






# Effect of the COVID-19 Lockdown and Post-lockdown on Mental Health Among Diploma in Pharmacy Students

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**Abstract.** The COVID-19 epidemic has affected tertiary educational institutions through the implementation of phases of lockdown. This study assessed the prevalence of self-perceived mental health among Diploma in Pharmacy students. A cross-sectional study was conducted among Diploma in Pharmacy students from May to June 2022. A self-administered questionnaire was distributed through an online medium. A total of 110 students participated in this study, most of them in their final year of study (Part 6). The study identified positive mental states before and after the lockdown. A total of 54.5% feel sad during the lockdown, however, the percentage decreases to 23.6% post-lockdown. Next, 64.5% of respondents have less interested in doing their daily tasks, which decreased to 30% after the lockdown. Next, there was a significant increase in the number of students (91.8% to 98.2%) who were able to adjust to social isolation before and after the lockdown. When respondents were asked to rate their happiness, most of them chooses “neutral” during (60%) and after the MCO (46.4%). When respondents were asked to rate their level of worry, most students (52.7%) chose “neutral” during and after the lockdown. Since the majority of students showed positive mental health after the recovery periods, more holistic studies on the factors influencing the improvement of the mental health state are warranted to help students who still have not recovered from their mental health problem after the lockdown.

**Keywords:** COVID-19 pandemic · Tertiary education · Self-perceived mental health · Diploma in Pharmacy students

## 1 Introduction

On 12 January 2020, World Health Organization (WHO) announced the outbreak of Coronavirus disease (COVID-19) in all countries as a public health emergency of international concern [1]. In response to the emergence of COVID-19, the Malaysian government enforced lockdowns and restrictions starting on March 18, 2020, to combat the spread of COVID-19 [2]. Several phases of lockdowns implemented by the Malaysian government started with Movement Control Order (MCO) on 18th March 2020, followed

by a Conditional MCO (CMCO) starting on 4th May 2020. The Recovery MCO (RMCO) was replaced on 10 June 2020 where the regulation was less stringent as compared to the previous MCO [2, 3].

In April 2020, UNESCO reported that 1.57 billion students worldwide were affected by COVID-19 because almost all countries have closed their institutions, from primary to tertiary [4]. Therefore, UNESCO suggested that education institutions shift the teaching and learning approach from traditional face-to-face learning to open and distance learning (ODL) [4]. Despite the teaching and learning activities being conducted accordingly following the lockdown regulations, the changes in the approach to teaching and learning challenged the students' mental health as they experienced being quarantined at home, monotonous daily routine, and losing face-to-face interaction with teachers and classmates, that both educators and students never encountered before [5]. Furthermore, World Health Organisation (WHO) raised their concern about the mental health and psychosocial consequences of self-isolation during the pandemic as it may affect people's routines and consequently caused numerous mental health problems [6]. According to [7] in South Korea, people illustrated dramatic changes in their daily engagement in physical activities, eating habits, mental state, and quality of life. Similar trends were also reported among students as [8–10] identified the long-term negative effects of the pandemic on students, along with worsened patterns of sedentary behaviours, declined physical activity, unhealthy diet, increased negative emotions, and interrupted learning sessions. While the students experienced the negative impact of the lockdown, a previous study suggested expressions of depression and anxiety among adolescents were common during and after the lockdown [11]. In addition, a study in Lebanon identified that a year after the onset of COVID-19, depression, anxiety, stress, and low resilience was observed among pharmacy students [12]. Therefore, it is hypothesised that the post-lockdown would continue to affect university students' mental health in terms of emotional, psychological, and social well-being of the students due to missing daily social interactions, boredom, news about the pandemic, and more time spent on phone conversations [5].

During MCO, the students of the Diploma in Pharmacy experienced ODL which allows them to attend the session remotely from any place of choice. Once the MCO had been lifted, the students were allowed to attend the hybrid session of teaching and learning, in which students in Part 2 and Part 4 had the freedom to decide whether they wanted to stay at campus or home, while students in Part 6 were required to attend hospital training physically at the allocated hospital. As the previous studies identified that the mental health among students in tertiary education was affected during the lockdown, there is a need to evaluate the self-perceived mental health of students of the Diploma in Pharmacy. The outcomes of this study will be beneficial to understand the self-perceived mental state among the students during and after MCO during the implementation of ODL.

## 2 Methodology

### 2.1 Study Population

This study was a cross-sectional study among Diploma of Pharmacy students at Universiti Teknologi Mara (UiTM) Bertam Campus between May and June 2022. Overall, there were 316 students in Part 2, Part 4 and Part 6. The sample size was calculated using the Raosoft Sample Size Online Calculator (Raosoft, Inc., 2004), providing a confidence level of 95% and a margin of error of 5%. This study's total sample size was calculated to be 175 students. Students currently in Semesters 2, 4, and 6 Diploma of Pharmacy students in Universiti Teknologi MARA (UiTM) Bertam Campus.

### 2.2 Questionnaire Preparation

A set of questionnaires was designed in English and Malay languages. The data were adapted from various literature from previous studies [13–16]. The questionnaire consists of two sections. Section 1 indicates questions related to respondents' sociodemographic information including age, gender, semester, and self-evaluation of their physical health status. Section 2 was composed of nine questions that reflected their mental health during (MCO, RCMO and CMCO) and during the data collection. The questionnaire was then generated through Google Forms and distributed online through WhatsApp, with a periodic reminder. It was estimated that each respondent need approximately 5–10 min to complete the questionnaire.

### 2.3 Data Analysis

Statistical analyses are performed through IBM SPSS version 22 (IBM Corporation, Armonk, NY, USA) and Microsoft Excel 2016. To investigate the changes in mental health, the result from this study will be presented using descriptive statistics for respondents' socio-demographic background). The level of statistical significance, the p-value was set as  $p < 0.05$ . The data was performed using the Wilcoxon Signed-Rank test for paired responses to assess the changes in lifestyle behaviours during lockdown and post-lockdown.

## 3 Results

### 3.1 Sociodemographic Characteristics of Respondents

A total of 110 respondents ( $n = 110$ ) participated in this study. As displayed and summarized in Table 1, most surveyed respondents were females (74.5%), aged 21 years old (40%), and in semester 6 (50.9%). When questioned about their overall health status, most respondents were in a good health (56.4%) followed by 28.2% having excellent or very good health and 14.5% having fair health. Only 1% of respondents indicated being in poor health.

Table 2 shows that item 1 indicated that 54.5% constantly feel sad and in a grumpy mood during the lockdown and decreases to 23.6% for post-lockdown where there is a

**Table 1.** Respondents sociodemographic (n = 110)

Characteristics		Frequency (n)	Percentage (%)
Gender	Female	82	74.5
	Male	28	25.5
Age (years)	18	5	4.5
	19	21	19.1
	20	27	24.5
	21	44	40.0
	> 22	13	11.8
Part	2	27	24.5
	4	27	24.5
	6	56	50.9
Health status	Excellent	31	28.2
	Good	62	56.4
	Fair	16	14.5
	Poor	1	0.9

significant difference ( $Z = -4.907, p < 0.001$ ). Next, 64.5% feel less interested to perform daily tasks and the percentage decreased to 30% after the lockdown, therefore there has been a significant increase in students' motivation to do their routine activities ( $Z = -5.270, p < 0.001$ ). Referring to item 3, a majority (60%) responded "never" during the MCO and decreased to 58.2% after MCO had been lifted. In addition, 77.3% of students mostly felt worn out, exhausted, and low on energy during the lockdown. Next, there has been a significant increase in the number of students (91.8% to 98.2%) who could adapt to social isolation before and after the lockdown. When respondents were asked to rate their level of happiness, a majority (60% to 46.4%) of them chooses "neutral" during and after MCO. Additionally, when respondents were asked to rate their level of worry, most students (52.7%) choose "neutral" during and after the lockdown.

## 4 Discussion

This study provides the perceived mental health states among students referring to the phases of lockdowns during the COVID-19 pandemic. During the pandemic, this study found that the sad feeling among students decreased after the government lifted the lockdown restriction ( $p < 0.001$ ). Our data also pointed out that the study have a significant decrease in the number of students who were less motivated to engage in regular tasks ( $p < 0.001$ ) and students who experienced exhaustion, fatigue and lack of energy ( $p < 0.001$ ). Few studies reported that among university students, the changes in teaching and learning approach and less social interaction may cause the students to suffer high levels of anxiety, stress, depression and low mood during a pandemic [17, 18]. Compared to

the lockdown and post-lockdown, most of the respondents rated themselves as happy after the lockdown as they had more freedom to manage their social life including those who perceived themselves as an introvert. Similarly, a study in New Zealand indicates that less mobility and freedom affected happiness [19].

Less than 30% felt worried during the lockdown due to their concern about being infected by COVID-19 as reported by [20]. The respondents displayed better adaptation to the restrictions with high levels of concern about getting infected (both for themselves and family members) even after the lockdown. The imposed quarantine has negative

**Table 2.** Changes in mental health during and after lockdown

Variables	During lockdown, n (%)	After lockdown, n (%)	Wilcoxon sign rank (Z)
I often feel sad and always in a bad mood.			
Yes	60 (54.5)	26 (23.6)	Z = -4.907
No	50 (45.5)	84 (76.4)	p < 0.001
I feel less or not interested in doing routine activities.			
Yes	71 (64.5)	33 (30.0)	Z = -5.270
No	39 (35.5)	77 (70.0)	p < 0.001
Have you ever had any suicidal or self-harming thoughts?			
Never	66 (60.0)	64 (58.2)	Z = -1.650
Rarely	16 (14.5)	28 (25.5)	p = 0.099
Sometimes	18 (16.4)	13 (11.8)	
Often	7 (6.4)	2 (1.8)	
Always	3 (2.7)	3 (2.7)	
I experienced fatigue, tiredness, and lack of energy.			
Yes	85 (77.3)	63 (57.3)	Z = -3.667
No	25 (22.7)	47 (42.7)	p < 0.001
I had an inconsistent sleeping schedule.			
Yes	96 (87.3)	69 (62.7)	Z = -4.564
No	14 (12.7)	41 (37.3)	p < 0.001
Were you able to adapt well to isolation and social distancing?			
Yes	101 (91.8)	108 (98.2)	Z = -2.646
No	9 (8.2)	2 (1.8)	p = 0.008
Were you able to follow the rules set by the government for isolation and social distancing?			
Yes	106 (96.4)	108 (98.2)	Z = -1.000
No	4 (3.6)	4 (3.6)	p = 0.317
Rate your happiness.			

(continued)

**Table 2.** (continued)

Variables	During lockdown, n (%)	After lockdown, n (%)	Wilcoxon sign rank (Z)
Very unhappy	3 (2.7)	1 (0.9)	Z = -4.030 p < 0.001
Unhappy	14 (12.7)	3 (2.7)	
Neutral	66 (60.0)	51 (46.4)	
Happy	18 (16.4)	33 (30.0)	
Very happy	9 (8.2)	22 (20.0)	
Rate your worries on the pandemic			
No worry	8 (7.3)	9 (8.2)	Z = -2.127 P = 0.033
A bit worry	11 (10.0)	18 (16.4)	
Neutral	58 (52.7)	60 (54.5)	
Worry	20 (18.2)	19 (17.3)	
Very worry	13 (11.8)	4 (3.6)	

psychological impacts that may be related to concerns about boredom and frustration for being isolated, the period of uncertainty, contracting the illness and infecting family members and lack of social contact [21]. To suggest, one of the approaches that can be done by universities is institutions should hire more counsellors to address these mental health crises among the college-aged population. Furthermore, the incorporation of peer-to-peer programs is helpful as students are more comfortable communicating with their peers about their problems [22, 23].

We assessed the level of self-perceived mental health six months after the lockdown recovery period. Therefore, our study is retrospective rather than longitudinal, as respondents are required to reflect on their mental health status during the lockdown period. However, we are confident that the results are relevant to the pandemic as they can lead to a better understanding of the recovery plan especially for students who were affected by their mental health condition. Furthermore, for better generalizability, future studies should examine other socio-demographic categories besides pharmacy students.

## 5 Conclusion

This study aimed to assess the changes in mental health during and post-lockdown period among Diploma in Pharmacy UiTM students at the Bertam campus. To summarize, Diploma in Pharmacy students generally show improvement in the aspect of mental health post-confinement compared to during the quarantine period. Therefore, based on our findings, some suggestions have prevailed to improve university student's health and wellness in addressing these changes. Innovative mental health policies targeting students are needed, with direct and digital collaboration networks of psychiatrists and psychologists.

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