proceedings

MDPI

Proceeding Paper

Secondary Students' Mental Well-Being after the Pandemic—An Analysis According to Location and Study Levels †

Joanne Sau-Ching Yim [1,*], Puteri Rohani Megat Abdul Rahim [2] and Daljeet Singh Sedhu [2]

[1] Faculty of Social Sciences and Humanities, Tunku Abdul Rahman University College, Kampar 31900, Malaysia
[2] Academy of Language Studies, Universiti Teknologi MARA, Perak Branch, Seri Iskandar 32610, Malaysia
* Correspondence: yimsc@tarc.edu.my
† Presented at the International Academic Symposium of Social Science 2022, Kota Bharu, Malaysia, 3 July 2022.

Abstract: The study surveyed 1547 secondary school students' mental health when they resumed in-person classes by examining the prevalence of depressive symptoms with the abridged Beck Depression Inventory II. Chi-square test found a significant association between location and depression levels, with a higher proportion of rural students reporting a higher depression level. One-way ANOVA detected significant differences within levels of secondary classes, where post hoc analysis found higher depressive levels with final year students. As schools prepare to transit from the pandemic to endemic phase, the study highlighted the specific students who need attention to tailor specific programmes to targeted groups and enhance resources efficiency.

Keywords: secondary school students; post-COVID schooling; youth depression; rural-urban students; mental well-being; final year students' depression

Citation: Yim, J.S.-C.; Rahim, P.R.M.A.; Sedhu, D.S. Secondary Students' Mental Well-Being after the Pandemic—An Analysis According to Location and Study Levels. *Proceedings* **2022**, *82*, 44. https://doi.org/10.3390/proceedings2022082044

Academic Editor: Mohamad Rahimi Mohamad Rosman

Published: 14 September 2022

1. Introduction

The COVID-19 pandemic is a public health crisis that has disrupted many aspects of our lives. This project aims to investigate the impact of the disrupted learning system on secondary students' current mental well-being. Due to the contagious nature of the virus, the prolonged closure of in-person classes in Malaysia had inevitably transformed traditional classrooms into online classes. The closure of schools has not only disrupted the acquiring of new knowledge, but also because students have forgotten what they had learnt earlier. In 2020, it was reported that 90 percent of the world's student population was affected by the pandemic [1]. In Malaysia, the estimated learning loss ranges from 0.45 to 0.95 as indicated by learning-adjusted years of schooling (LAYS). LAYS is a standard metric that captures the quantity and quality of education, measuring the number of years of schooling a child can expect to obtain by age 18, adjusted by a country's average student achievement. In other words, students in Malaysia lost about 45% of a learning-adjusted year of schooling in the best-case scenario, whereas in the worst-case, 95% [2]. Starting from 2021, schools underwent different types of class attendance based on the severity of the COVID-19 infection rates. In general, Malaysian schools were closed for more than 200 days in 2020 and 2021 [3].

Even though the nation is moving towards resumption of in-person classes, the impact of the different modes of class attendance has already occurred and may not be able to be reversed. There were reports by local studies that found students suffered from psychological effects brought about by different study modes [4,5]. However, more investigation is needed as a majority of research had focused on students in higher educational institutions, rather than school students [5]. Moreover, not all students were affected the same and this may contribute to developmental and achievement gaps later. As the COVID-19 pandemic

has entered its third year towards the endemic phase, it is important to examine the current state of students' well-being to better prepare for the recovery to normalcy. Specifically, this research aims to answer the following questions:

1. What is the current state of mental well-being in terms of depression levels among secondary school students?
2. Are there any associations between students' mental well-being in terms of depression levels and their location of residence?
3. Are there any significant differences between study levels and depression levels?

2. Literature Review

The COVID-19 pandemic has disrupted learning in a way no one could have predicted around the globe. The proliferation of online learning due to the pandemic and also the different modes of learning has sparked many studies that offer different perspectives. In India, a survey found that challenges faced by secondary level online learners include low motivation, lack of interest, and time management [6]. From Egypt, undergraduate students reported similar challenges in learning motivation, online technicalities, time management, self-discipline and regulation, as well as online communication [7]. Students reported difficulties in written communication, which is required by online learning, with only about 56% out of 450 respondents felt comfortable and competent in text communication. Such issues in online learning may be resolved once classes are conducted in-person. However, recent research has highlighted potential issues in well-being that were brought about by the transition to in-person classes. A recent Lithuanian study compared perceived differences between online and in-person classes in high schools, and found students' energy levels, sleep quality, and mental well-being to be worse than during online classes [8]. This is attributed to the fewer hours of sleep after school reopened, compared to lockdown where students had more hours of sleep.

From France, Lane [9] and her colleagues surveyed two independent samples of secondary students before and during the pandemic, and found that students reported more symptoms of generalized anxiety during the pandemic than the time before the pandemic. Evidence from the United Kingdom suggested that anxiety induced by examination significantly correlated with risk in developing emotional disorder and also school-related wellbeing [10]. There are many school factors that could affect students' well-being which they need to adapt to. One aspect of well-being that is deemed vital for students' development during the learning process is mental well-being. Chambel and Curral [11] describe mental well-being as associated with central outcomes, such as academic engagement, academic achievement, dropout, and educational aspirations. Students with positive mental health flourish in life as they have positive emotions, and they are able to function well psychologically and socially. However, students with incomplete mental health are languishing in life. These students would describe themselves as "empty" and "hollow". Subsequently, the students will be disengaged. They no longer have interest in studying. If this issue is not addressed appropriately, this will widen the learning disparity among students. Thus, it is imperative to prioritise students' well-being because it is an important platform that is necessary for post-COVID learning recovery and to enhance learning [12]. This was concluded from a case study of a school that fully opened after lockdown, where a recovery curriculum that prioritised well-being was implemented. The curriculum incorporated weekly well-being sessions, increased physical education classes, emphasised play-based education and experiential learning, as well as having competitions [12]. Such intervention improved students' work when compared against success measures.

A recent study investigated university students' well-being during the pandemic with an abridged version of Beck Depression Inventory II and measured well-being with items: sadness, pessimism, loss of pleasure, loss of interest, loss of energy, sleep, irritability, appetite, concentration, and fatigue [13]. It was found that a majority of students suffered from sadness, sleeping patterns, lack of concentration, loss of energy, and pessimism, with

females having high levels of depression compared to males. However, as schools are easing back to normal operations, updated evidence is needed as this study was conducted during home confinement. In Malaysia, research has found that students' psychological well-being is undermined by conflicts that arise from fulfilling responsibilities in academic work and family/personal lives [14]. Such role conflicts were prevalent especially during lockdown and brought about elevated stress, anxiety, depression, social dysfunction, and unhappiness among university students. Another Malaysian on student well-being found issues in sleep quality, stress-induced fatigue, inactivity, and poor eating habits to be affecting secondary school students [15]. The study recommended assistance from family, schools, and media to help students adapt to new norms. Local research had also suggested that location had given rise to learning disparity between urban and rural students due to limited Internet access or poor infrastructure [16]. The abrupt transition from in-person classes to online mode had caused students to be unprepared for such learning methods, and they doubted the effectiveness of virtual teaching mode [16]. The location of schools can act as stressors due to the disparity of technological advancement, and affect students' wellbeing. It is possible that the current situation may differ as students get acquainted with different learning modes. Previous study noted the difference in mental wellbeing of rural and urban students, and updated students' perspective would be helpful to inform good practices and improvements [17,18].

Building on the above research, the present study investigated students' mental well-being by assessing their depression levels. Further examination based on the demographic factors of location (rural/urban) and also different classes levels (Form 1 to Form 6) can provide better knowledge that is beneficial for schools' preparation shift from the pandemic to endemic phase.

3. Research Methods

Participants

Respondents consisted of 1547 secondary school students from Malaysian public schools in Selangor. Permissions to conduct research were sought from the Ministry of Education (MOE), relevant authorities in state and school districts, as well as from school principals. Due to safety considerations and to prevent face-to-face collection of questionnaires, the MOE only allowed distribution of questionnaires in electronic forms. Hence, the questionnaire was converted to Google Form. A list of all secondary schools with respective email addresses was obtained from the website of the MOE, and a link to the Google Form was given in the emails sent to principals seeking for permission to conduct research. Data were collected from February 2022 to May 2022.

- Research Instrument

To measure mental well-being, the study used an abridged version of Beck Depression Inventory II (BDI-II) that included 10 items: sadness, pessimism, loss of pleasure, loss of interest, loss of energy, sleep, irritability, appetite, concentration, and fatigue [19]. The items are measured on a 4-point scale that ranged from 0 to 3, with higher summed scores indicating greater psychopathological impairment. The levels of depression are classified as: None (0–5), mild depression (6–8), moderate depression (9–12), severe depression (13 and above) [13]. As required by MOE, the questionnaire items were translated to Malay Language as it is the National Language and thus can be better understood by the school communities. The study employed a back-translation method where three subject matter experts reviewed the scales' content suitability to ensure the items represent the intended area of investigation and match the underlying concepts [20]. A pre-test and a pilot test were conducted to ensure the face validity and reliability of the instrument and quality of data collected. The internal consistency for both pilot test and actual study were 0.75 and 0.89, respectively. Data collected were analysed with IBM SPSS Statistics Software version 26 (Armonk, NY, USA).

- Descriptive Analysis

The present study involved 1547 respondents with 953 (61.6%) females and 594 (38.4%) males. Respondents reported a mean age of 15.20 (SD = 1.43), with 63.9% residing in urban areas while 36.1% in rural areas. They are currently enrolled in Form 1 (11.40%), Form 2 (24.30%), Form 3 (27.50%), Form 4 (19.30%), Form 5 (14.10%), and Form 6 (3.40%) at secondary school level. A majority of them (42.2%) attended school on alternate days of the week, 35.2% attended school every day, 17.2% went to school based on the severity of COVID-19 infection rates, while 5.6% studied at home. To answer research question one, Table 1 shows the descriptive statistics for depression levels. The sample reported a mean of 7.78 which is classified as mildly depressive based on the scoring method presented earlier. About 54.5% reported mild to severe depression levels.

Table 1. Descriptive statistics for Depression Level.

Depression Level	Total Sample		By Location		Mean	SD
	Frequency	Percent	Urban	Rural		
None	703	45.5%	48.10%	40.80%	7.78	6.38
Mild	271	17.5%	16.20%	19.90%		
Moderate	274	17.7%	18.20%	16.80%		
Severe	299	19.3%	17.50%	22.50%		
Total	1547	100%	100.00%	100.00%		

○ Inferential Analysis

In answering research question two, a chi-square test is employed to test association between school location and depression levels. There was a significant association found, χ^2 (3, n = 1547) = 11.98, p = 0.007, with a higher proportion of students located in rural areas having a higher depression level. Research question three looked into the depression levels among students enrolled in different levels of study. A one-way ANOVA was employed to detect any significant difference among students from Form 1 to Form 6. As shown in Table 2, there was a statistically significant difference at $p < 0.05$ level in depression levels for the six levels of study: F (5, 1541) = 5.33, p = 0.001.

Table 2. One-Way ANOVA Depression level.

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1069.37	5	213.874	5.334	0.001
Within Groups	61,784.19	1541	40.094		
Total	62,853.56	1546			

Note: Significance at $p < 0.05$.

As the F value indicated significant differences among the mean scores of the six groups of students, a post hoc test was carried out to ascertain where the significant differences lie. Tukey's HSD test for multiple comparisons found that the mean value of depression level was significantly different between the following groups:

- Form 5 (M = 8.20) students had a higher level of depression than Form 1 (M = 5.84) and Form 2 (M = 6.42) students.
- Form 3 (M = 7.75) students had a higher level of depression than Form 1 (M = 5.84) and Form 2 (M = 6.42) students.
- Form 4 (M = 7.75) students had a higher level of depression than Form 1 students (M = 5.84).

4. Discussion

The current study surveyed the mental wellbeing of secondary school students with BDI—II. Among the items measured, "pessimism" and "loss of energy" recorded high means. Pessimism is directed at doubts about one's future, and this echoed with current

literature that found students' confidence hampered by the pandemic due to interference in their academic tasks and plans [14]. "Loss of energy" refers to exertion of extra efforts in completing tasks, and this reflected existing evidence of students who returned to in-person classes reported lesser energy compared to online classes when they have better sleep quality [8]. Additionally, respondents reported mild depression on average, with 54.5% reported mild to severe depression levels. This is alarming as another study conducted in a Malaysian northern state before the pandemic only recorded 27.4% depression prevalence among secondary school students [21], whereas another study conducted during the pandemic recorded 37.3% prevalence [14]. This prevalence of poor mental health found requires attention or intervention to ensure well-being.

With regards to depression analysed according to study levels, Form 5 students had the highest level of depression. In Malaysian public schools, Form 5 is the final level of secondary school where students will sit for the Malaysian Certificate of Education to complete formal education. Thereafter, some would choose to proceed to Form 6 which is pre-university level to prepare for university entrance. A research had found final year students reported higher depression, attributed to lesser sleep, lesser outdoor activities, and lesser physical activities [8]. Similarly, it is possible the Form 5 students had devoted most of their time in preparing for their final examination and disregarded other activities. The prevalence of depression among final year secondary school students is also consistent with a longitudinal study done with an Australian sample, where stress and depression heightened towards the time for major [22]. The significant predictors of depression include anxiety, emotional self-efficacy, and connectedness with friends, and it was suggested that intervention can be directed at these areas to alleviate final year students' depression. Comparing the extent of depression of other levels, Form 1 students had lower depression than other forms. This is possible as the Form 1 students who transitioned from primary school did not undergo the Primary School Achievement Test—the major examination for students exiting primary level which was abolished in 2021 [23]. Hence, the Form 1 students did not experience this examination stressor. The present findings implied that higher form students reported higher depression, while lower form reported lower depression.

With regards to location, rural students reported a slightly higher depression prevalence than urban students. Looking at the extent of depression, both rural and urban students reported similar level categories of mild and moderate depression. However, rural students recorded a higher percentage of severe depression at 22.5%. This means at least 2 out of 10 students may be suffering from severe depression. Some research has shown that rural adolescents are more vulnerable to depression where their depressive symptoms are higher than the urban school students [17,18]. Local research had noted the challenges in implementing online learning in rural areas, in terms of poor internet connectivity and limited infrastructure, and rural students are disadvantaged in activities such as live discussion and group work [5,16]. These activities are important for interactions and the development of social skills, without which may give rise to disinterest, hamper confidence, and loss of focus—depressive symptoms measured in this study. It is possible that rural students returning for in-person classes have also experienced similar challenges.

5. Conclusions

Well-being is important for the recovery of post-COVID learning, as students' cognitive development and learning hinge on their emotional and mental well-being [12]. Schools are one of the crucial institutions that address students' mental health needs, it is important to roll-out well-being programmes for returning students. Besides receiving students who seek help from student counsellors, well-being programmes will be more inclusive to benefit the school population as a whole. As noted from success stories, physical activities can enhance students' well-being after schools' re-opening [12]. However, it must be noted that our sample reported having less energy, hence, activities may not be too strenuous. Alternatively, adjustments can be made to schooling duration, i.e., not to have too long extra-curricular activities after classes. Counselling departments in schools can also screen

students to identify those in need of support, which is more inclusive than getting referrals from teachers. It can be deduced that during and after the pandemic, exploring mental well-being among students is fundamental. The findings also show that rural students experience a higher depression level compared to their counterparts in the urban area. This shows that the location of the schools and where the students reside do affect the students' level of mental health. Therefore, this indicates that more scholarly as well as policy-level and attention is needed to understand the situation and assist the students in their transition from pandemic to endemic as they return to school.

Author Contributions: Conceptualization, J.S.-C.Y.; methodology, J.S.-C.Y.; formal analysis, J.S.-C.Y.; investigation, J.S.-C.Y., P.R.M.A.R. and D.S.S.; data curation, J.S.-C.Y.; writing—original draft preparation, J.S.-C.Y.; review and editing, J.S.-C.Y., P.R.M.A.R. and D.S.S.; visualization, J.S.-C.Y., P.R.M.A.R. and D.S.S.; project administration, J.S.-C.Y. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: We thank the departments in the Malaysian Ministry of Education and the school principals for the co-operation given.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. United Nations Educational, Scientific and Cultural Organization. Available online: https://unesdoc.unesco.org/ark:/48223/pf0000373992 (accessed on 21 December 2020).
2. Asian Development Bank. Available online: https://www.adb.org/sites/default/files/publication/692111/ado2021-special-topic.pdf (accessed on 11 November 2021).
3. The Star. Available online: https://www.thestar.com.my/news/nation/2022/01/12/address-pandemic-induced-learning-loss-quickly-before-it-grows-more-critical-says-expert (accessed on 12 February 2022).
4. Sundarasen, S.; Chinna, K.; Kamaludin, K.; Nurunnabi, M.; Baloch, G.M.; Khoshaim, H.B.; Hossain, S.F.A.; Sukayt, A. Psychological Impact of COVID-19 and Lockdown among University Students in Malaysia: Implications and Policy Recommendations. *Int. J. Environ. Res. Public Health* **2020**, *17*, 6206. [CrossRef] [PubMed]
5. Zaki, N.M.; Shaharuddin, M.F.; Ishak, N.A.; Hilmi, Z.S.; Azmi, N.A.; Kurnia, J.C. Psychologial impacts of COVID-19 pandemic towards Malaysia's secondary school students. *Platform J. Manage. Humanit.* **2021**, *4*, 31–44.
6. Khan, M.A.; Kamal, T.; Illiyan, A.; Asif, M. School students' perception and challenges towards online classes during COVID-19 pandemic in India: An econometric analysis. *Sustainability* **2021**, *13*, 4786. [CrossRef]
7. Kaoud, H.; El-Shihy, D.; Yousri, M. Online learning in Egyptian universities post COVID-19 pandemic: A student's perspective. *Int. J. Emerg. Technol. Learn.* **2021**, *16*, 38–52. [CrossRef]
8. Puteikis, K.; Mameniškytė, A.; Mameniškienė, R. Sleep Quality, Mental Health and Learning among High School Students after Reopening Schools during the COVID-19 Pandemic: Results of a Cross-Sectional Online Survey. *Int. J. Environ. Res. Public Health* **2022**, *19*, 2553. [CrossRef] [PubMed]
9. Lane, J.; Therriault, D.; Dupuis, A.; Gosselin, P.; Smith, J.; Ziam, S.; Dufour, M. The impact of the COVID-19 pandemic on the anxiety of adolescent in Québec. *Child Youth Care Forum* **2021**, *51*, 811–833. [CrossRef] [PubMed]
10. Putwain, D.W.; Gallard, D.; Beaumont, J.; Loderer, K.; von der Embse, N. Does test anxiety predispose poor school related wellbeing and enhanced risk of emotional disorders? *Cogn. Ther. Res.* **2021**, *45*, 1150–1162. [CrossRef]
11. Chambel, M.J.; Curral, L. Stress in academic life: Ork characteristics as predictors of student well-being and performance. *Appl. Psychol. Int. Rev.* **2005**, *54*, 135–147. [CrossRef]
12. Lynch, T. Leading school recovery from the impact of COVID-19: Two birds, one stone. *Education* **2022**, *3*, 1–18. [CrossRef]
13. Giusti, L.; Mammarella, S.; Salza, A.; Del Vecchio, S.; Ussorio, D.; Casacchia, M.; Roncone, R. Predictors of academic performance during the COVID-19 outbreak: Impact of distance education on mental health, social cognition and memory abilities in an Italian university student sample. *BMC Psychol.* **2021**, *9*, 142. [CrossRef]
14. Badri, S.K.; Yunus, W.M. The relationship between academic vs. family/personal role conflict and Malaysian students' psychological wellbeing during COVID-19 lockdown. *J. Furth. High. Educ.* **2021**, *46*, 76–88. [CrossRef]
15. Amran, M.S.; Jamaludin, K.A. The impact of unplanned school closures on adolescent behavioral health during the COVID-19 pandemic in Malaysia. *Front. Public Heal.* **2021**, *9*, 639041. [CrossRef] [PubMed]

16. Selvanathan, M.; Hussin, N.A.; Azazi, N.A. Students learning experiences during COVID-19: Work from home period in Malaysian higher learning institutions. *Teach. Public Adm.* **2021**. [CrossRef]
17. Ang, A.L.; Wahab, S.; Adb Rahman, F.N.; Hazmi, H.; Md Yusoff, R. Depressive symptoms among adolescents in Kuching, Malaysia: Prevalence and associated factors. *Pediatrics Int.* **2018**, *61*, 404–410. [CrossRef] [PubMed]
18. Zhou, M.; Zhang, G.; Rozelle, S.; Kenny, K.; Xue, H. Depressive symptoms of Chinese children: Prevalence and correlated factors among subgroups. *Int. J. Environ. Res. Public Health* **2018**, *15*, 283. [CrossRef] [PubMed]
19. Beck, A.T.; Steer, R.A.; Ball, R.; Ranieri, W. Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. *J. Pers. Assess.* **1996**, *67*, 588–597. [CrossRef] [PubMed]
20. Brislin, R.W. Back-translation for cross-cultural research. *J. Cross Cult. Psychol.* **1970**, *1*, 185–216. [CrossRef]
21. Ishak, N.A.; Ahmad, N.S.; Omar, M.N. Issues and trend of depression among students in Malaysia. *Univers. J. Educ. Res.* **2020**, *8*, 5951–5957. [CrossRef]
22. Wuthrich, V.M.; Belcher, J.; Kilby, C.; Jagiello, T.; Lowe, C. Tracking stress, depression, and anxiety across the final year of secondary school: A longitudinal study. *J. Sch. Psychol.* **2021**, *88*, 18–30. [CrossRef]
23. Rajaendram, R. The Star. Available online: https://www.thestar.com.my/news/nation/2021/04/28/education-minister-upsr-exams-to-be-abolished-pt3-is-cancelled-this-year (accessed on 27 June 2021).