

Comparison of Lifestyles between Healthy University Students and Students with Depression in Malaysia

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Abstract

Depression is prevalent among Malaysian university students, yet lifestyle comparisons remain limited. This study compared the lifestyle habits of 853 university students with depression and those without, using the CESD scale (cutoff ≥ 27). Depression was identified in 211 (24.7%) students, who reported lower physical activity ($p=0.001$), poorer diet ($p=0.000$), increased social media use in isolation ($p=0.006$), and poorer sleep quality ($p=0.000$) than their healthy counterparts. Findings emphasize the need for structured wellness programs and digital detox initiatives in universities. Limitations include self-reported data and cross-sectional design. Universities should promote healthy habits to support student mental health.

Keywords: Depression; Lifestyles; Internet; University Students

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1.0 Introduction

Depression is the most common mental illness, and about 280 million people are suffering from depression globally (World Health Organization, WHO, 2023). University students are among the affected populations, and the rates of depression differ across the world. Data from previous research on depression among university students indicated that the prevalence rate of depression, anxiety, and stress was between 25% and 71% (Kamruzzaman et al., 2024). While various factors contribute to depression among university students, one of the important modifiable factors is the lifestyle factor.

Many studies have been conducted among university students that show the detrimental effect of unhealthy lifestyles (Islam et al., 2018; Perveen et al., 2019; Ab Rahman et al., 2023). However, local studies determining the difference between the lifestyles of students with and without depression are still lacking, and no concrete conclusions have been drawn. This study aimed to investigate the lifestyle factors contributing to depression among university students in Malaysia. The objective of this study was to determine the prevalence of depression among university students in Malaysia and identify any significant differences between the lifestyles, specifically physical exercise, healthy diet, sleep quality, and the use of the internet, among university students with and without depression.

2.0 Literature Review

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University or college students with depression are less likely to be involved in physical activity and perform less exercise. Symptoms of depression, such as lack of motivation and reduced energy levels, cause the students to be less active (Oktadinata et al., 2024). If a student does not exercise, it could become a vicious cycle in which physical inactivity may perpetuate more severe symptoms of depression, minimizing the students' capability to participate in exercise and physical activities (Wang et al., 2025).

The eating habits and diet of university students can have a significant effect on their mental health, including depression (Zheng et al., 2024). As university students, they face several challenges—stress from academics (examinations, assignments, lectures, and seminars), adjusting to new ecosystems (faculties, residential colleges, university staff, lecturers, friends), social pressures (college culture, media, university and academic norms) and at times financial constraints—all of which can influence diet and eating behaviours (Singh & Kumar, 2024). Many may use maladaptive coping by eating unhealthy food, skipping meals, excessively consuming caffeine, and social eating (ElBarazi & Tikamdas, 2024).

The Internet is crucial for students' access to information, which is vital for various academic activities (Daniel et al., 2024). Using it positively, the internet can encourage collaboration and networking through online discussions, forums, or live-streaming conferences. Online learning platforms give students flexibility and facilitate lectures, assignments, and sometimes examinations (Haque et al., 2024). Through the internet, students can expand their digital literacy and technical skills, which are beneficial in the current work market. Besides, through virtual tele-counselling, students can get access to mental health support or therapy. However, the dark side of the internet includes social isolation, which reduces face-to-face connections, affects social skills and creates feelings of loneliness (Liu et al., 2024). Students may fail to balance academic work and leisure time (playing games, browsing unnecessary websites, chatting), leading to procrastination and decreased productivity. Unnecessary internet use, especially on social media, can lead to comparison, fear of missing out, and anxiety (Liu et al., 2024). Besides, students might become victims of phishing scams, identity theft, or cyberbullying (Bussu et al., 2025).

Sleep problems among university students are a common issue and can have an important influence on their overall health, academic achievement, and mental health (Wang & Biro, 2021). They often struggle with maintaining a consistent sleep pattern, especially if students have late-night study sessions, social activities, or part-time jobs. Many students spend late nights browsing the internet, watching movies, and indulging in leisure activities, which can affect their sleep. Poor environmental conditions, such as noise, uncomfortable bedding, or poor lighting, can disturb sleep quality among them (Wang & Biro, 2021).

Although many studies that have been conducted among university students show the negative effects of unhealthy lifestyles (Islam et al., 2018; Perveen et al., 2019; Ab Rahman et al., 2023), there is a scarcity of Malaysian studies that investigate and actually compare the differences in lifestyles among university students with and without depression. This study aimed to fill this gap by identifying the differences between physical exercise, dietary habits, sleep quality, and the use of the internet among university students in Malaysia with and without depression.

3.0 Methodology

3.1 Study Design and Sample Size

This was a cross-sectional study collecting data using convenience data sampling. Data collection was done via an online survey to determine the prevalence of depression and its predictors among university students in Malaysia. Our study included participants who gave implied consent to participate in the study, who were university or college students aged 18 years old and above, and who were able to complete online questionnaires in either English or Malay language. Sample size estimation was calculated online using the population proportion formulae, which are available at <https://www2.ccrb.cuhk.edu.hk/stat/epistudies/x1.htm>). The previous local study by Ashraf Islam (2018) indicated that the prevalence of depression among university students in Malaysia was about 30%. Taking the prevalence proportion (p) of 0.30, the probability of type I error (α) of 0.05, the estimated effect size was estimated as 2.5, the desired level of absolute precision (d) of 0.05, the initial calculated sample size was 807. Considering 10% incomplete data, the final estimated sample size was 887 participants.

This study utilized secondary data extracted from a larger cross-sectional research project conducted during the COVID-19 pandemic in Malaysia. The original study aimed to assess the psychological well-being and lifestyle behaviours of university students amidst prolonged movement restrictions and academic disruptions. Convenience sampling was employed in the study due to its practical advantages and feasibility under the constraints imposed by the pandemic. However, the use of convenience sampling limits the generalizability of the findings due to potential selection bias, volunteer bias, and lack of representativeness of the wider university student population. Utilizing secondary data allowed for the efficient reuse of a rich dataset that had already captured comprehensive information on students' sociodemographic background, depressive symptoms (using the CESD scale), and self-reported lifestyle factors including physical activity, diet, sleep, and internet use. This approach was both cost-effective and time-saving, especially in the context of restricted mobility and logistical constraints during the pandemic. Furthermore, the use of validated tools in the original study enhanced the reliability of the findings, while enabling the current analysis to explore new research questions using pre-existing data.

However, the use of secondary data presents several limitations. Firstly, the data was not specifically collected to answer the research questions of this current study, and as such, some relevant variables (e.g., clinical history, coping mechanisms, academic workload) were not detailed. Secondly, all lifestyle measures were based on self-report, which is susceptible to recall bias and social desirability effects. Thirdly, given that the data was collected during an extraordinary period of the COVID-19 pandemic, students' behaviours may not reflect their typical lifestyle patterns under normal circumstances. As such, generalizability beyond the pandemic context should be interpreted with caution. Lastly, the cross-sectional nature of the original dataset limits the ability to infer causality between depression and lifestyle factors.

3.2 Data Collection

Data collection was performed by utilizing an online survey made using Google Forms. The survey was disseminated through e-mails, WhatsApp, and variably on social media platforms like Instagram and Facebook. Potential participants who received the invitation or promotion about the study would click the Participation Information Sheet, which describes the study procedures, benefits, and risks of the studies. Those who fulfilled the selection criteria would click the next pages of questionnaires if they agreed to participate in the study. Implied consent was considered when the participants agreed to be enrolled in the study and proceeded to the next step, which was to answer the questionnaires.

The Pro Forma questionnaires were prepared and initially asked about the sociodemographic background of students and their college living conditions and asked further about their lifestyles. The sociodemographic and college living environment questions are the ones that inquire about gender, age, field of studies, home area, and, by implication, the number of people in the household, the number of siblings, the number of people in the residential college participating in the project and the number of close friends serving as confidants. The lifestyles include students' exercise and physical activities, healthy diet and eating habits, internet and social media use, sleeping patterns, and religious activities. Answers were scored using Likert scales.

The dependent variable in the current study was assessed using the Center for Epidemiological Studies Depression (CESD). The tool has been used before in Malaysia, and it is valid and reliable for measuring depressive symptoms. The sum value of all items' scores gives a continuous assessment of CESD from 0 to 60. A cut-off point of 27 was chosen to reflect depression among adolescents and young people in Malaysia (Ghazali et al., 2014). Answering all the questions took about 15 minutes.

3.3 Statistical Data Analysis

Gender, age, home residential area, number of people living together at home, number of siblings, and number of people living together at residential college were matched and showed no difference between groups. All data was analysed using the Statistical Package for Social Science (SPSS) version 28.0. Frequency and percentages were used to describe the socio-demographics, living conditions, lifestyles of participants, and status of depression. The outcome variable was categorised into two categories: presence or absence of depression. The differences between the lifestyles of students with and without depression were analysed using an independent T-test. The statistical significance was set at a p-value of less than 0.05.

3.4 Ethical Approval

Ethical approval was obtained from the UiTM Research Ethics Committee: REC/06/2020 (MR/109).

4.0 Results

4.1 Background Participants and the Status of Depression

Table 1 demonstrates the background of the participants. A total of 853 participants answered all the questions. Screening with CESD yielded a total of 211 (24.7%) participants who had depression. Of the total who were depressed, 61(28.9%) had a history of mental illness, while the remaining had no history of mental illness. The sociodemographic backgrounds of the students were matched in relation to gender, age, home residential area, number of people living together at home, number of siblings, and number of people living together at residential college.

Table 1: Background of the participants

Sociodemographic background		Depression		X ²	df	p-value
		No (n=642)	Yes (n=211)			
Gender	Male	23 (3.6%)	6 (2.8%)	3.088	2	0.214
	Female	618(96.3%)	203(96.2%)			
	Others	1(0.2%)	2(0.9%)			
Age (years)	≤20	232(36.9%)	62(30.1%)	3.975	2	0.137
	21-23	369(58.8%)	131(63.6%)			
	≥24	27(4.3%)	13(6.3%)			
Home residential area	Big City	200(73.5%)	72(26.5%)	2.555	2	0.279
	Town	224(78.6%)	61(21.4%)			
	Rural	218(73.6%)	78(26.4%)			
Number of people living together at home	1 (living alone)	2(0.3%)	1(0.5%)	5.192#	4	0.268
	2	7(1.1%)	6(2.8%)			
	3	59(9.2%)	25(11.8%)			

	4	111(17.3%)	31(14.7%)			
	≥5	463(72.1%)	148(70.1)			
Number of siblings	1(The only child)	38 (5.9%)	4(1.9%)			
	2	10(1.6%)	6(2.8%)	7.316	4	0.120
	3	56(8.7%)	16(7.6%)			
	4	123(19.2%)	45(21.3%)			
	≥5	415(64.6%)	140(66.4%)			
Number of people living together at residential college	1 (living alone)	14 (2.2%)	7(3.3%)			
	2	125(19.5%)	42(19.9%)			
	3	3(0.5%)	1(0.5%)	1.177#	4	0.882
	4	13(2.0%)	3(1.4%)			
	≥5	487(75.9%)	158(74.9%)			

Notes: # χ^2 not significant and more than 20% of cells have an expected value of less than 5

4.2 Differences in lifestyles between students with and without depression

In terms of exercise and physical activities, students with depression had significantly ($p=0.000$) lower perception that exercise helps to prevent anxiety ($\text{mean}\pm\text{sd}=2.81\pm1.12$) than students without depression ($\text{mean}\pm\text{sd}=3.24\pm1.06$). They also were significantly ($p=0.003$) less likely to believe exercise is important ($\text{mean}\pm\text{sd}=3.36\pm1.09$) compared to students without depression ($\text{mean}\pm\text{sd}=3.60\pm0.97$). Students with depression significantly ($p=0.001$) had lesser physical activities ($\text{mean}\pm\text{sd}=2.72\pm1.11$) than healthy students ($\text{mean}\pm\text{sd}=2.99\pm1.03$). For diet and eating habits, students without depression significantly ($p=0.000$) had a healthier diet and eating habits ($\text{mean}\pm\text{sd}=2.13\pm0.59$) compared to students with depression ($\text{mean}\pm\text{sd}=1.87\pm0.62$).

Table 2: Differences in lifestyles between students with and without depression

Students Lifestyles		Depression (n=211)		Not Depressed (n=642)		T-Test	95%Confidence Interval	
		Mean	SD	Mean	SD	p-value	Lower	Upper
Exercise and Physical Activities	Exercise helps to prevent anxiety	2.81	1.12	3.24	1.06	*0.000	0.264	0.598
	Exercise is important during study	3.36	1.09	3.60	0.97	*0.003	0.077	0.389
	Increase physical activities during study	2.72	1.11	2.99	1.03	*0.001	0.102	0.429
	Physical activities interfere with study	3.03	0.98	3.13	0.74	0.114	-0.024	0.226
Diet and eating habits	Awareness of overeating	2.83	1.02	2.81	0.82	0.745	-0.159	0.114
	Healthy diet and eating habits	1.87	0.62	2.13	0.59	*0.000	0.163	0.349
	Healthy changes in weight	2.77	1.05	2.88	0.81	0.119	-0.028	0.245
Internet and social media	Browsing the internet more than usual	1.94	1.23	1.61	1.22	*0.001	-0.516	-0.136
	Using social media while at home/room alone	-0.30	0.67	-0.16	0.67	*0.006	0.041	0.251
	Participating in activities on social media	0.11	0.31	0.08	0.28	0.274	-0.070	0.020
Sleeping pattern	Quality of sleep during study	-0.38	0.92	0.05	0.74	*0.000	0.306	0.552
	Tendency to sleep more during daytime	2.10	1.21	1.52	1.03	*0.000	-0.746	-0.412
	Taking sleeping pills to sleep	0.31	0.83	0.08	0.36	*0.000	-0.315	-0.154
Spirituality and religious activities	Increase in spiritual or religious activities	1.51	0.62	1.52	0.64	0.853	-0.095	0.115
	Spiritual/religious activities as stress management	1.17	0.83	1.25	0.80	0.183	-0.041	0.212

Notes: SD=Standard deviation; Comparison between the variables for students with and without depression were analysed using independent t-test; The tests were significant when $p\leq0.05$.

For internet and social media, students with depression were significantly ($p=0.001$) browsing the internet more than usual ($\text{mean}\pm\text{sd}=1.94\pm1.23$) compared to students without depression ($\text{mean}\pm\text{sd}=1.61\pm1.22$). They also had been significantly ($p=0.006$) using social media at home or alone ($\text{mean}\pm\text{sd}=-0.30\pm0.67$) more than students without depression ($\text{mean}\pm\text{sd}=-0.16\pm0.67$). Regarding sleeping patterns, students with depression had a significantly ($p=0.001$) poorer quality of sleep during studies ($\text{mean}\pm\text{sd}=-0.38\pm0.92$) than students without depression ($\text{mean}\pm\text{sd}=0.05\pm0.74$). Students with depression also had a significant ($p=0.000$) tendency to sleep more during the daytime ($\text{mean}\pm\text{sd}=2.10\pm1.21$) than students without depression ($\text{mean}\pm\text{sd}=1.52\pm1.03$). They also significantly ($p=0.000$) took sleeping pills ($\text{mean}\pm\text{sd}=0.31\pm0.83$) more than students without depression ($\text{mean}\pm\text{sd}=0.08\pm0.36$).

5.0 Discussion

The present study provides significant insights into the differences in lifestyle behaviours between university students with and without depression in Malaysia. Our analysis revealed that 24.7% of the participants were classified as having depression based on the CESD scale, similar to previous studies (Kamruzzaman et al., 2024). Among these students, 28.9% had a history of mental illness, while the remaining did not, suggesting that a significant proportion of students might be experiencing their first episodes of depression during

university life. Sociodemographic factors, including gender, age, home residential area, and the number of people living at home or in residential colleges, were matched and did not show significant differences between students with and without depression (Vieira et al., 2021; Cheah et al., 2019; Hossain et al., 2019). These findings indicate that lifestyle factors, rather than demographic background, play a more substantial role in the prevalence of depression among university students (Kamruzzaman et al., 2024).

5.1 Physical Activity and Depression

Consistent with previous studies, our findings indicate that students with depression engage in significantly lower levels of physical activity than their non-depressed counterparts (Wang et al., 2025; Perveen et al., 2018). The observed reduction in physical activity is likely due to common depressive symptoms such as fatigue, lack of motivation, and decreased energy levels, which discourage participation in exercise (Oktadinata et al., 2024). Research has demonstrated that regular physical activity has protective effects against depression by enhancing neurogenesis, increasing endorphin production, and reducing stress (Wang et al., 2025). Moreover, university students face high academic pressure, which may lead them to prioritize studying over exercise, further exacerbating the issue. Given these benefits, structured exercise programs should be integrated into university mental health initiatives to encourage physical activity among students at risk of depression (Oktadinata et al., 2024; Perveen et al., 2018).

5.2 Dietary Patterns and Depression

Our results indicate that students with depression have poorer dietary habits compared to their healthy counterparts, characterized by a higher tendency to consume unhealthy foods and irregular eating patterns. This finding supports previous research that links poor dietary habits with mental health issues among university students (Zheng et al., 2024; Perveen et al., 2018). Studies suggest that a diet rich in processed foods, refined sugars, and high-fat content exacerbates inflammation and oxidative stress, contributing to depressive symptoms (ElBarazi & Tikamdas, 2024). On the other hand, balanced diets incorporating omega-3 fatty acids, vitamins, and antioxidants have been associated with improved mental well-being (Singh & Kumar, 2024). Students with depression may also use food as a coping mechanism, leading to emotional eating, weight fluctuations, and worsening psychological distress (Zheng et al., 2024; ElBarazi & Tikamdas, 2024). These findings emphasize the need for nutrition education and campus-wide initiatives promoting healthier food choices to mitigate depression risk among students (Perveen et al., 2018).

5.3 Internet and Social Media Usage

The current study found that students with depression tend to spend more time browsing the internet and engaging with social media, often in isolation, compared to non-depressed students. This aligns with the findings by Liu et al. (2024), who reported that excessive internet and social media use is associated with social withdrawal, increased loneliness, and heightened symptoms of anxiety and depression. While the internet facilitates academic learning and social networking (Daniel et al., 2024), excessive use, particularly for non-academic purposes, can contribute to procrastination, poor academic performance, and social isolation (Haque et al., 2024). Furthermore, students may engage in maladaptive comparison behaviors, leading to low self-esteem and emotional distress (Liu et al., 2024). Students with depression may be more prone to compulsive social media use, leading to disrupted sleep patterns and poor academic performance (Sallehuddin et al., 2021). Universities should consider implementing digital wellness programs that promote responsible internet use and encourage face-to-face social interactions to counteract these negative effects.

5.4 Sleep Patterns and Depression

Our study confirms that students with depression exhibit significantly poorer sleep quality, increased daytime sleepiness, and higher use of sleeping aids compared to their non-depressed peers. These findings align with research (Wang & Biro, 2021) that suggests sleep disturbances are both a cause and a consequence of depression. Poor sleep hygiene, irregular sleep schedules, and nighttime screen exposure contribute to disruptions in circadian rhythms, exacerbating depressive symptoms (Wang et al., 2025). In addition, high academic demands, social commitments, and nighttime internet use among university students contribute to poor sleep quality (Wang & Biro, 2021). Sleep deprivation can negatively impact cognitive function, emotional regulation, and overall mental health, further worsening depressive symptoms (Wang et al., 2025). Sleep interventions, including structured sleep hygiene programs and mental health workshops, should be integrated into university support services to promote better sleep quality among students.

5.5 The Biopsychosocial Model for Mental Health

The findings of this study align with the Biopsychosocial Model, which posits that mental health conditions such as depression are influenced by a dynamic interaction of biological predispositions, psychological states, and behavioural or environmental factors (Engel, 1977). The significant associations between depressive symptoms and modifiable lifestyle behaviours—such as poor sleep, inadequate physical activity, unhealthy diet, and excessive internet use—support the notion that lifestyle interventions can play a vital role in addressing psychological distress among students. Additionally, the Health Belief Model (HBM) offers further insight into why students may not engage in health-promoting behaviours. It posits that perceived barriers, low perceived benefits, and lack of cues to action may contribute to the maintenance of maladaptive lifestyle habits in those experiencing depression (Rosenstock, 1974; Janz & Becker, 1984). Among university students with depression, low perceived control or energy and the absence of structured support may limit engagement in positive lifestyle changes. Integrating these theoretical perspectives into university mental health strategies may enhance the design of holistic interventions that address both the psychological and behavioural aspects of student well-being.

5.6 National Strategies and Policies

These findings highlight the need for national mental health strategies to incorporate targeted interventions that promote healthy lifestyle behaviours—such as regular physical activity, balanced nutrition, responsible internet use, and sleep hygiene—within university settings. Public health policies should prioritize the integration of structured wellness programs and digital detox initiatives into higher education institutions to mitigate depression risk and enhance student well-being at a population level.

5.7 Limitations

This study had several limitations that should be considered when interpreting the findings. The cross-sectional design restricted the causal relationship between lifestyle factors and depression. Self-reported data may have introduced response and recall biases, potentially affecting the accuracy and reliability of the results. Additionally, convenience sampling may not fully represent the broader population of university students in Malaysia, thereby limiting the generalizability of the study's conclusions. Other important influencing factors, such as socioeconomic background, academic stress, and coping mechanisms, were not comprehensively assessed.

6.0 Conclusion and Recommendations

This study demonstrates that lifestyle factors such as physical activity, food, internet usage, and sleep habits vary significantly between university students with and without depression. This study is novel in directly comparing lifestyle behaviours between university students with and without depression in Malaysia, providing evidence on modifiable risk factors that are often overlooked in student mental health research. The findings show that focused interventions centered on lifestyle changes could help students improve their mental health. Healthy lifestyle behaviours, such as regular exercise, balanced nutrition, moderate internet usage, and improved sleep hygiene, should be promoted in university mental health programs. Future research should look at longitudinal effects to establish causal links, explore the impacts of socio-cultural and economic backgrounds, and investigate the effectiveness of interventions to improve university students' lifestyles. Evidence-based policies should be created to help students' overall well-being.

Acknowledgements

The authors would like to thank the students who participated in the study. The project is supported by the Universiti Teknologi MARA, grant number 100-RMC 5/3/SRP (065/2022).

Paper Contribution to Related Field of Study

This study contributes to the field of mental health and university student well-being by providing empirical evidence on the association between lifestyle habits and depression among Malaysian university students. It fills a research gap by directly comparing lifestyle differences between students with and without depression, highlighting key modifiable risk factors such as physical activity, diet, internet usage, and sleep patterns. The findings support the need for targeted mental health interventions, including structured wellness programs and digital detox initiatives, which can inform university policies and public health strategies aimed at reducing depression risk in student populations.

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