aged between 19 and 29 years old (59.1%), while those aged 30 to 39 years old account for 27.5%. Only a small percentage (13.5%) of respondents are aged 40 years or older. In terms of education level, the largest group consists of Pre-University/Matriculation students (36.8%), followed by bachelor's degree students (32.6%). Diploma students make up to 22.3% and a smaller proportion (8.3%) are pursuing master's degrees or higher.

Residential status indicates that the largest proportion of respondents either live with their families (36.5%) or rent off-campus accommodations (34.7%). A smaller proportion resides in oncampus dormitories (28.8%). This indicates a variety of living situations that could affect their ability to balance academic and personal life. These findings highlight the diversity of respondents across sociodemographic factors, which is essential for understanding the varying impacts of coping mechanism and online learning satisfaction on academic-life integration.

Table 5Descriptive statistics Data

Variable	Category	Total	Percentage (%)
Gender	Male	149	38.6
	Female	237	61.4
Age	19 – 29 years old	228	59.1
	30 – 39 years old	106	27.5
	40 years old and above	52	13.5
Tertiary Level	Pre-University/Matriculation	142	36.8
	Diploma	86	22.3
	Bachelor's Degree	126	32.6
	Master and above	32	8.3
Residential Status	On-Campus Dormitory	111	28.8
	Off-Campus Rental	134	34.7
	Family Residence	141	36.5

The descriptive analysis shows the average scores for academic-life integration (25.49) and online learning satisfaction (25.34) are higher than general coping mechanism (13.24) and spiritual coping mechanism (14.06). The most common scores (mode) also vary, with spiritual coping mechanism having the highest mode at 20. The spread of scores, measured by standard deviation, is moderate for all variables, with academic-life integration showing the largest variation (5.304). The skewness values are close to zero, meaning the data is mostly symmetrical, while the kurtosis values show that online learning satisfaction (1.009) and academic-life integration (0.929) are slightly more peaked than a normal curve, meaning that there is a higher concentration of data points around the mean, with fewer extreme outliers. Overall, the data appears well-distributed and suitable for further analysis.

Table 6Descriptive Table

Statistic	General Coping Mechanism	Spiritual Coping Mechanism	Online Learning Satisfaction	Academic-Life Integration
Mean	13.24	14.06	24.34	25.49
Mode	12	20	26	24
Standard Deviation	3.088	3.994	5.090	5.204
Variance	9.534	15.952	25.909	28.136
Skewness	-0.168	-0.077	0.178	0.126
Kurtosis	-0.107	-0.898	1.009	0.929

4.5 Diagnostic Test

Diagnostic tests were performed to assess the assumptions of the multiple linear regression model. Specifically, the Variance Inflation Factor (VIF) was used to detect multicollinearity among the independent variables, while the Breusch-Pagan test was applied to check for heteroskedasticity that will be ensuring that the residuals of the model exhibit constant variance. These tests are crucial for validating reliability and accuracy of the regression results.

4.5.1 Multicollinearity Test – Variance Inflation Factor (VIF)

Table 7 presents the Variance Inflation Factor (VIF) values for the independent variables included in the regression analysis. The VIF values reflect the extent of multicollinearity among the independent variables. Multicollinearity arises when independent variables are strongly correlated, potentially skewing the results of regression analysis. Generally, VIF values below 5 are considered acceptable and values below 2 indicate low multicollinearity. In this analysis, all VIF values are well below 2, ranging from 1.072 to 1.486. This suggests that multicollinearity is not a concern for the regression model. The highest VIF values are for spiritual coping mechanism (1.486) and general coping mechanism (1.472). However, these values remain within acceptable limits and do not pose a concern.

The low VIF values for sociodemographic factors such as gender (1.098), age (1.380), tertiary level (1.166), and residential status (1.072) indicate that these variables do not exhibit significant multicollinearity within the regression model. Similarly, the VIF for online learning satisfaction (1.156) demonstrates minimal multicollinearity with other variables. Overall, the results confirm that the independent variables can be included in the regression analysis without concerns of multicollinearity. This ensures the reliability and validity of the regression model in analyzing the factors influencing academic-life integration.

Table 7Variance Inflation factor (VIF) Data

Independent Variable	VIF
Gender	1.098
Age	1.380
Tertiary Level	1.166
Residential Status	1.072
General Coping Mechanisms	1.472
Spiritual Coping Mechanisms	1.486
Online Learning Satisfaction	1.156

4.5.2 Heteroskedasticity - Breusch-Pagan Test

The results of the ANOVA table indicate an analysis of heteroscedasticity using a regression of squared residuals (RES_1_Squared) on the independent variables. The regression model's F-statistics is 0.390, with a corresponding p-value of 0.908. Since the p-value is much greater than the standard significance level of 0.05, we fail to reject the null hypothesis of homoscedasticity. This implies that there is no significant evidence of heteroscedasticity in the data, and the residuals appear to have a constant variance across the levels of the independent variables.

Table 8

neteroscedasticity	rest Result
F-statistic	P-value
0.390	0.908

 $H_0 = The residuals are homoscedastic (constant variance)$

 H_1 = The residuals are heteroscedastic (variance changes with predictors)

4.6 Multiple Linear Regression

The results of multiple linear regression analysis, as shown in table 9 and 10 provide insights into how various independent variables influence academic-life integration among students. Each independent variable's coefficient, standard error, and p-value were evaluated to understand their impact on academic-life integration.

In Table 9, the coefficients (β) indicate the strength and direction of the relationship between the independent variables and academic-life integration. The p-values highlight whether these relationships are statistically significant. For instance, gender (β_1 = -1.293, p = 0.005) shows a significant negative relationship with academic-life integration. This means that male students, on average, experience lower integration between their academic and personal lives compared to female students. On the other hand, age (β_2 = -0.291, p = 0.398) and tertiary level (β_3 = 0.071, p = 0.752) do not show statistically significant relationships with academic-life integration, suggesting that these factors do not significantly influence students' ability to integrate academic and personal commitments. Similarly, residential status (β_4 = 0.188, p = 0.489) does not have a significant effect on the integration, which ultimately indicates that residential status does not strongly affect academic-life integration.

In terms of coping mechanisms, general coping mechanism (β_5 = 0.148, p = 0.074) is statistically significant at the 10% level, though it falls short of significance at the conventional 5% level. This indicates that general coping mechanisms may play a role in managing academic and personal demands, but their impact is relatively weaker compared to other variables. In contrast, spiritual coping mechanism (β_6 = 0.209, p = 0.001) demonstrates a significant positive relationship with academic-life integration. This suggests that students who utilize spiritual coping strategies are better at integrating their academic and personal lives. Lastly, online learning satisfaction (β_7 = 0.548, p < 0.001) is the most significant predictor, with a strong positive influence on academic-life integration. Students who are more satisfied with online learning are likely to experience better integration between their academic and personal responsibilities.

This study highlights several critical factors influencing academic-life integration. One of the significant findings is the role of gender, which emerged as a key variable impacting students' ability to integrate their academic and personal lives. These findings are consistent with Koca et al. [14],

who showed that gender significantly influences how attitudes toward distance education affect academic-life satisfaction. Specifically, Koca et al. [14] found that gender shapes the way academic self-confidence mediates the connection between attitudes toward online education and academic satisfaction. In their study, female students had a more positive view of online learning, which boosted their confidence in academic abilities and led to greater satisfaction. However, this effect was not observed among male students. This suggests that the factors influencing satisfaction may differ between genders.

Similarly, spiritual coping mechanisms were found to have a significant effect on academic-life integration. This study suggests that spiritual coping mechanisms provide students with strategies to manage stress, thereby aiding the integration of academic and personal lives. While Kherodinashvili [13] reported no significant relationship between spirituality and perceived stress, the current study highlights the potential benefits of spiritual coping in promoting academic-life integration. Furthermore, Cox [7] suggested that spirituality, when combined with other factors, can enhance academic performance, supporting the idea that spiritual coping mechanisms contribute to better academic outcomes. This disparity indicates that while spirituality may not directly reduce perceived stress, it could still play a meaningful role in broader outcomes such as academic-life integration. These findings validate the importance of spirituality in fostering inner strength and enhancing coping abilities, which ultimately improves academic-life integration.

The study also emphasizes the significant role of online learning satisfaction in academic-life integration. This finding is consistent with Fatimah and Mahmudah [8], who showed that online learning has a positive and significant impact on students' mental health. They observed that as students' engagement with online learning increased, their psychosocial well-being improved. The significant relationship between online learning satisfaction and academic-life integration suggests that a positive learning experience is vital for students' overall well-being and their ability to integrate academic and personal responsibilities effectively.

In contrast, this study found no significant relationship between academic-life integration and variables such as age, tertiary level, and residential status. While previous research may have highlighted the significance of these factors in various contexts, the lack of significance in this study may be attributed to several reasons. Human behavior is diverse, and individual experiences can vary greatly, which may lead to different outcomes across studies. For example, factors like age and residential status may not have shown a direct impact in this sample, possibly due to the specific characteristics of participants or the unique context of this research. This highlights the importance of considering contextual and demographic factors when interpreting the results of studies on academic-life integration.

Several limitations in this study could explain the non-significant results, including sample size, methods, and the tools used to measure variables. Additionally, differences in culture, location, and institution may have influenced how these factors interact with academic-life integration. This underscores the need for further research to explore these relationships in different settings and with a wider range of participants.

Table 9Summary of Multiple Linear Regression

	•		
Variable	Coefficients	Standard Error	P-value
Intercept (β _o)	8.693	1.930	< 0.001
x_1 – Gender (β_1)	-1.293	0.453	0.005
x_2 – Age (β_2)	-0.291	0.344	0.398
x_3 – Tertiary Level (β_3)	0.071	0.226	0.752

x_4 – Residential Status (β_4)	0.188	0.271	0.489
x_5 – General Coping Mechanism (β_5)	0.148	0.083	0.074
x_6 – Spiritual Coping Mechanism (β_6)	0.209	0.064	0.001
x_7 – Online Learning Satisfaction (β_7)	0.548	0.044	< 0.001

5. Conclusions

This study highlights the key factors influencing academic-life integration among students. Gender, general coping mechanism, spiritual coping mechanism, and online learning satisfaction were found to have significant relationships with students' ability to integrate academic and personal demands. Specifically, gender differences were noted, with male students facing more challenges in academic-life integration. General coping mechanisms played a noteworthy role in supporting students' ability to balance academic and personal demands, highlighting their importance in managing life's challenges. Spiritual coping mechanisms emerged as an important tool for students in managing stress and achieving better integration, while online learning satisfaction proved to be the most significant factor, emphasizing the importance of a positive learning experience in maintaining a well-integrated academic and personal life.

Conversely, age, tertiary level, and residential status did not show a significant impact in this study. These non-significant findings suggest that the influence of these variables may vary across different populations or contexts, warranting further exploration. In light of these findings, it is recommended that universities focus on improving online learning experiences, provide gender-specific support strategies, and promoting general and spiritual coping mechanisms to help students manage academic and personal pressures. Future research should explore the impact of other coping strategies and consider the effects of cultural and institutional differences on academic-life integration.

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