

Assessment of Post-Traumatic Stress Disorders and its Associations with Suicidal Behaviour among Adults Following Movement Control Order During COVID-19 Pandemic in Malaysia

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Abstract- A rapid review of previous outbreaks shows that a quarantine policy had greater effects on one's psychological state including post-traumatic stress disorder (PTSD), confusion and anger caused by various stressors. This study aimed to assess the levels of Post-Traumatic Stress Disorder (PTSD) and its associations with suicidal behavior among Malaysian adults following Movement Control Order (MCO) during the COVID-19 pandemic in Malaysia. This cross-sectional study was distributed using an online standardized questionnaire composed of three parts, the socio-demographic characteristics, PTSD assessment using PTSD Checklist for DSM-5 and the suicidal behavior assessment using Suicidal Behaviors Questionnaire-Revised (SBQ-R). Almost half of the respondents had high PTSD symptoms (41.7 %) and low PTSD was 58.3 % among Malaysian adults. Furthermore, 69.6 % of participants had no suicidal behavior but, 30.4 % from the participants has suicidal behavior. This study found single status with highest PTSD (83.3 %) and marital status had significant correlation with PTSD which p-value was < 0.05. Malay was high percentage in high PTSD (74.6 %) and significant correlation between race and PTSD ($p < 0.05$). Employment status also had significant correlation with PTSD with p-value was 0.002 and students was counted highest PTSD (65.7 %). This study identified some socio-demographic factors and suicidal behavior associated with PTSD among Malaysian adults, which may lay ground for further interventions.

Keywords: Post-Traumatic Stress Disorder; suicidal behavior; Malaysian adults; COVID 19

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Introduction

On 11th March 2020, the outbreak of coronavirus disease 2019 (Covid-19) had been declared by the World Health Organization as a global pandemic [1]. Control measures taken by government to curb the spread of Covid-19

infection including home isolation, restriction of movement and lockdown. Movement Control Order was first implemented by Malaysian 18th March 2021 [2]. During MCO, all essential economic and service centres were allowed to operate but the social events and educational institutions are suspended.

A rapid review of previous outbreaks showed that a quarantine policy has greater effects on one's psychological state including post-traumatic stress disorder (PTSD) symptoms, confusion and anger caused by various stressors [3]. In recent review of studies highlighted a clear association between PTSD and suicidal behaviour. Those with PTSD had 5.3 times the rate of suicide compared without PTSD [4]. In previous studies, adolescents psychiatric and pregnant women were found to be more vulnerable to develop PTSD symptoms during lockdown [5,6]. Medical students also experienced psychological stress during this pandemic. 134 out of 200 students were reported minimal anxiety [7]. However, the previous studies were conducted only on targeted population and do not represent the whole population. There were few researches that evaluated PTSD following movement control order (MCO) during this pandemic, especially among home-quarantined Malaysian adults.

Therefore, this study aimed to assess the levels of Post-Traumatic Stress Disorder (PTSD) and its associations with suicidal behaviour among Malaysian adults following Movement Control Order (MCO) during the COVID-19 pandemic in Malaysia. Specifically, to determine the prevalence of PTSD among Malaysian adults following MCO during the COVID-19 pandemic in Malaysia. Second, to assess the association between suicidal behaviour and PTSD among Malaysian adults following MCO during the COVID-19 pandemic. Lastly, our aim was to study the association between socio-demographic factors to PTSD among Malaysian adults following MCO during the COVID-19 pandemic.

This research was significant in terms of its theoretical and practical contribution to the existing body of the research knowledge. There are only few numbers of published studies regarding PTSD and suicidal behaviour in Malaysia. Thus, we would like to conduct this research to analyse the relationship between sociodemographic variables, suicidal behaviour with the risk of PTSD during COVID-19 pandemic. As for the practical contribution, this research mainly focused on the risk of PTSD with suicidal behaviour in this dramatic moment for the Malaysian population which can lead to development of effective prevention programs and therapeutic interventions.

Subjects and Methods

Study design and study sample

Research design was the broad plan that states objectives of the research project and provided the guidelines what was to be done to realize those objectives. The cross-sectional study design was the type of observational study design that measures the outcomes and the exposure in the study participants at the same time [8]. The target population of this study was Malaysian adults which was currently about 22.8 million [9]. There was specifically eligibility of criteria on characteristics of respondent in the population. The inclusion criteria to be selected were: a) Respondents must be aged 18 years old and above; b) The respondent must stay in Malaysia; c) Both genders will be selected. Meanwhile, the exclusion criteria for this study were: a) Malaysian who's aged below 18 years old; b) Malaysian who did not stay in Malaysia. Sample size of the study was the estimation number of selected respondents that should be obtained from the population. In this study, the minimum estimation number of sample size was about 385 participants. The sample size was calculated using Rao soft. By using Rao soft, the sample size can be estimated with the population of 22.8 million population of adults in Malaysia [10]. In the Rao

soft calculator, this study uses confidence level set to 95 %, and 5 % the margin error.

Sampling technique and procedure

In this study use non-probability sampling technique had been chosen in this study with using convenience sampling types. It had been chosen because the participants are obtained in certain criteria which most conveniently available [11,12]. Before the question had been distributed, this research had run a pilot test by distributing to 20 participants to identify the reliability and validity of the question. The online questionnaire was distributed via google form by giving the link through social media such as WhatsApp, Facebook and etc. Participants were able to decide whether they agreed or disagreed to participate in the study after reading the introduction, objectives and consent form. The survey took approximately 10 to 15 minutes to complete. Ethical approval of our research was obtained from Centre of research and development (CRD), Asia Metropolitan University (AMU) and ethic approval No. was HEC-0206FOM003.

Instruments

For writing questionnaire items, this study used a set of standardized questionnaires where each question provided the set of response options for participants to choose from. Our questionnaire consisted of 24 items divided into three sections: a) Sociodemographic data; b) Prevalence of PTSD; c) Suicidal behaviour.

First section consisted of 8 items of sociodemographic questionnaires which obtain the information about: 1) Age; 2) Gender; 3) Residence; 4) Marital status; 5) Race; 6) Family income; 7) Educational status; 8) Employment status. The second section had 20 items which measure that assess the presence and severity of PTSD symptoms. The question was derived from the PTSD Checklist for DSM-5. The PTSD Checklist-5 (PCL-5) had a variety of purposes, including: a) Quantifying and monitoring symptoms over time; b) Screening individuals for PTSD; c) Assisting in making a provisional diag-

nosis of PTSD. Respondents were asked to rate how bothered they had been by each of 20 items in the past month on a 5- point Likert scale ranging from 0 - 4. Items were summed to provide a total severity score (range = 0 - 80). The PCL-5 can determine a provisional diagnosis in two ways: a) Summing all 20 items (range 0 - 80) and using a cut-point score of 31 - 33 appeared to be reasonable based upon current psychometric work; b) Treating each item rated as 2 = “Moderately” or higher as a symptom endorsed, then following the DSM-5 diagnostic rule which required at least: 1 Criterion B item (questions 1 - 5), 1 Criterion C item (questions 6 - 7), 2 Criterion D items (questions 8 - 14), 2 Criterion E items (questions 15 - 20). Third section consisted of 4 items which each item tapping a different dimension of suicidality: a) Item 1 tapped into lifetime suicide ideation and/or suicide attempt; b) Item 2 assessed the frequency of suicidal ideation over the past twelve months; c) Item 3 assessed the threat of suicide attempt; d) Item 4 evaluated self-reported likelihood of suicidal behaviour in the future. Each item had different point according to the given answer. All the point score had to sum to get the total score of suicidal behaviour assessment. The total score should range 3 - 19. Cut off score for non-clinical and clinical sample was ≥ 7 indicate suicide risk.

Data collection and statistical analysis

For data collection method, it had two broad categories; primary data collection and secondary data collection [13]. This study used primary data collection which is gathering of raw data collected at the source. The collected data were coded, entered and analysed using IBM Statistical Package for the Social Sciences (SPSS) version 26. In this study, we used descriptive analysis to describe demographic variables and showed the data through statistic and graph. Inferential analysis was used to make generalisation of results from the population about the research. Chi square test was used to compare the prevalence of PTSD among different sociodemographic groups and to determine the relationship between PTSD and suicidal ideation.

Results

Table 1 lists the distribution of sociodemographic characteristics of the respondents,

while Table 2 presents the PTSD levels in participants, assessed by the PCL5 questionnaire. Results revealed a high percentage of low PTSD symptoms - 58.3 %, while a high pro-

Table 1. Sociodemographic characteristics of the respondents (N = 1022)

Variables	Number (n)	Percentage (%)
Age		
Young Adults (18 - 39)	945	92.5
Middle Adults (40 - 59)	69	6.8
Old Adults (≥ 60)	8	0.8
Residence		
Urban	788	77.1
Rural	234	22.9
Gender		
Male	254	24.9
Female	768	75.1
Marital status		
Single	821	80.3
Married	162	15.9
Divorced	22	2.2
Widowed	6	0.6
Others	11	1.1
Race		
Malay	736	72.0
Chinese	63	6.2
Indian	176	17.2
Others	47	4.6
Family Income		
Less than RM4849	501	49.0
Between RM4850 and RM10960	358	35.0
More than RM10960	163	15.9
Educational status		
No formal education	23	2.3
Primary	5	0.5
Secondary	54	5.3
Post-secondary education (Pre-University, Matriculation, A-level, Diploma, Foundation etc.)	323	31.6
Tertiary (Bachelor, Degree, Master, PhD)	617	60.4
Employment status		
Employed (Full-Time)	241	23.6
Employed (Part-Time)	33	3.2
Unemployed/Home maker	86	8.4
Retired	10	1.0
Students	652	63.8

Table 2. Posttraumatic stress disorder among participants assessed by the PCL5 questionnaire (N = 1022)

PTSD	Number n	Percentage (%)
Low	596	58.3
High	426	41.7

portion of respondents had high PTSD symptoms (41.7 %). Table 3 presents the gathered data in terms of suicidal behaviour among participants, assessed by the SBQ-R questionnaire. Over two thirds of participants, or 69.6 % did not have suicidal behaviour during MCO of Covid-19 pandemic, while 30.4 % of participants had significant suicidal behaviour, warranting psychiatric treatment.

Table 4 presents the data on the association between PTSD and sociodemographic characteristics of the respondents using Chi square test. This study found single status was high PTSD (83.3 %), followed by married status (11.5 %), divorced (3.3 %), widowed (1.2 %) and others status (0.7 %). Marital status had significant correlation with PTSD which p-value was 0.001. Furthermore, Malay was high percentage in high PTSD (74.6 %) compared to Indian (12.4 %), Chinese (5.6 %) and others (7.3 %). There was significant correlation between race and PTSD which p-value was 0.001. Employment status also had significant correlation with PTSD with p-value was 0.002. Students was counted high PTSD (65.7 %),

followed by full time worker, unemployed or home maker, full time worker and retired with 18.8 %, 11.7 %, 2.8 % and 0.9 % respectively.

Table 5 reflects on the association between PTSD and suicidal behaviour of the respondents using Chi square test. This study used SBQ-R questionnaire of suicidal behaviour which consist 4 questions. In question 1 “Have you ever thought about or attempted to kill yourself?”, mostly the respondent of high PTSD choose 2 “It was just a brief passing thought” (29.1 %) compared to 1 “Never” (25.8 %), 3a “I have had plan at least once to kill myself but did not try to do it” (21.6 %), 3b “I have had plan at least once to kill myself and really wanted to die” (10.8 %), 4a “I have attempted to kill myself, but did not want to die” (7.5 %) and 4b “I have attempted to kill myself, and really wanted to die” (5.2 %). Question 1 was significant correlation with PTSD with p-value was 0.001. In addition, for question 2 “How often have you thought about killing yourself in the past year?”, there were 29.1 % of participants of high PTSD that choose 1 “Never” as their answer, followed by

Table 3. Presence of suicidal behaviour among participants assessed by the SBQ-R questionnaire (N = 1022)

Suicidal Ideation	Number n	Percentage (%)
Yes	311	30.4
No	711	69.6

Table 4. Association between PTSD and sociodemographic characteristics of the respondents (N=1022)

Variables	low n (%)	high n (%)	χ^2 (df)	p-value
Age				
Young adults (18 - 39)	544 (91.3)	401 (94.1)	3.114	0.211
Middle adults (40 - 59)	46 (7.7)	23 (5.4)	(2)	
Old adults (≥ 60)	6 (1.0)	2 (0.5)		
Residence				
Urban	468 (78.5)	320 (75.1)	1.633	0.201
Rural	128 (21.5)	106 (24.9)	(1)	
Gender				
Male	160 (26.8)	94 (22.1)	3.039	0.081
Female	436 (73.2)	332 (77.9)	(1)	
Marital status				
Single	466 (78.2)	355 (83.3)		
Married	113 (19.0)	49 (11.5)	19.118	0.001
Divorced	8 (1.3)	14 (3.3)	(4)	
Widowed	1 (0.2)	5 (1.2)		
Others	8 (1.3)	3 (0.7)		
Race				
Malay	418 (70.1)	318 (74.6)	22.121	0.001
Chinese	39 (6.5)	24 (5.6)	(3)	
Indian	123 (20.6)	53 (12.4)		
Others	16 (2.7)	31 (7.3)		
Family Income				
Less than RM4849	284 (47.7)	217 (50.9)	2.232	0.328
Between RM4850-RM10960	220 (36.9)	138 (32.4)	(2)	
More than RM10960	92 (15.4)	71 (16.7)		
Educational status				
No formal education	15 (2.5)	8 (1.9)	3.923	
Primary	2 (0.30)	3 (0.7)	(4)	0.417
Secondary	36 (6.0)	18 (4.2)		
Post-secondary education (Pre-University, Matriculation, A-level, Diploma, Foundation etc.)	179 (30.0)	144 (33.8)		
Tertiary (Bachelor, Degree, Master, PhD)	364 (61.1)	253 (59.4)		
Employment status				
Employed (Full-Time)	161 (27.0)	80 (18.8)		
Employed (Part-Time)	21 (3.5)	12 (2.8)	17.547	0.002
Unemployed/Home maker	36 (6.0)	50 (11.7)	(4)	
Retired	6 (1.0)	4 (0.9)		
Students	372 (62.4)	280 (65.7)		

Table 5. Association between PTSD and suicidal behaviour of the respondents (N = 1022)

	Low N (%)	High N (%)	χ^2 (df)	p-value
Question 1				
1	451 (75.7)	110 (25.8)	284.096 (5)	0.001
2	98 (16.4)	124 (29.1)		
3a	33 (5.5)	92 (21.6)		
3b	10 (1.7)	46 (10.8)		
4a	3 (0.5)	32 (7.5)		
4b	1 (0.2)	22 (5.2)		
Question 2				
1	472 (79.2)	124 (29.1)	302.720 (4)	0.001
2	82 (13.8)	88 (20.7)		
3	29 (4.9)	103 (24.2)		
4	9 (1.5)	63 (14.8)		
5	4 (0.7)	48 (11.3)		
Question 3				
1	510 (85.6)	248 (58.2)	113.906 (4)	0.001
2a	61 (10.2)	77 (18.1)		
2b	11 (1.8)	40 (9.4)		
3a	12 (2.0)	44 (10.3)		
3b	2 (0.3)	17 (4.0)		
Question 4				
0	508 (85.2)	197 (46.2)	206.709 (6)	0.001
1	37 (6.2)	62 (14.6)		
2	34 (5.7)	43 (10.1)		
3	9 (1.5)	46 (10.8)		
4	2 (0.3)	48 (11.3)		
5	1 (0.2)	16 (3.8)		
6	5 (0.8)	14 (3.3)		

3 “Sometimes (2 times)” (24.2 %), 2 “Rarely (1 time)” (20.7 %), 4 “Often (3 - 4 times)” (14.8 %) and 5 “Very Often (5 or more times)” (11.3 %). Question 2 had significant correlation with PTSD with p-value was 0.001. In the third question of SBQ-R “Have you ever told

someone that you were going to commit suicide, or that you might, do it?”, more than half of participant of high PTSD chose 1 “No” as their answer (58.2 %) compared to 2a “Yes, at one time, but did not really want to die” (18.1 %), 2b “Yes, at one time, and really wanted to

die" (9.4 %), 3a "Yes,, more than once, but did not want to do it" (10.3 %) and 3b "Yes, more than once, and really wanted to do it" (4 %). Question 3 also has significant with PTSD ($p = 0.001$). last but not least, question 4 "How likely is it that you will attempt suicide someday?", almost half of participants who had high PTSD chose 0 "Never" (46.2 %), followed by 1 "No chance at all" (14.6 %), 4 "Likely" (11.3 %), 3 "Unlikely" (10.8 %), 2 "Rather likely" (10.1 %), 6 "Very likely" (3.2 %) and 5 "Rather likely" (3 %). Question 4 also had significant correlation with PTSD with a p -value of 0.001.

Discussion

This was, to the best of our knowledge the first study that highlighted levels of post-traumatic stress disorder (PTSD) faced by adults and association with suicidal behaviour in Malaysia during COVID19 pandemic. According to a previous study, at least up to 30 % of adult and children in the pandemic area were at high risk for post-traumatic stress disturbances [14]. Apart of that, several weeks into shelter in place order, most of them presented with PTSD symptoms [15].

This cross-sectional study found that 58.3 % of participants has high levels of PTSD and 41.7 % has low levels of PTSD with the cut-off point ≥ 33 . Furthermore, 69.6 % of participants had no suicidal behaviour and 30.4 % of participants had a suicidal behaviour. In our study, the factors that were significant that associated with PTSD were marital status ($p = 0.001$), race ($p = 0.001$), and employment status ($p = 0.002$). In our study, age was not significant ($p = 0.211$). In comparatively with previous study, it was shown that increasing in age has a significant association with PTSD ($p = 0.002$) [16]. In another study that had done in Italy, lower education status had higher rates which is 53.6 % and significant association with high PTSD levels with $p < 0.05$ [17]. In our study, family income had no significant

association with PTSD ($p = 0.328$). However, previously in a meta-analysis study, socioeconomic status was being considered as one of the risk factors that is associated with PTSD ($p < 0.001$) [18]. In contrast to another study conducted in Malaysia, ethnic or race had no significant association with PTSD ($p = 0.409$) [19]. Similarly, both of the studies had shown high prevalence rate in Malay as it were conducted in Malaysia which accounted about 69.6 % of all ethnics in Malaysia [20].

Suicidal behaviour included suicidal ideation, suicide attempts and completed suicide [21]. PTSD had a relative association with both suicidal ideation and suicidal attempt with $p < 0.001$ [22]. In our study, there was significant relationship between PTSD and suicidal behaviour ($p < 0.001$). The suicidal behaviour in our study was measured by using SBQ-R which were the four-item questionnaire asked about four domain areas within the suicidal behaviour which are: lifetime ideation and attempt, recent frequency of ideation, suicide threats, and self-assessed likelihood of future suicidal behaviour. In our study, all of the questionnaire in SBQ-R had relative association with PTSD. The first question, "have you ever thought about or attempted to kill yourself?" had a $p < 0.05$. Secondly, "how often have you thought about killing yourself in the past year?" the p -value for this question also was less than 0.05 and significant. Thirdly, the question asked "have you ever told someone that you were going to commit suicide, or that you might, do it?" and the p -value for this question was 0.001 and significant in our study. Last but not least, the question was "how likely is it that you will attempt suicide someday?" and the p -value for this was 0.001. On the other hands, another study conducted in United States Of America yielded the same p -value which were < 0.05 for SBQ-R [23].

The novelty of this study we found that there was strong association between PTSD and suicidal behaviour. This finding can help

the organizations to spread awareness about PTSD and its association with suicidal behaviour following movement control order in Malaysia during COVID19 pandemic. This also could help in planning early intervention to prevent into more serious condition which is suicide.

Symptoms of PTSD had been associated to a number of variables such as gender, socio-economic level, educational level and marital status. In this study, we found that single marital status, Malay participants and students significantly associated with high level of PTSD symptoms ($p = 0.001$). Based on the findings, participants with single status were high percentage in high level of PTSD symptoms (83.3 %), compared to married (11.5 %), divorced (3.3 %), widowed (1.2 %) and other status (0.7 %). Single respondent had lived through quarantine alone may lead to high risk of PTSD due to lower level of social support, receive less care and less communication. Previous study stated that participant that lived alone through the lockdown were significantly associated with PTSD symptoms ($p < 0.001$) [24]. These findings further suggested the importance of social support and human interaction to maintain good mental health among Malaysian adult. The result of this study found no significant association between gender and PTSD symptoms ($p = 0.081$). This result was consistent with previous study. In previous study, gender showed no significant association between gender and PTSD symptoms ($p = 0.04$) [25]. There was significant correlation between employment status with PTSD with p -value was 0.002. Based on this online survey questionnaires, students were counted high PTSD (65.7 %) compared to full time worker, unemployed or home maker, full time worker and retired. This finding of PTSD symptoms was higher in students was consistent with the finding of previous study. PTSD was present significantly ($p < 0.001$) among students (44.9 %) compared to employed (26.9 %) [26]. Stu-

dents more prone to develop PTSD and mental health issues due to difficulty with concentration at home. In previous study, participants mentioned that they were prone to be interrupted by their family members and household chores. Some literatures mentioned that lack of attentions to online classes due to prolonged attention to a computer screen. The findings of previous study focused the effects of pandemic on mental health of college students [20,27]. The strength of our study was that the findings were obtained through a big sample size of population and we achieved minimum sample size. Therefore, the findings of our study represented to the whole population in Malaysia.

Last but not least, this cross-sectional study showed a remarkable relationship between the levels of Post-Traumatic Stress Disorder (PTSD) and its associations with suicidal behaviour among Malaysian adult following Movement Control Order (MCO). In addition, this study also found that almost half of the respondents were experiencing high levels of PTSD symptoms following MCO. High levels of PTSD found especially among young adults (94.1 %) compared to middle adults (5.4 %) and old adults (0.5 %). However, it was no significantly associated with PTSD in this study (p value = 0.201). Therefore, based on this findings, early public health interventions needed to be taken into concentration of the management plans to maintain good mental health and to prevent suicidal behaviour among Malaysian adults. We hoped that this study may serve as a guide to another research on this pandemic. Further research needs to be done to close the gap.

The aim of our study was to determine the prevalence of Post-Traumatic Stress Disorder (PTSD) and its associations to suicidal behaviour among Malaysian adults following Movement Control Order (MCO) during the COVID-19 pandemic. The current evidence backed up our research hypotheses with the

respondents of 1022 Malaysians. This study was able to recognize the elements that may raise your chances of developing PTSD and suicidal behaviour. In this tumultuous time for the Malaysian people, focusing on the danger of PTSD with suicidal behaviour may lead to the establishment of effective prevention programmes and therapeutic interventions. As to raise awareness of PTSD and suicide behaviour among Malaysian residents, as the majority were unaware of the problem due to the lack of knowledge regarding PTSD and its associations with suicidal behaviour.

However, there is limited information on the comparison of the post-traumatic distress disorder across the states in Malaysia. The COVID-19 impacts on stress disorder may have different effects due to all the state are having different situations and deployed different responses towards the COVID-19 crisis. For example, the phases of movement control order are different from time to time and the standard operating procedure for the economy, education, movement of people and activities allowed are applied by the terms and conditions by the Government of Malaysia. As such, states with fewer COVID-19 cases and states with high COVID-19 cases but with hospitals with less than 70 % ICU bed usage are allowed to open more sectors compared to other states with high usage of ICU beds that activities and sectors opening are limited [2]. Therefore, it would have a different impact on the mental health of the people.

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Our research is not without several limitations. First, this study was conducted via standardized questionnaires may lead to response bias. Second, the result was conducted via online survey limit those without internet access and smart devices to join the online survey. Despite the fact that we knew about this limitation, we are unable to conduct in-person interviews because of current movement order restrictions 3.0 implemented by the government. On the one hand, even though we used a validated tool based on the DSM-5, the PCL-5 only provided a provisional diagnosis of PTSD that should be further confirmed by a clinician. Nevertheless, this scale indicated strong reliability and validity (Cronbach alpha for prevalence PTSD = 0.954, Cronbach alpha for suicidal behaviour assessment = 0.94), an a cut-off of 31-33 was shown to be optimally effective in diagnosing PTSD.

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Conflict of interest

None to declare.

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