



## Predictors of the well-being of secondary school students during the home-based teaching and learning

 **Bee Seok Chua<sup>1</sup>**  
**Jasmine Adela**  
**Mutang<sup>2</sup>**

 **Walton Wider<sup>3\*</sup>**

<sup>1,2</sup>Faculty of Psychology and Education, Universiti Malaysia Sabah, Kota Kinabalu 88400, Kota Kinabalu, Malaysia.

<sup>1</sup>Email: [chuabs@ums.edu.my](mailto:chuabs@ums.edu.my)

<sup>2</sup>Email: [jasmine@ums.edu.my](mailto:jasmine@ums.edu.my)

<sup>3</sup>Faculty of Business and Communications, INTI International University, Nilai 71800, Negeri Sembilan, Malaysia.

<sup>3</sup>Email: [walton.wider@nexvinti.edu.my](mailto:walton.wider@nexvinti.edu.my)



(+ Corresponding author)

### ABSTRACT

#### Article History

Received: 16 February 2023

Revised: 7 July 2023

Accepted: 31 July 2023

Published: 21 August 2023

#### Keywords

Contextual factors  
Demographic factors  
Home-based teaching and learning  
Malaysia  
Multiple logistic regression  
Psychological well-being.

Secondary schools around the world, including Malaysia, have switched to online classes, known as home-based teaching and learning (HBTL), to ensure school continuity due to the global disruption caused by the COVID-19 pandemic. As a result, it was critical to investigate how the COVID-19 pandemic affected the well-being of secondary school students. The objective of this study was to look into the predictors of well-being among Sabah secondary school students while taking demographic and contextual factors into account. This study included 1067 secondary school students from nine schools in Sabah, Malaysia. The data was examined using multiple logistic regression. The findings confirmed that several factors influenced secondary school students' well-being, such as family monthly income, general health, coping with the COVID-19 pandemic, perception towards academic achievement during the pandemic, lifestyle, concern about COVID-19, prior and current mental health condition, difficulty sleeping, and source of social support during the pandemic. These findings shed light on the interconnected nature of the many factors that contribute to a student's well-being. Recognizing the diverse factors influencing students' well-being can inform the design of policies and interventions that not only support academic achievement but also enhance the overall well-being of students during pandemics such as COVID-19.

**Contribution/Originality:** This study makes a discovery of factors influencing students' well-being in Sabah, Malaysia, during COVID-19 including income, health perception, education, and coping mechanisms. The study findings contribute to the development of comprehensive interventions for improved well-being, with important implications for educators, health professionals, and policymakers.

## 1. INTRODUCTION

Since WHO declared COVID-19 a global pandemic in 2020 (WHO, 2020), governments around the world have implemented lockdowns and other stringent measures to prevent the virus from spreading. As a result of the pandemic, students faced a variety of one-of-a-kind challenges, including educational, social, and mental health challenges (Dvorsky, Breaux, & Becker, 2021; Holm-Hadulla, Klimov, Juche, Möltner, & Herpertz, 2021; Jiao et al., 2020; Scott et al., 2021). As a result of the prolonged lockdown, access to the classroom was severely restricted. More than a billion students worldwide had their education severely disrupted when educational institutions were forced to close due to the pandemic outbreak (United Nations Educational Scientific and Cultural Organization, 2020). Due

to the lockdown, all educational institutions, including universities, were required to hold their classes online (Abuhmaid & Jarrah, 2022; Kaur, Balakrishnan, Chen, & Periasamy, 2022). The concept of "Education in Emergency" was adopted by the education system and educators through a variety of online platforms. As a result, they were being coerced into adopting a system for which they lack the necessary level of preparation (Pokhrel & Chhetri, 2021).

Shortly after the WHO's pandemic declaration, Malaysia implemented a movement control order (MCO) on March 18, 2020, encompassing severe social distancing protocols and the cessation of community activities, including educational operations. The impact of these measures significantly altered individuals' daily routines, particularly those of students, leading to notable disruptions in the education system and subsequent adverse effects on students' social and mental health, as well as academic performance (Donnelly & Patrinos, 2022). Notably, several studies have indicated learning losses (Engzell, Frey, & Verhagen, 2021; Laorach & Tuamsuk, 2022; Schleicher, 2020; Tomasik, Helbling, & Moser, 2021), quantifiable through learning-adjusted years of schooling (LAYS). Prolonged school closures in Southeast Asia, particularly Malaysia, have resulted in a significant knowledge and skills deficit among students (Gayares, 2021).

In Malaysia, the education system has experienced dramatic disruptions and modifications due to the COVID-19 pandemic (Thang, Mahmud, Mohd Jaafar, Ng, & Abdul Aziz, 2022; Yim, Rahim, & Sedhu, 2022; Zaki et al., 2021). To mitigate these effects, public schools adopted home-based teaching and learning (HBTL), transitioning from traditional classroom instruction to entirely remote online learning (Poobalan et al., 2021; Thang et al., 2022). This shift presented unique challenges for both educators and learners. There have been several global studies examining the pandemic's influence on students' psychological well-being (Asanov, Flores, McKenzie, Mensmann, & Schulte, 2021; Giannopoulou, Efstathiou, Triantafyllou, Korkoliakou, & Douzenis, 2021; Rao & Rao, 2021; Zhang et al., 2020). Specifically, research on Malaysian students shows that the pandemic and subsequent lockdowns have significantly impacted their psychological health (Sundarasan et al., 2020; Zaki et al., 2021). Factors such as younger age, single parenthood, private sector employment, lower parental education, and parental mental health issues were identified as significant determinants affecting children's mental health (Sahril, Ahmad, Idris, Sooryanarayana, & Abd Razak, 2021). Other contributing factors included gender (Magson et al., 2021; McKune et al., 2021), parental stress (Orgilés et al., 2021; Rosen et al., 2020), and single parenting (Luijten et al., 2021). Thus, the secondary school students' well-being during home-based teaching and learning presents a crucial area of concern.

Understanding the needs of the specific population of school-aged children is therefore essential for the development of effective mental health plans and programs, as the mental health of vulnerable populations, such as secondary school students, is a major concern during the pandemic. Malaysia's demographics are extremely fascinating, particularly in Sabah, one of the country's poorest states. Different requirements apply to rural and urban areas within a single state. Before implementing a program, community demographics, educational infrastructure, youth mental health and socioeconomic status, as well as other protective and risk factors, should all be considered. Consequently, the purpose of the present study was to investigate the predictors of well-being among secondary school students in Sabah, Malaysia.

### 1.1. Objectives

This study's goal was to investigate the demographic and contextual factors that influenced secondary school students' well-being in Sabah, Malaysia. The demographic factors included gender, family monthly income, general health, hours for online study; whereas the contextual factors included satisfaction with studies, coping with the COVID-19 situation, perception towards academic achievement during HBTL, lifestyle, concern about the COVID-19 Pandemic, the impact of the COVID-19 pandemic on emotion, overall mental health before the HBTL, overall current mental health condition, sleeping difficulty and source of social support during HBTL.

## 2. METHODS

### 2.1. Participants

The collection of data commenced in April 2022 and concluded by early August 2022. A total of 1,250 sets of questionnaires were delivered by postage mail to nine secondary schools in urban and rural areas in the West Coast Division of Sabah. With a response rate of 85.5%, a total of 1,069 questionnaires were gathered from nine secondary schools in Sabah, Malaysia, both in urban and rural areas.

**Table 1.** Demographic information about respondents (N = 1069).

Variables	Frequency	Percentage (%)
Gender		
Male	467	43.7
Female	571	53.4
Preferred not to mention	31	2.9
Residence		
Urban	249	23.3
Rural	804	75.2
Preferred not to mention	16	1.5
Ethnicity/ Race		
Malay	50	4.7
Chinese	51	4.8
Indian	6	0.6
Kadazandusun	626	58.7
Bajau	36	3.4
Murut	102	9.6
Melayu Brunei	34	3.2
Iban	5	.5
Others	107	10
Preferred not to mention	52	4.7
Religion		
Islam	364	34.0
Christian	658	61.6
Buddha	43	4.0
Hindu	4	0.4
Household income		
Low-income (B40, RM4,849 and below).	693	64.8
Middle-income (M40, RM4,850 – RM10,959).	333	31.1
High-income (T20, RM10,960 and above).	43	4.0
Academic level/ Education		
Transition class	6	0.6
Form one	157	14.7
Form two	313	29.3
Form three	152	14.2
Form four	192	18.0
Form five	203	19.0
Lower six	3	0.3
Upper six	30	2.8
Preferred not to mention	13	1.2
Age		
13 years	163	15.3
14 years	313	29.3
15 years	152	14.2
16 years	192	18.0
17 years	203	19.0
18 years	3	0.3
19 years	30	2.8
Preferred not to mention	13	1.2

Table 1 shows the summary of respondents' demographic information. A total of 571 Female (53.4%) and 467 male (43.7%) students represented the sample while 31(2.9%) did not provide gender information. The majority of respondents (75.2%) were from rural areas. In terms of religion, 62% of students were identified as Christian, 34% as Muslim, 4% as Buddhist, and 0.4% as Hindu. The majority of students (64.9%) came from low-income families (B40, RM4,849 and below). Only 4% of them came from high-income families earning RM10,960 or more per month. There were 14.7% in Form One, 29.3% in Form Two, 14.2% in Form Three, 18.0% in Form Four, and 19% in Form Five. Only 3.6% of the students were enrolled in Form Six, and only 0.6% of the students were in the transition class (0.7% of the data was missing).

## 2.2. Instruments

A questionnaire was used to collect the following types of demographic data: age, gender, race, religion, education, residence, and household income. In Section 2, items pertaining to contextual factors were collected such as hours for online study, coping with the COVID-19 situation, satisfaction with online learning during HBTL, current satisfaction with school learning (after HBTL), perception towards academic achievement during HBTL, and difficulty falling asleep were each measured by a single item using a 5-point Likert scale. A total of 11 items related to life activities were used to assess lifestyle (e.g., watching television (TV), engaging in sports activities, praying, sleeping, etc.). During HBTL, participants were asked to rate whether they engaged in the activities less frequently, the same amount, or more frequently than before HBTL. There were two components to the source of social support. Respondents were asked to rate on a 5-point Likert scale how teachers and friends were perceived as sources of social support during HBTL. In the third section, the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was used to assess well-being. The WEMWBS consisted of fourteen items that measured subjective well-being and psychological functioning. All WEMWBS items were structured in a positive manner and addressed the components of mental health. The scale was assessed by adding responses to each item on a 1 (none of the time) to 5 (all of the time) Likert scale (Stewart-Brown & Janmohamed, 2008). For the multiple logistic regression, the score ranged from 14 to 42 and was categorised as Low Well-Being and coded with a (0) zero; while a score above 42 was classified as High Well-Being and coded with 1.

## 2.3. Data Analysis

The statistical analysis was conducted utilizing IBM SPSS Statistics software version 28.0. A descriptive analysis was carried out to investigate the frequency and proportion of demographic characteristics of the participants. The study utilized multiple logistic regression to examine the impact of various factors on the probability of secondary school students in Sabah experiencing heightened psychological well-being during the COVID-19 pandemic. The factors under investigation included gender, family monthly income, general health, hours for online study, satisfaction with studies, coping with the COVID-19 situation, perception towards academic achievement during HBTL, lifestyle, concern about the COVID-19 Pandemic, the impact of the COVID-19 pandemic on emotion, overall mental health before the HBTL, overall current mental health condition, sleeping difficulty and source of social support during HBTL.

The criterion for statistical significance was established as  $p < 0.05$ , and the technique of list-wise deletion was employed to handle missing data.

## 3. RESULTS

The study employed multiple logistic regression to examine the variables that impact the psychological well-being of secondary school students in Sabah, Malaysia, amidst the HBTL necessitated by the COVID-19 pandemic. The study utilized a model consisting of various factors, including gender, family monthly income, general health, hours dedicated to online study, satisfaction with studies, coping mechanisms for the COVID-19 situation, perception

towards academic achievement during home-based teaching and learning (HBTL), lifestyle, concern about the COVID-19 pandemic, the impact of the pandemic on emotions, overall mental health before HBTL, current mental health condition, sleeping difficulty, and source of social support during HBTL. The results indicated that the model was statistically significant [ $\chi^2(37) = 255.86, p < 0.001$ ], accounting for 34.9% (Nagelkerke  $R^2$ ) of the variance in psychological well-being. Additionally, 75.7% of the cases were correctly classified. The statistical analysis known as the Hosmer-Lemeshow test was conducted, yielding a p-value of 0.509. This result suggests that the psychological stability numbers do not exhibit a significant deviation from the predicted values of the model. Therefore, it can be inferred that the model fit is satisfactory.

Based on the Table 2, the multiple logistic regression results showed that students from The M40 group, which is the middle-class group with a monthly household income of between RM4,850 and RM10,959 (OR = 2.705, 95% CI: 1.183 - 6.187), and students from a high-income family with a monthly household income exceeding RM10,960 (OR = 2.927, 95% CI: 1.227 - 6.980), had higher odds of high well-being. Furthermore, the results revealed that students who were highly concerned about the COVID-19 pandemic (OR 1.091, 95% CI: 1.010 - 1.179), students who rated their current overall mental health as good (OR 1.254, 95% CI: 1.163 - 1.352), and those who perceived teachers as an important source of social support to them during HBTL had higher odds of high well-being. On the other hand, the findings indicated that those who reported their academic performance was not as good as it was before HBTL had a greater likelihood of experiencing low well-being (OR = 0.764, 95% CI: 0.597 - 0.978) as did those who had trouble falling asleep (OR = 0.844, 95% CI: 0.726 - 0.982).

#### 4. DISCUSSION

The purpose of this study is to examine the demographic and contextual factors that influence the well-being of secondary school students in Sabah, Malaysia. The study considers the impact of various factors such as gender, family monthly income, general health, online study hours, satisfaction with studies, coping with the COVID-19 pandemic, perception towards academic achievement during the pandemic, lifestyle, concern about COVID-19, the emotional impact of the pandemic, prior and current mental health condition, difficulty sleeping, and source of social support during the pandemic.

According to the current findings, several factors influence the likelihood of high well-being among secondary school students in Sabah, Malaysia, including household income, perceived general health, academic performance, COVID-19 coping strategies, life activities, and mental health. A key finding of the study is that students from middle-income families with a monthly income between RM4,850 and RM10,959 have a greater likelihood of experiencing high well-being. This finding emphasises the significance of financial stability in determining an individual's well-being (Sabri, Wijekoon, & Rahim, 2020). Middle-class families have a steady source of income, allowing them to live comfortably and meet their basic needs (Wicaksono, 2020). This, in turn, contributes to their overall well-being. In addition, the results indicate that students from families with incomes exceeding RM10,960 per month have a greater likelihood of experiencing high well-being. Families with a high income have greater access to resources, which can result in greater levels of comfort, security, and satisfaction (Kerr, Rasmussen, Fanning, & Braaten, 2021). Furthermore, students from richer families are more likely to have access to better educational opportunities and resources, which can positively affect their well-being (Yu, Liu, & Guo, 2022).

Table 2. Multiple logistic regression of factors predicting secondary school students' well-being (N=1,067).

No.	Variables	B	S.E.	Wald	Df	Sig.	OR	95% C.I. for or	
								Lower	Upper
	Constant	-7.336	1.112	43.486	1	< 0.001	0.001		
1	Gender	0.238	0.197	1.460	1	0.227	1.269	0.862	1.867
2	Household income low income (RM4,849 and below)			6.088	2	0.048			
	Middle income (RM4,850 - RM10,959)	0.995	0.422	5.556	1	0.018	2.705	1.183	6.187
	High income (RM10,960 and above)	1.074	0.443	5.866	1	0.015	2.927	1.227	6.980
3	General health	0.392	0.109	12.854	1	< 0.001	1.479	1.194	1.833
4	Hours for online study	-0.006	0.037	0.027	1	0.869	0.994	0.924	1.069
5	Coping with the COVID-19 situation	0.196	0.089	4.809	1	0.028	1.216	1.021	1.448
6	Satisfaction on online learning during HBTL	0.054	0.092	0.341	1	0.559	1.055	0.881	1.264
7	Current satisfaction on school learning (After HBTL)	0.139	0.100	1.936	1	0.164	1.149	0.945	1.396
8	Perception towards academic achievement during HBTL	-0.269	0.126	4.549	1	0.033	0.764	0.597	0.978
9	Watching television (TV)	0.188	0.093	4.127	1	0.042	1.207	1.007	1.448
10	Internet	-0.030	0.160	0.034	1	0.853	0.971	0.709	1.329
11	Social media	0.068	0.125	0.293	1	0.588	1.070	0.837	1.367
12	Income generating activities	0.092	0.075	1.512	1	0.219	1.096	0.947	1.269
13	Performing household chores	0.173	0.128	1.826	1	0.177	1.189	0.925	1.529
14	Doing sport	0.181	0.098	3.440	1	0.064	1.199	0.990	1.452
15	Talking to friends and relatives over the phone	-0.031	0.101	0.091	1	0.763	0.970	0.795	1.183
16	Praying	0.308	0.127	5.889	1	0.015	1.361	1.061	1.745
17	Relaxing / resting	-0.038	0.149	0.065	1	0.799	0.963	0.720	1.288
18	Sleeping	-0.020	0.131	0.024	1	0.877	0.980	0.758	1.267
19	Video game	-0.082	0.092	0.800	1	0.371	0.921	0.769	1.103
20	How much has the COVID-19 pandemic negatively affected your life?	-0.075	0.050	2.275	1	0.131	0.928	0.841	1.023
21	How concerned are you about the COVID-19 Pandemic?	0.087	0.040	4.876	1	0.027	1.091	1.010	1.179
22	How much does the COVID-19 pandemic affect you emotionally?	0.007	0.041	0.029	1	0.864	1.007	0.929	1.091
23	How would you rate your overall mental health before the MCO?	-0.030	0.036	0.674	1	0.412	0.971	0.904	1.042
24	How would you rate your overall mental health currently?	0.226	0.038	34.762	1	0.000	1.254	1.163	1.352
25	Difficulty falling asleep	-0.169	0.077	4.816	1	0.028	0.844	0.726	0.982
26	Do you think teachers are a source of social support to you during HBTL?	0.394	0.105	14.183	1	<0.001	1.483	1.208	1.821
27	Do you think classmates are a source of social support to you during HBTL?	0.174	0.095	3.357	1	0.067	1.190	0.988	1.433

Note: S.E. = Standard error; Df = Degrees of freedom; C.I. = Confidence intervals.



Perceived general health is another important factor that influences the likelihood of high well-being among students. The findings revealed that students who perceived their general health as good had a higher likelihood of experiencing high well-being. This emphasises the significance of physical health in determining overall well-being. Good general health contributes to a person's physical, emotional, and mental well-being and is associated with a higher quality of life (Ruggeri, Garcia-Garzon, Maguire, Matz, & Huppert, 2020). Students who reported their academic performance as the same as before HBTL or as better than before HBTL had a greater likelihood of reporting high well-being. Our discussion highlights the significance of students upholding their academic performance during the HBTL period implemented in response to the COVID-19 pandemic restrictions in Malaysia. Our findings are consistent with previous research (Asanov et al., 2021; Giannopoulou et al., 2021; Rao & Rao, 2021; Zhang et al., 2020), indicating that students who successfully adapt to the COVID-19 situation and maintain a certain level of academic performance are more likely to experience enhanced well-being. This highlights the importance of resilience and adaptability in promoting overall well-being during challenging circumstances. Consistent with the findings of Sundarasan et al. (2020) and Zaki et al. (2021), this study also reveals that students who engage in active participation in various life activities, such as watching television and engaging in prayer, are more likely to experience elevated levels of well-being in comparison to the period before the implementation of the Movement Control Order (MCO). This supports the idea that participating in pleasurable and calming activities can have a beneficial effect on one's overall well-being. Moreover, students who are highly concerned about the COVID-19 pandemic have a greater likelihood of experiencing positive well-being. This suggests that awareness and concern about the current situation can lead to increased participation in activities that promote well-being.

Based on these findings, it is suggested that schools, parents, the government, and communities work together to improve the well-being of secondary school students in Sabah, Malaysia. It is critical for families to have a consistent source of income in order to meet their basic needs and maintain a comfortable standard of living. This can be accomplished through education and training programmes that increase families' financial literacy and income. Furthermore, community organisations and government agencies can help families who are struggling to meet their basic needs financially. Students should have access to physical health resources and education in schools, such as regular check-ups and physical education classes. This can be accomplished through collaborations with local healthcare providers or through the provision of in-school health clinics and wellness programmes. Families can also encourage physical activity and healthy eating habits by providing access to nutritious food options. Furthermore, schools can provide students with academic support and resources, such as tutoring and technology access, to assist them in maintaining their academic performance. Families can also help their children succeed academically by monitoring their progress, providing positive reinforcement, and encouraging a positive attitude toward education.

Schools and families can collaborate to provide students with coping strategies for dealing with the stress and uncertainty that the COVID-19 pandemic has caused. Access to mental health resources, such as counselling and support groups, as well as encouraging healthy coping mechanisms, such as physical activity and mindfulness practises, can all contribute to this. Encouragement of students' adaptability and resilience in the face of adversity can also help improve their overall well-being. This can be accomplished through counselling services and programmes that teach coping skills and stress management techniques. Furthermore, schools can encourage students to participate in activities such as sports and outdoor activities that promote resilience and mental toughness. Students can be encouraged by their schools and families to engage in activities that bring them joy and relaxation, such as watching television, praying, or participating in extracurricular activities. Students can benefit from this by developing a sense of purpose and improving their overall well-being. Furthermore, community organisations can help students find a healthy outlet for their interests and energy by providing access to recreational opportunities such as sports and arts programmes. Students should have access to mental health resources and education in schools, such as counselling services and mental health workshops. This can be accomplished through collaborations with local healthcare providers or through the provision of in-school health clinics and wellness programmes. Additionally,

families can encourage open communication and offer support and understanding to students in order to help them maintain good mental health.

#### 4.1. Implications

The findings of this study have important ramifications for policymakers, educators, and health professionals in Sabah, Malaysia. The findings suggest that a variety of factors influence secondary school students' well-being, including household income, perceived general health, academic performance, COVID-19 coping strategies, life activities, and mental health. These findings provide important insights into the complex relationships between various factors that influence well-being and can aid in the development of effective policies and interventions to promote student well-being.

One of the study's key implications is the significance of financial stability and household income in determining well-being. According to the findings, students from middle-class and high-income families have a higher likelihood of being happy than those from low-income families. This highlights the importance of policymakers prioritising programmes and initiatives that promote financial stability and reduce poverty among families, as these can have a positive impact on students' well-being. Policies that increase access to affordable housing, healthcare, and education can help to improve the well-being of students from low-income families. Another significant finding of the study is the significance of physical health in determining well-being. According to the findings, students who perceive their general health as good have a higher likelihood of experiencing high well-being. This emphasises the importance of policymakers and health professionals prioritising programmes and initiatives aimed at improving students' physical health and well-being. School-based health programmes, physical education classes, and access to healthy food options, for example, can help students improve their physical and mental health, leading to higher levels of well-being.

The findings also suggest that academic performance and COVID-19 coping strategies are important in determining student well-being. According to the findings, students who are able to maintain their academic performance and cope well with the COVID-19 pandemic have a higher likelihood of being happy. This underlines the importance of educators and mental health professionals prioritising virtual learning opportunities, mental health support services, and resilience-building programmes to assist students during the COVID-19 pandemic. The study also discovered that participating in life activities, as well as being aware of and concerned about the COVID-19 pandemic, can contribute to student well-being. The findings suggest that students who partake in more pleasurable and relaxing activities, such as watching television and praying, have a greater chance of experiencing high well-being after MCO. This implies that policymakers and educators should prioritise programmes and initiatives that promote positive life activities, such as extracurricular activities, sports, and cultural activities. Furthermore, awareness and concern about the current situation can lead to increased participation in activities that promote well-being, such as volunteering, community service, and political or social activism.

Finally, this study has implications for mental health professionals because it shows that students' mental health is a major factor in determining their well-being. The findings indicate that programmes and initiatives aimed at promoting students' mental health and well-being should be given top priority by policymakers, educators, and healthcare providers. For instance, school-based mental health programmes, peer support groups, and access to mental health resources and services can improve the mental health of students, resulting in greater levels of well-being.

## 5. CONCLUSION, LIMITATIONS, AND FUTURE RECOMMENDATIONS

In conclusion, the study pointed out the significance of financial stability, physical health, academic performance, coping strategies, life activities, and mental health in predicting the likelihood of high well-being among secondary school students in Sabah, Malaysia. The findings can serve as a guide for policymakers and educators to better



comprehend the factors that influence the well-being of secondary school students, especially during the pandemic. Nonetheless, it is essential to note that this study has a number of limitations. First, the period of data collection was comparatively short, which may have limited the population's representation. Second, the study relied on self-reported data, which are susceptible to bias and accuracy issues. The sample size was restricted to nine secondary schools in Sabah, Malaysia, and may not be representative of the population as a whole. Future research could address these limitations by increasing the sample size and duration of data collection, as well as by validating the findings with multiple data sources, such as teacher and parent reports. Additionally, it would be useful to investigate the impact of other factors, such as parental involvement, school climate, and peer support, on the well-being of students. In addition, longitudinal studies could aid in determining the causal relationships between the factors and the well-being of students. By addressing these limitations, future research can provide a more comprehensive understanding of the factors that influence student well-being and inform policies and interventions intended to promote well-being among secondary school students in Sabah, Malaysia.

**Funding:** This study received no specific financial support.

**Institutional Review Board Statement:** The Ethical Committee of the INTI International University, Malaysia has granted approval for this study (Ref. No. INTI/UEC/2023/006). All respondents gave their consent before taking part in the survey.

**Transparency:** The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

**Competing Interests:** The authors declare that they have no competing interests.

**Authors' Contributions:** All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

## REFERENCES

- Abuhmaid, A., & Jarrah, H. (2022). Education leaders' perception on the effectiveness of online learning during the COVID -19 crises in UAE universities. *Nurture*, 16(2), 54–64. <https://doi.org/10.55951/nurture.v16i2.127>
- Asanov, I., Flores, F., McKenzie, D., Mensmann, M., & Schulte, M. (2021). Remote-learning, time-use, and mental health of Ecuadorian high-school students during the COVID-19 quarantine. *World Development*, 138, 105225. <https://doi.org/10.1016/j.worlddev.2020.105225>
- Donnelly, R., & Patrinos, H. A. (2022). Learning loss during Covid-19: An early systematic review. *Prospects*, 51(4), 601–609. <https://doi.org/10.1007/s11125-021-09582-6>
- Dvorsky, M. R., Breaux, R., & Becker, S. P. (2021). Finding ordinary magic in extraordinary times: Child and adolescent resilience during the COVID-19 pandemic. *European Child & Adolescent Psychiatry*, 30(11), 1829-1831. <https://doi.org/10.1007/s00787-020-01583-8>
- Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proceedings of the National Academy of Sciences*, 118(17), e2022376118. <https://doi.org/10.1073/pnas.2022376118>
- Gayares, R. M. (2021). *Learning and earning losses from COVID-19 school closures in developing Asia*. Manila, Philippines: Asian Development Bank.
- Giannopoulou, I., Efstathiou, V., Triantafyllou, G., Korkoliakou, P., & Douzenis, A. (2021). Adding stress to the stressed: Senior high school students' mental health amidst the COVID-19 nationwide lockdown in Greece. *Psychiatry Research*, 295, 113560. <https://doi.org/10.1016/j.psychres.2020.113560>
- Holm-Hadulla, R. M., Klimov, M., Juche, T., Möltner, A., & Herpertz, S. C. (2021). Well-being and mental health of students during the COVID-19 pandemic. *Psychopathology*, 54(6), 291-297. <https://doi.org/10.1159/000519366>
- Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Pettoello-Mantovani, M., & Somekh, E. (2020). Behavioral and emotional disorders in children during the COVID-19 epidemic. *The Journal of Pediatrics*, 221, 264–266. e261. <https://doi.org/10.1016/j.jpeds.2020.03.013>

- Kaur, W., Balakrishnan, V., Chen, Y. Y., & Periasamy, J. (2022). Mental health risk factors and coping strategies among students in Asia Pacific during COVID-19 pandemic—A scoping review. *International Journal of Environmental Research and Public Health*, 19(15), 8894.
- Kerr, M. L., Rasmussen, H. F., Fanning, K. A., & Braaten, S. M. (2021). Parenting during COVID-19: A study of parents' experiences across gender and income levels. *Family Relations*, 70(5), 1327-1342. <https://doi.org/10.1111/fare.12571>
- Laorach, C., & Tuamsuk, K. (2022). Factors influencing the digital transformation of universities in Thailand. *International Journal of Innovative Research and Scientific Studies*, 5(3), 211-219. <https://doi.org/10.53894/ijirss.v5i3.646>
- Luijten, M. A., van Muilekom, M. M., Teela, L., Polderman, T. J., Terwee, C. B., Zijlmans, J., . . . van Oers, H. A. (2021). The impact of lockdown during the COVID-19 pandemic on mental and social health of children and adolescents. *Quality of Life Research*, 30(10), 2795-2804.
- Magson, N. R., Freeman, J. Y., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2021). Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic. *Journal of Youth and Adolescence*, 50(1), 44-57. <https://doi.org/10.1007/s10964-020-01332-9>
- McKune, S. L., Acosta, D., Diaz, N., Brittain, K., Beaulieu, D. J., Maurelli, A. T., & Nelson, E. J. (2021). Psychosocial health of school-aged children during the initial COVID-19 safer-at-home school mandates in Florida: A cross-sectional study. *BMC Public Health*, 21(1), 1-11. <https://doi.org/10.1186/s12889-021-10540-2>
- Orgilés, M., Espada, J. P., Delvecchio, E., Francisco, R., Mazzeschi, C., Pedro, M., & Morales, A. (2021). Anxiety and depressive symptoms in children and adolescents during COVID-19 pandemic: A transcultural approach. *Psicothema*, 33(1), 125-130.
- Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, 8(1), 133-141. <https://doi.org/10.1177/2347631120983481>
- Poobalan, G., Asman, J., Talip, R., Padan, R., Ramlee, Z., & Kaliappan, S. (2021). The challenges of home-based learning in COVID-19 season: An overview of rural school in Sabah, Malaysia. *International Journal of Academic Research in Progressive Education and Development*, 10(3), 1-9. <http://dx.doi.org/10.6007/IJARPED/v10-i3/11367>
- Rao, M. E., & Rao, D. M. (2021). The mental health of high school students during the COVID-19 pandemic. *Frontiers in Education*, 6, 719539. <https://doi.org/10.3389/feduc.2021.719539>
- Rosen, Z., Weinberger-Litman, S., Rosenzweig, C., Rosmarin, D., Muennig, P., Carmody, E., . . . Litman, L. (2020). Anxiety and distress among the first community quarantined in the US due to COVID-19: Psychological implications for the unfolding crisis. *PsyArXiv Preprints*, 1-18. <https://doi.org/10.31234/osf.io/7eq8c>
- Ruggeri, K., Garcia-Garzon, E., Maguire, Á., Matz, S., & Huppert, F. A. (2020). Well-being is more than happiness and life satisfaction: A multidimensional analysis of 21 countries. *Health and Quality of Life Outcomes*, 18(1), 1-16. <https://doi.org/10.1186/s12955-020-01423-y>
- Sabri, M., Wijekoon, R., & Rahim, H. (2020). The influence of money attitude, financial practices, self-efficacy and emotion coping on employees' financial well-being. *Management Science Letters*, 10(4), 889-900. <https://doi.org/10.5267/j.msl.2019.10.007>
- Sahril, N., Ahmad, N. A., Idris, I. B., Sooryanarayana, R., & Abd Razak, M. A. (2021). Factors associated with mental health problems among Malaysian children: A large population-based study. *Children*, 8(2), 119. <https://doi.org/10.3390/children8020119>
- Schleicher, A. (2020). The Impact of COVID-19 on Education: Insights from "education at a glance 2020". *OECD Publishing*. <https://www.oecd.org/education/education-at-a-glance/>.
- Scott, S. R., Rivera, K. M., Rushing, E., Manczak, E. M., Rozek, C. S., & Doom, J. R. (2021). "I hate this": A qualitative analysis of adolescents' self-reported challenges during the COVID-19 pandemic. *Journal of Adolescent Health*, 68(2), 262-269. <https://doi.org/10.1016/j.jadohealth.2020.11.010>
- Stewart-Brown, S., & Janmohamed, K. (2008). *Warwick-Edinburgh mental well-being scale (WEMWBS) user guide*. UK: Warwick Medical School, University of Warwick.

- Sundarasan, S., Chinna, K., Kamaludin, K., Nurunnabi, M., Baloch, G. M., Khoshaim, H. B., . . . Sukayt, A. (2020). Psychological impact of COVID-19 and lockdown among university students in Malaysia: Implications and policy recommendations. *International Journal of Environmental Research and Public Health*, 17(17), 6206. <https://doi.org/10.3390/ijerph17176206>
- Thang, S. M., Mahmud, N., Mohd Jaafar, N., Ng, L., & Abdul Aziz, N. (2022). Online learning engagement among Malaysian primary school students during the covid-19 pandemic. *International Journal of Innovation, Creativity and Change*, 16(2), 302–326.
- Tomasik, M. J., Helbling, L. A., & Moser, U. (2021). Educational gains of in-person vs. distance learning in primary and secondary schools: A natural experiment during the COVID-19 pandemic school closures in Switzerland. *International Journal of Psychology*, 56(4), 566-576. <https://doi.org/10.1002/ijop.12728>
- United Nations Educational Scientific and Cultural Organization. (2020). *UNESCO COVID-19 education response*. Retrieved from <https://unesdoc.unesco.org/ark:/48223/pf0000373992>
- WHO. (2020). *Coronavirus disease (COVID-19)*. Retrieved from <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- Wicaksono, A. (2020). Post-1998 changes in rural Java: The rapid expansion of the middle class. *Southeast Asian Studies*, 9(3), 351-380.
- Yim, J. S.-C., Rahim, P. R. M. A., & Sedhu, D. S. (2022). *Secondary students' mental well-being after the pandemic—an analysis according to location and study levels*. Paper presented at the Proceedings MDPI.
- Yu, S., Liu, Y., & Guo, R. (2022). "How does my family affect me?" The family cultural capital impact on Chinese junior high school students' academic achievement. *Thinking Skills and Creativity*, 46, 101146. <https://doi.org/10.1016/j.tsc.2022.101146>
- Zaki, N. N. S. M., Shaharuddin, M. F. S., Ishak, N. A. B. C., Hilmi, Z. S., Azmi, N. A. A. K., & Kurnia, J. C. (2021). Psychological impacts of covid-19 pandemic towards Malaysia'S secondary school students. *Platform: A Journal of Management and Humanities*, 4(2), 31-44.
- Zhang, C., Ye, M., Fu, Y., Yang, M., Luo, F., Yuan, J., & Tao, Q. (2020). The psychological impact of the COVID-19 pandemic on teenagers in China. *Journal of Adolescent Health*, 67(6), 747–755. <https://doi.org/https://doi.org/10.1016/j.jadohealth.2020.08.026>

*Views and opinions expressed in this article are the views and opinions of the author(s). International Journal of Education and Practice shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.*