





Original research article

# Identifying predictors of university students' mental well-being during the COVID-19 pandemic

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## Abstract

The Covid-19 pandemic has been widely examined to be both an economic crisis and health with updates of increasing the mental health and well-being of university students. This study examines the relationships between physical health, social support, and mental health literacy with the mental well-being of Malaysian university students during the Covid-19 pandemic. The study population comprised 199 students. A cross-sectional survey was conducted with self-administered questionnaires that used the Short Warwick Edinburgh Mental Well-Being Scale (SWEMWBS), the Multidimensional Scale of Perceived Social Support instrument, and the Mental Health Literacy Scale. The survey also included items from the Global Physical Activity Questionnaire (GPAQ). The results of this study showed that physical health had a positive and strong relationship with mental well-being. Similarly, the results indicated that social support had a significant and positive relationship with mental well-being. However, mental health literacy was not significantly associated with mental well-being. The results of this research might provide policymakers, practitioners, and university management with useful insights that foster the positive outcome of conducting intervention programs to improve the mental well-being of students.

**Keywords:** Covid-19 pandemic; Malaysian university students; Mental health literacy; Mental well-being; Physical health; Social support

## Introduction

The importance of one's mental well-being cannot be overemphasized. For university students, mental well-being is essential for students to focus on their studies and achieve success. According to Bewick et al. (2010), university is a place where students can face numerous psychological challenges. For example, from day one, the student has to learn how to cope with the new environment, how to make use of the facilities available, and how to deal with academic pressure. Most students who enroll as undergraduates are youths who have just completed their secondary school education and need to learn how to adjust to campus life. They have to cope without the help of their parents and need to make new friends. This situation might trigger the onset of mental well-being problems. In addition, with global recognition of child mental health issues, the number of young adults (including undergraduates) with mental health problems has been found to be increasing (Pirelli et al., 2015).

In the literature, mental health and well-being are often used interchangeably, with the focus on psychological factors, including mental issues, affective and cognitive factors (Her-

bert et al., 2020). According to Maslow (1968), the concept of psychological well-being is theoretically associated with self-actualization, as espoused by Erikson's (1994) psychosocial stage model as well as Jung's (1933) concept of individuation. Besides these important constructs, Ryff's model of psychological well-being (1989: 2008) shows the transition of adolescents to adult life with social support, life satisfaction and physical health. Within the transition period from adolescence to adulthood, this emerging self will face numerous stresses (Arnett et al., 2014). Some of the attributes of emerging adulthood are identity exploration, instability, self-focus, and uncertainty with the new environment. All these attributes are prevalent in university students as they face changes in social, geographic, and economic life contexts. According to past studies on university students in Malaysia, around 36% were reported to have some form of psychological disorder. These findings are reflective of the trend in the global population (Xiong et al., 2020).

UNESCO (2022) reported that the Covid-19 pandemic disrupted the studies of more than one billion students in 129 countries across the world. Most educational institutions, including universities, moved to online platforms, which inadvertently gave rise to increased mental well-being disorders

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among some students. For example, in the United States, several studies conducted with undergraduate students reported the negative impacts of the Covid-19 pandemic. They found high levels of mental health distress, anxiety, and difficulties focusing on academic work (Son et al., 2020). Another report from Chen and Lucock (2022) in the United Kingdom indicated that university students' mental health and well-being become worse during the Covid-19 pandemic, with low levels of life satisfaction and happiness, and higher levels of anxiety in comparison to the general population. In China, a survey of 164,101 university students reported increasing rates of depression and anxiety during the initial phase of the Covid-19 pandemic (Li et al., 2021). One study in Australia by Liu et al. (2021) aimed to identify predictors of Australian university students' well-being during the Covid-19 pandemic. The findings indicated that emotional support, physical health status, and resilience were related to students' psychological well-being. The same study also reported six negative predictors of students' psychological well-being during the Covid-19 pandemic: ethnicity, stress, worries about mental health, social isolation, interpersonal communication with physical gap, and change in diet. Visser and Law-van Wyk (2021) conducted a cross-sectional nationwide study of university students in South Africa through an online survey with 5,074 respondents. Their findings highlight emotional difficulties and low levels of mental health, with 45.6% reporting subjective experiences of anxiety and 35.0% reporting subjective experiences of depression during the Covid-19 pandemic. Additionally, the Covid-19 pandemic affected university students in many other aspects, including daily routines, career opportunities, the labor market, and well-being. According to Aristovnik et al. (2020), university students are concerned with their future conditions such as professional career growth and studies, about their mental health like anxiety, and causes that contribute to frustration in life.

In the Malaysian context, the pandemic was reported to have a negative impact on people, especially the poor and vulnerable, including university students (Yassin et al., 2021). The psychological well-being of children and parents (Fong et al., 2021) and the level of anxiety among students (Chung et al., 2020; Irfan et al., 2021; Sundarasan et al., 2020) were also areas of concern. Results of a current study on university students' well-being showed that the Covid-19 pandemic had a significant impact on the students' mental health, as indicated by increased stress, depression, and anxiety (Villani et al., 2021). Thus, in this study, we aim to extend the existing literature by conducting empirical research on university students in relation to the predictors of mental well-being during the Covid-19 pandemic. As yet there is no research that focuses specifically on the relationships of physical health, social support, and mental health literacy with the mental well-being of university students in Malaysia. Therefore, this study aims to bridge the gap in the literature.

### **Mental well-being**

Stewart-Brown and Janmohamed (2008) define mental well-being as a psychological function of the individual, and his or her capability to develop and sustain a relationship with the environment. Past research has documented how the mental well-being of university students is linked to demographics, socioeconomics, a sense of coherence, psychological distress, and health behavior (Bíró et al., 2010; Sundarasan et al., 2020; Yassin et al., 2021). With regard to demographic factors, Hardeman et al. (2015) found that the gender and ethnicity of students played a major role in determining symptoms of

anxiety and depression, as well as overall mental well-being. Other studies reported that both male and female students felt emotionally distant from friends and family, and consequently achieved lower performance academically (Meo et al., 2020; Seetan et al., 2021). These problems were exacerbated by the Covid-19 pandemic because of the imposition of quarantine for those in close contact with infected individuals, and a movement control order (MCO) by the authorities. Hence, many students felt a sense of isolation.

### **Physical health and mental well-being**

Past studies have reported that mental health is positively and significantly impacted by physical health indicators such as exercise, including walking, swimming, or cycling. The term physical health can be defined as the ability to take care of one's personal needs and the ability to work. According to Koipysheva (2018), physical health is associated with the normal functioning of the body, enabling one to survive and avoid disease or illness. Students reported that the Covid-19 pandemic affected the quality of their physical fitness and ability to exercise (Seetan et al., 2021). According to Maugeri et al. (2020), the decrease in physical activity had a negative impact on one's well-being during the Covid-19 pandemic. Evidently, physical activity improves mental and psychological well-being, thus helping to prevent the onset of mental illness disorders in adults. However, research that specifically focuses on young people is still limited. Although there is substantial research on mental-physical comorbidities among young and older adults, studies which focus on young people and physical health in relation to mental illness are still lacking (McCloughen et al., 2012). Nevertheless, we can expect physical activity to have a positive relationship with the mental well-being of university students. Therefore, this study will examine the correlation between physical activity and the mental well-being of university students.

### **Mental health literacy and mental well-being**

Mental Health Literacy (MHL) refers to one's knowledge of and attitude toward mental health. It focuses on an individual's perception, belief, management, and avoidance of mental health disorders (Jorm et al., 1997). In all facets of life, mental health requires finding a balance: physically, mentally, emotionally, and spiritually (Haque, 2005). Kutcher et al. (2016) describe MHL as the understanding of how to find and sustain positive mental health, being aware of mental disorders and able to seek treatments, avoiding the stigma that is associated with mental disorders, and managing help-seeking behavior. According to Vasquez (2016), mental health literacy ensures basic awareness that guides us towards mental and emotional well-being and contributes to promoting and maintaining better overall health. Among the factors which affect mental well-being are family finances, the educational background of one's parents, one's age, and gender (Bjørnsen et al., 2019). The World Health Organization (2016) also confirmed that gender differences affected mental well-being. Females were reported as showing lower levels of mental well-being compared to males.

Research on mental health and well-being during the Covid-19 pandemic in the UK found an increased rate of suicidal thoughts (O'Connor et al., 2021). There were disruptions to social-related events, and occupational and economic activities, adversely impacting the psychological well-being of the population (Allen et al., 2022). It was also reported that self-isolation increased anxiety and depression, thus contributing to more cases of mental health disorders. Regrettably,

most of the younger generation are not open to discussions on mental disorders, and so they lack the ability to detect the onset of mental disorders, resulting in delayed treatment. There is an urgent need to explore and study mental health literacy among the younger generation to help improve their understanding of mental disorders and the importance of early detection and treatment. To date, very little research has been carried out in Malaysia to improve mental health literacy and to explore its association with the mental well-being of students. Therefore, this study will investigate the association between mental health literacy and mental well-being among university students.

### **Social support and mental well-being**

Social support refers to the emotional sustenance provided by friends, family members, and even healthcare members (Uchino, 2006). According to Gurung (2006), social support can be described as one's experience of being cared for, respected, helped, and loved by others. Social support is also defined as perceived behaviors, expectations, and/or services that promote self-confidence, academic motivation, and school connectedness (Savitz-Romer et al., 2009).

A previous study has found social support to be a predictor and important factor for mental well-being among university students. According to Qi et al. (2020), more social support mitigates negative feelings and emotional exhaustion, while improving academic achievement. He et al. (2018) confirmed social support had a positive relationship with the psychological well-being of nursing students. In addition, the model of social support proposed by Rueger et al. (2016) mentions that social support can improve the individual's positive outlook and mental well-being (Adelinejad and Alipour, 2022). Indeed, studies have shown that social support enhances self-efficacy, and leads to improved academic achievement as students are able to maintain emotional stability even under pressure (Qi et al., 2020; Yassin et al., 2021). In addition, some studies show that perceived social support from teachers, peers and parents is positively associated with students' well-being (Ahmed et al., 2010). Thus, this study will examine the relationship between social support and mental well-being among university students.

Very little research has been conducted on the association between social support and mental well-being in young adults. Hence this study is aimed at narrowing this gap in the literature. In addition, we will explore multiple factors such as the interrelationships of social support, mental health literacy, and physical health, and their impact on the mental well-being of Malaysian university students.

## **Materials and methods**

A quantitative research design was used. A cross-sectional study was conducted at Universiti Putra Malaysia (UPM), a Malaysian public university, in February of 2021. All the undergraduate students ( $n = 199$ ) who attended the special event on the mental health literacy workshop (conducted by the Faculty of Medical Health and Sciences) were invited to participate in the questionnaire survey. The participants provided informed consent to participate in the questionnaire survey. Ethical approval was obtained from the UPM Ethics Committee for Research Involving Human Subjects (JKEUPM-2021-805). 79.9% of respondents were female and 20.1% male. 58.9% of respondents were aged 23 to 25 years, while 41.1% were between 20 to 22 years old.

### **Instrumentation**

The items in the questionnaire were aimed at obtaining information related to demographics and specific variables. Physical activity was investigated using the Global Physical Activity Questionnaire (GPAQ), which was developed by the World Health Organization. The GPAQ contained 16 questions with three domains, namely occupational, transport-related, and leisure time (Armstrong and Bull, 2006). In this study, as proposed by Dias et al. (2018), mental health literacy is related to knowledge, beliefs, help-seeking and self-help strategies. There were 29 items and responses were rated using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). To measure the social support of the respondents, we used the Multidimensional Scale of Perceived Social Support proposed by Zimet et al. (1988). This consisted of 12 items evaluated on a 7-point scale. The items were divided into three types of support, comprising support from family, peers, and significant others. The 14-item version of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) by Stewart-Brown and Janmohamed (2008) was used to measure the well-being of the respondents. The questionnaire contained two dimensions, namely subjective well-being and psychological function. Each item was measured by 5-point Likert scale response options, ranging from 1 (none of the time) to 5 (all of the time). Higher scores indicated better well-being.

The Cronbach Alpha was used to evaluate the reliability of the data. Table 1 shows the Cronbach Alpha for each of the variables exceeded 0.70.

**Table 1. Reliability of the variables physical health, mental health literacy, social support and mental well-being**

Variables	Cronbach alpha	Items
Mental well-being	0.950	14
Physical health	0.927	16
Mental health literacy	0.724	29
Social support	0.933	17

### **Statistical analysis**

The demographic variables were analyzed using descriptive analysis by the IBM Statistic Package for Social Science (SPSS) version 26 software. Bivariate correlations were used to investigate the interrelationship between physical health activity, social support, and mental health literacy with mental well-being. To assess the strength of the association between the predictors with the dependent variable, we used multiple regression analysis. Prior to the analysis, preliminary data checking was used to ensure the notions of normality, linearity, multicollinearity, and homoscedasticity were not violated.

## **Results**

A total of 199 university students aged 20 to 25 years (mean 23.2) participated in this study. There were more females (79.9%) than males (20.1%). The respondents were from different faculties, enrolled in bachelor's programs, and in different years of study: 22.6% were in the first year, 21.1% in the second year, 13.1% in the third year, 43.7% in the fourth year. According to the cumulative grade point average (CGPA), 3.1% had lower than B grade (less than 3.00), 69.3% had B and B+ (ranging from 3.01 to 3.74), 27.6% had CGPA of 3.75 or above (Grade A- to A). The gross monthly income of most of the respondents' parents (78.4%) was under RM5000.

Table 2 shows the results of the means, standard deviations and correlation matrix for social support, mental health literacy, physical health and mental well-being. The results indicated that mental well-being ( $M = 3.825$ ,  $SD = 0.0667$ ), mental health literacy ( $M = 3.754$ ,  $SD = 0.349$ ) and social support ( $M = 5.334$ ,  $SD = 1.108$ ) had higher mean values, whereas physical health had the medium value ( $M = 3.536$ ,  $SD = 0.583$ ).

### Bivariate correlation

We analyzed the relationship between predictors using Pearson's product-moment correlation coefficient (as shown in Table 2). In psychological research, we use Cohen's (2013) conventions to interpret effect size. A correlation coefficient

of 0.10 until 0.30 represents a weak or small association; a correlation coefficient of 0.30 until 0.50 is considered a moderate correlation; and a correlation coefficient of 0.50 or larger represents a strong or large correlation.

The results of this study showed that physical health had a positive and strong relationship with mental well-being ( $r = 0.733$ ,  $p = 0.000$ ). Next, we analyzed the relationship between mental health literacy and mental well-being. The results showed a positive but weak relationship ( $r = 0.297$ ,  $p = 0.000$ ). We then proceeded to analyze the association between social support and mental health well-being. Our findings indicated that social support was significantly associated with mental well-being ( $r = 0.592$ ,  $p = 0.000$ ), as shown in Table 2.

**Table 2. Means, standard deviation and bivariate correlations among physical health, mental health literacy, social support and mental well-being ( $n = 199$ )**

Variables	Mean (M)	Standard deviation (SD)	1	2	3	4
1. Mental well-being	3.825	0.667	1.00			
2. Physical health	3.536	0.583	0.733**	1.00		
3. Mental health literacy	3.754	0.349	0.297**	0.258**	1.00	
4. Social support	5.334	1.108	0.592**	0.555**	0.348**	1.00

Notes: \*\* indicates levels of statistical significance;  $p < 0.05$  level (two-tailed).

We use an analysis of variance (ANOVA) to compare the effect of predictor variables based on gender (male and female). Based on the ANOVA results, three domains of physical health [ $F(3, 196) = 0.344$ ,  $p = 0.558$ ], three domains of social support [ $F(3, 196) = 0.212$ ,  $p = 0.645$ ], and income of the family [ $F(3, 196) = 0.527$ ,  $p = 0.469$ ] did not reach statistical significance. On the other hand, the Tukey *post hoc* test showed that the mean value of the four domains of mental health literacy was significantly different [ $F(3, 196) = 5.174$ ,  $p = 0.024$ ].

### Regression analysis of physical health, mental health literacy, and social support on mental well-being

Multiple linear regression analysis was conducted to test the predictor variables that had the greatest influence on men-

tal well-being among respondents by using the forced entry method of regression (Table 3). The predictor variables were physical health, mental health literacy, and social support. The variance explained by the regression analysis was 59.0% of the variance in mental well-being. The result of standardized beta for two variables was significant ( $F(3, 195) = 93.553$ ,  $p < 0.05$ ) with physical health ( $\beta = 0.579$ ,  $p = 0.000$ ) and social support ( $\beta = 0.249$ ,  $p = 0.000$ ). In contrast, mental health literacy ( $\beta = 0.117$ ,  $p = 0.212$ ) was not significantly associated with mental well-being after the variables of physical health and social support were held constant.

**Table 3. Multiple linear regression of physical health, mental health literacy and social support on mental well-being ( $n = 199$ )**

Relationship among variables	Unstandardized coefficients ( $\beta$ )	Standard error	Standardized coefficients ( $\beta$ )	$t$	Sig.
Constant	0.243	0.347		0.701	0.484
Physical health	0.663	0.063	0.579**	10.474	0.000
Mental health literacy	0.117	0.094	0.061	1.253	0.212
Social supports	0.150	0.034	0.249**	4.366	0.000

Notes: \*  $p < 0.000$ ;  $\beta$  = standardized regression coefficient;  $t$ -values = test statistics of  $\beta$ ;  $R = 0.768$ ;  $R^2 = 0.590$ ; and adjusted  $R^2 = 0.584$ .



## Discussion

This study was aimed at examining the relationship between physical health, mental health literacy, social support and the mental well-being of university students. Physical activity and social support had a positive correlation with mental well-being. Mental health literacy was associated with mental well-being, but the relationship was weak and not sustained after the variables of physical health and social support were held constant.

The results of the present study indicated that physical activity significantly contributed to mental well-being. Past studies have found walking to be a significant predictor of well-being among graduate students (Panahi et al., 2016). The findings were also consistent with studies by Wunsch et al. (2017), who found a positive association between physical activity and mental well-being. Furthermore, physical exercise has been found to significantly benefit the individual's well-being (Brett et al., 2016). Thus the results of this study confirmed the strong relationship between physical activity and students' well-being. In connection with the importance of physical activity, the Malaysian government actively promotes physical health activity through the Ministry of Health and the Ministry of Education. The National Physical Activity Guidelines were introduced in 2018 to encourage Malaysians to be more physically active. The campaigns and programs cater to all age groups, from the very young to the elderly. To date, there has been a great increase in physical activity, and that bodes well for the mental well-being of the population.

Our results also revealed a positive and significant relationship between social support and mental well-being ( $r = 0.592, p = 0.000$ ). We measured social support with three types of support such as family support, peer support and support from significant others. All social support indicators were associated with mental well-being [family ( $r = 0.449, p = 0.000$ ), peers ( $r = 0.613, p = 0.000$ ), and significant others ( $r = 0.404, p = 0.000$ )]. As mentioned in a previous study by Shaigerova et al. (2022), social support from different sources can have an impact on individual mental well-being, especially under stressful conditions such as during the Covid-19 pandemic. This finding is in line with the findings of Poudel et al. (2020), who suggest that those who experience greater social support have better mental well-being. Leme et al. (2015) also mention that social support contributes to the mental well-being of youth. Furthermore, according to Hsieh and Tsai (2019), social support is one of the factors which can buffer the impact of work-related stress on one's health and boost personal development. According to Gülaçtı (2010), perceived social support accounted for 43% of the well-being of students in his study.

The results of this study also justified the important role played by the Ministry of Higher Education Malaysia as a social support provider, especially during the Covid-19 pandemic. The Ministry put forward many initiatives, such as the deferment of student loan repayments, support for an internet data plan, the device (laptop) assistance scheme, reduction of specific university fees, and preparing students for the 'new normal' on campus. With the imposition of the Movement Control Order (MCO), many students had to stay at home, and they were able to receive additional support from their parents, siblings, and caretakers.

The student respondents in the current study had completed a mental health literacy workshop. This was conducted by the Faculty of Educational Studies with the collaboration of the Faculty of Medical and Health Sciences, Universiti Putra Malaysia. Within the workshop, respondents were exposed to basic mental health literacy awareness. Workshop attendance was voluntary based.

In this study, mental health literacy did not have a strong correlation with the mental well-being of students. However, it is important to enlighten students about mental health issues so that they can take the necessary proactive measures to safeguard their well-being. As pointed out by Zhang et al. (2021), mental health literacy facilitates the application of relevant information and is thus directly associated with better well-being. There are many online seminars, face-to-face interactions, and virtual learning fairs to equip university students with knowledge about Covid-19 (Mat Ruzlin et al., 2021). The Malaysian government and the health care industry, especially the mental health care sector, promote programs such as 'Let's talk healthy mind', to reduce the stigma of mental illness. In addition, the Ministry of Health Malaysia and Mercy Malaysia have a mental health support service to help people suffering from pandemic-related distress.

Like higher educational institutions in other parts of the world, Malaysian universities went to great lengths to curb the spread of Covid-19 on campus by switching to e-learning. Students attended online lectures and gave online presentations including viva voce, submitted their thesis online, read all academic materials online, and took their examinations online. Students who were able to adapt to all these changes were able to experience good mental well-being during the pandemic.

### Limitations

There are several limitations to this study. First, the respondents were participants of one workshop on a particular day. Hence, the findings cannot be generalized and applied to all university students. Second, the items used in this study comprised only four variables, with a total variance of 58.4%. It would be useful to examine other variables. Third, other approaches could be used to collect data, such as qualitative interviews. Fourth, further studies could also examine the long-term effects of the Covid-19 pandemic on the mental well-being among specific categories of university students.

## Conclusions

The combinations of physical health, mental health literacy and social support predicted the students' level of mental well-being during the Covid-19 pandemic. Physical activity and social support played a major role in helping the students maintain their mental well-being. The university provided the necessary intervention to promote positive mental well-being by implementing structured programs for students.

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### Ethical aspects and conflict of interests

The authors have no conflict of interests to declare.

## Identifikace prediktorů duševní pohody vysokoškolských studentů během pandemie covidu-19

### Souhrn

Pandemie covidu-19 byla široce zkoumána jako ekonomická i zdravotní krize s důrazem na zvyšování duševního zdraví a pohody vysokoškolských studentů. Tato studie zkoumá vztahy mezi fyzickým zdravím, sociální podporou a gramotností v oblasti duševního zdraví s duševní pohodou studentů malajsijských univerzit během pandemie covidu-19. Studijní soubor tvořilo 199 studentů. Průřezový průzkum byl proveden pomocí dotazníků, které si sami zadali. Tyto dotazníky využívaly Short Warwick Edinburgh Mental Well-Being Scale (SWEMWBS), nástroj Multidimenzionální škála vnímané sociální podpory a nástroj Škála duševního zdraví. Průzkum zahrnoval i položky z dotazníku Global Physical Activity Questionnaire (GPAQ). Výsledky této studie ukázaly, že fyzické zdraví má pozitivní a silný vztah k duševní pohodě. Podobně výsledky ukázaly, že sociální podpora má významný a pozitivní vztah k duševní pohodě. Nicméně duševní zdravotní gramotnost nebyla významně spojena s duševní pohodou. Výsledky tohoto výzkumu by mohly poskytnout zákonodárcům, odborníkům z praxe a vedení univerzit užitečné poznatky, které podporují pozitivní výsledky provádění intervenčních programů ke zlepšení duševní pohody studentů.

**Klíčová slova:** duševní pohoda; fyzické zdraví; gramotnost v oblasti duševního zdraví; malajsijské vysokoškolské studenty; pandemie covidu-19; sociální podpora

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