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Effect of the COVID-19 Pandemic and Subsequent Social Distancing on Individual's Mental Health

Sarah Abdulkareem Salih[1], Sumarni Ismail[1]*, Ahmed Najm[2] and Nurhilmiyani Ismail[3]

[1]Department of Architecture, Faculty of Design and Architecture, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia
[2]Department of Food Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia
[3]Department of Human Development and Family Studies, Faculty of Human Ecology, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia

ABSTRACT

The COVID-19 coronavirus, an infectious disease originating in Wuhan, has become an outbreak worldwide, leading to unprecedented measures restricting social and physical activities in many countries. The subsequent social distancing of COVID-19 has significantly resulted in many psychological consequences. The current study examines the impact of social distancing during the COVID-19 pandemic on the mental health symptoms of Selangor State, Malaysia residents. An online survey was conducted through social media platforms targeting residents of Selangor State in Malaysia. A convenience sampling method was led to include 258 respondents in the study. The questionnaire on the symptoms of mental health related to fear of COVID-19 included 13 items developed from the existing studies. The results showed that symptoms of mental health problems related to fear of COVID-19 are negatively associated with the likelihood of social interaction. The overall score of symptoms of mental health related to the fear of COVID-19 showed moderate symptoms of mental problems related to the fear of COVID-19. The factor of age was also associated with higher symptomatology of mental health problems related to fear of COVID-19. Thus, related measures and guidelines must consider the mental well-being of the at-risk person as the pandemic continues. The current study's findings contribute to the knowledge gaps in behavioural health during biological disasters. It also provides a reference for professionals and policymakers to develop

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E-mail addresses:
sarah_salih@upm.edu.my (Sarah Abdulkareem Salih)
sumarni@upm.edu.my (Sumarni Ismail)
ahmednajm@ukm.edu.my (Ahmed Najm)
nurhilmiyani89@gmail.com (Nurhilmiyani Ismail)
*Corresponding author

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programs and measures to handle the psychosocial status of the affected people.

Keywords: Behavioural health, COVID-19, Malaysia, mental health symptoms, online survey, Selangor, social distancing, social interaction

INTRODUCTION

In December 2019, the WHO was informed of an outbreak of a new disease that causes respiratory infections in humans in the Chinese city of Wuhan. This disease, transmitted by the new strain of coronavirus, was named COVID-19 (Wu et al., 2020). In early 2020, new cases of coronavirus COVID-19 were rapidly detected in various countries where the virus was not previously. Subsequently, WHO declared the novel coronavirus (COVID-19) outbreak a public health emergency of international concern as one of the most significant biological challenges the current global community has faced (Carbone, 2020). More than 758 million confirmed cases of COVID-19 have been reported worldwide, with about seven million fatalities ("WHO Coronavirus", 2023). Local and international health authorities are taking many measures to prevent the spread of COVID-19 worldwide (Hsieh et al., 2020). These measures differ from country to country; home quarantine or social distancing was one of the primary means to contain the spread of infection (Kopelovich et al., 2020). Some countries like China, Italy, and Malaysia have implemented social distancing by imposing total lockdowns; other countries like Netherlands, UK, US, and Sweden have taken less stringent social distancing measures.

Despite the precautionary measures and the spread of vaccines, billions of people were quarantined in their homes as nations have executed social distancing to contain the spread of the disease (Clair et al., 2021; De Vos, 2020; Tajudin et al., 2021; Teo et al., 2020). Besides, the subsequent waves of COVID-19 might lead to new streams of social distancing (Müller et al., 2021; Wu et al., 2020). Despite the precautionary measures and the spread of vaccines, billions of people were quarantined in their homes as nations have executed social distancing to contain the spread of the disease (Clair et al., 2021; De Vos, 2020; Teo et al., 2020). Besides, the current and subsequent waves of COVID-19 might lead to new streams of social distancing (Wu et al., 2020). These sudden social measures create certain levels of psychological distress among individuals worldwide (Clair et al., 2021; Müller et al., 2021).

In March 2020, Malaysia recorded many of the first COVID-19 wave infections in the region, as COVID-19 was reported in every state and federal territory. Many measures intended to prevent the spread of COVID-19 were taken by local health authorities and overseen by the Ministry of Health of Malaysia (Bernama, 2020; Boo, 2021). By March 18, 2020, the first nationwide Movement Control Order (MCO) to control the disease through social distancing and a total lockdown was announced by the responsible authorities and overseen under the Ministry of Health

and Ministry of Defence of Malaysia, which lasted over two months (Bernama, 2020; Shah et al., 2020). A gradual easing of restriction was announced under a Conditional Movement Control Order (CMCO) followed by Recovery Movement Control Order (RMCO) until April 2021. The restricted movement of people and closing borders has led to the country's success in flattening the curve of COVID-19 infection (Shah et al., 2020). However, during the second COVID-19 wave in early 2021, Malaysia witnessed an unprecedented sharp rise in COVID-19 cases and deaths, leading to announce the second Movement Control Order until August 2021. During these two years of MCOs, the most widespread measure is the general prohibition of mass movements and gatherings nationwide. The community understands these restrictions as social isolation (Bezerra et al., 2020).

Although these measures are efficient for such diseases (Wilder-Smith & Freedman, 2020); however, social distancing could significantly impact socioeconomic and psychosocial impact. This social isolation is expected to lead to the prevalence of depression, anxiety disorders, loneliness, fear, and boredom (Hsieh et al., 2020; Müller et al., 2021). Long-term social isolation can prejudge mental and physical well-being (Bandura, 1994; Vandervoort, 1999). Psychosocial factors, including depression, anger, stress and anxiety, were found to be associated with social support and self-efficacy, where social support and social interactions were related to increasing the levels of self-efficacy and reducing the levels of depression and anxiety (Bandura, 1994; Müller et al., 2021). Furthermore, biological disasters often affect human well-being in crucial ways, increasing threats and psychological disorders (Clair et al., 2021; Hsieh et al., 2020). Numerous studies were conducted on the psychological impact of COVID-19, focusing on healthcare workers working at the frontline (Chen et al., 2020; Tan et al., 2020; Teo et al., 2020). However, the psychological threat of epidemics, such as COVID-19, on home-quarantined individuals is mainly overlooked, especially in the Malaysian context. Hence, there is a need to examine the impact of the social distancing imposed by the COVID-19 pandemic on peoples' mental health in the home quarantine to facilitate measures considering different perceptions. The current study aims to examine the impact of social distancing during the COVID-19 pandemic on the mental health of residents of Selangor State in Malaysia.

This paper discusses the importance of social interaction as a factor of communities' social support, particularly during biological disasters, followed by social isolation and its impact on mental well-being. Then, the methods adopted for the survey and the significance of findings from the survey conducted. The paper then discusses the effects of COVID-19 and subsequent social distancing on the community's psychosocial behaviours during the MCO.

Social Interaction and Social Isolation

Social interactions refer to a dynamic, physical exchange between two or more individuals and are a building block of societies (Salih et al., 2023). Changes in the

urban fabric, communications, networking, mobility, density, and the health status of individuals were identified as factors predicting social interaction (De Vos, 2020). Meanwhile, the complete or near-complete absence of social interactions, contacts, or relationships between individuals and society refers to social isolation (Alspach, 2013). The weakness or lack of social interaction forms the basis for identifying the social isolation behaviour of individuals. Social isolation and interaction have been identified as factors correlated with dysfunction and physiological and mental well-being. For example, the fear of COVID-19 increased panic and reduced socialisation interaction (Hsieh et al., 2020). Until today, many individuals worldwide continue to take social distancing measures and work or study from home (Keller et al., 2023), affecting their social interaction level.

In contrast, reviewed evidence showed that psychosocial interventions were essential to enhance the population's physical health besides mental health, in both absolute and relative terms (Macleod & Smith, 2003). People with a more socially active life tend to feel better about themselves and have more self-assurance, self-efficacy, life satisfaction, health, and psychological well-being (Ruggeri et al., 2020). For example, the size of the community, the presence of other people in the place where the person lives, and the place's characteristics could increase the likelihood of interacting (Bezerra et al., 2020; Salih & Ismail, 2018a, 2018b), in turn, reduce the psychological and mental disorders (Salih & Ismail, 2017).

Social support and interaction can enhance physical and mental health and reduce social isolation and psychopathological factors inducing social isolation (Yue et al., 2020). Additionally, outdoor public spaces can be defined as shared spaces that facilitate interaction and attachment, enhance well-being and mental health, and increase opportunities for social activities (Barton & Rogerson, 2017; Salih et al., 2023). Accessibility to these spaces provides vital health and social benefits and environmental services (Barton & Rogerson, 2017; White et al., 2019).

Mental Health During COVID-19 Social Isolation

Mental health refers to individuals' emotional, social, and psychological well-being. It affects individuals' think, feelings, actions, and contributions to their community. Poor mental health affects minds and behaviours, and its positively related to poor physical health (World Health Organization, 2005). Mental illness refers to mental health disorders that include various mental health conditions such as depression, anxiety disorders, schizophrenia, eating disorders and addictive behaviours (Malla et al., 2015). One critical factor that leads to poor mental health and mental health disorders is loneliness or social isolation (Malla et al., 2015; World Health Organization, 2005). Mental health and social support have a critical role in managing the epidemic of infectious diseases such as COVID-19. Social support is essential to alleviate fear and anxiety

disorders of contagious diseases (Banerjee & Rai, 2020; Hsieh et al., 2020). Further, social isolation has been identified as a risk factor associated with the development of various diseases and disability that occurs in the course of the disease, as well as mortality statuses (Carbone, 2020; Kopelovich et al., 2020; Macleod & Smith, 2003; Zeilig et al., 2020). Social measures might significantly impact social and physical activity, resulting in increases in physiological (e.g., diabetes, obesity, and cardiovascular) and psychological diseases (Bezerra et al., 2020; Clair et al., 2021; Cleofas, 2021; De Vos, 2020). It could be a risk factor for many mental disorders like stress (Bezerra et al., 2020), loneliness (Banerjee & Rai, 2020; Pantell & Shields-Zeeman, 2020), severe fear, anxiety, and depression (Müller et al., 2021; Teo et al., 2020). Psychosocial disorders make the quarantined individual more segregated into his own constricted space (Clair et al., 2021). Psychological well-being and perceptions of biological disasters were also associated with sociodemographic factors (Chan et al., 2020).

Additionally, fear of diseases or infection with viruses significantly impacts psychological and mental health (Banerjee & Rai, 2020; Hsieh et al., 2020). Persons suspected of being infected with an epidemic disease were found to have higher depression levels, poor social relationships, and higher economic issues than healthy persons (Hsieh et al., 2020). Weak psychosocial support systems in areas affected by the previous epidemics increased the risk of psychological distress and mental health issues (Cabarkapa et al., 2020). Thus, there is an interrelationship between mental (psychological) well-being, social isolation, and disease infection (Hsieh et al., 2020).

METHODOLOGY

Procedure Participants and Study Area

The current study adopted a quantitative cross-sectional online survey to examine the impact of social distancing during the COVID-19 pandemic on mental health among the residents of Selangor, Malaysia. Selangor is one of 13 states of Peninsular Malaysia, encircling the capital city Kuala Lumpur; its area is about 8,000 square km (3,129 sq. miles). Selangor State has the largest economy, resources, and population (12.5% of the total population) and the lowest poverty rate in the country (Department Statistics of Malaysia, 2019). Selangor in Malaysia has recorded the highest number of confirmed novel coronavirus infections; thus, it has been selected as the study area. The online questionnaire survey, written in English, was conducted from June 10 to December 10, 2020; more than 40,000 active cases were reported in the country in July 2020, with over 17,000 active cases in Selangor. The online questionnaire was developed with the Google platform using Google Form online survey service. The questionnaire form has posted to 1000 users on Whatsapp platforms in Selangor State, Malaysia, using convenience and snowball sampling approaches (Kelley et al., 2003).

Thus, the current survey study recruited only adults aged 18 years and over who lived in Selangor State throughout the pandemic.

The respondents were asked to provide the name of the city they resided in to ensure they settled in the State during the pandemic. A total of 301 posted questionnaire was returned; however, 14 of the returned forms were not completed, and 29 were not from Selangor State, which was not included. The study's sample size was evaluated using the Simplified Formula of Kline's (2010) recommendations. The population size was 16,000 (N), representing the monthly average of positive COVID-19 positive cases in Selangor State from June to December 2020, and the level of precision was ±5%. Thus, the included sample size of the study was (n) 258 respondents. Besides, Kline (2010) suggested that a sample size of 200 respondents would be acceptable in most social science studies.

Measures

The questionnaire of the current study was developed after a comprehensive review of previous studies, theories, and global scales on behaviour problems. The questionnaire included 13 items that measured respondents' sociodemographics, socialisation status and the symptoms of mental health related to the fear of COVID-19. The demographic variable included gender (female and male), age groups (18 to 25, 26 to 39, 40 to 59, 60 and above), and occupation (student, employed, and unemployed). The demographics classification of gender, age, and occupation were identified according to the previous social studies surveys (Mertens et al., 2019). The socialisation status scale included two items of category scale to measure the likelihood of social interaction (socialisation opportunities). The first item measured the number of household members (living alone, living with one adult, living with two adults or more), assuming that participants who live with less than two adults could have fewer opportunities for social interaction (Bezerra et al., 2020; Leonard et al., 2017). The second item measured the frequency of going outdoors during MCO (never going outside during MCO; going outside once or twice per week for shopping or necessities during MCO; going outside a short time daily for necessities during MCO; going outside a long time daily for work or other needs during MCO).

The scale of symptoms associated with mental illness related to fear of COVID-19 included eight items of a five-point Likert scale (three-item measure symptoms of depression; three-item measure symptoms of anxiety; two-item measure symptoms of loneliness). The current eight items were developed from different global scales of behavioural health, including a short version of the Geriatric Depression Scale (GDS; Sheikh & Yesavage, 1986), a short scale for Loneliness (Hughes et al., 2004), a Generalized Anxiety Disorder scale (GAD-7; Spitzer et al., 2006), and Malay Version of the Fear of COVID-19 Scale (Pang et al., 2020). Scores on the five-point scale were categorized as (1) strongly disagree, (2) disagree, (3) neutral, (4) agree, and (5) strongly agree, with a total score ranging from 8 to 40 for the overall mental health symptoms related to the fear of COVID-19. A higher score indicates severe mental

health symptoms associated with the fear of COVID-19. Besides, the respondents first answered a screening question about if they had a mental health diagnosis or mental health problems before the COVID-19 pandemic. All respondents confirmed that they had not been diagnosed with any symptoms of mental health problems before. Three expert panels (comprising three associate professors from the University of Putra Malaysia) approved the developed questionnaire form. The experts reviewed the questionnaire items' readability, clarity, and comprehensiveness. Besides, Cronbach's alpha coefficient of the 13 items was 0.79 (greater than 0.70), indicating good internal consistency of the questionnaire.

Ethical Statement

A committee of experts from the Faculty of Design and Architecture, Universiti Putra Malaysia, approved the study protocols. All participants gave informed consent before applying the survey or any related procedure.

Data Analysis

The collected data of this study were entered and analyzed using the Statistical Package for Social Sciences version 23.0 software. Descriptive statistics, either mean ± standard deviation (±SD) or frequency (percentage %), were used to summarize sociodemographic characteristics, socialisation status (independent variables), and mental health symptoms related to the fear of COVID-19 (dependent variables). ANOVA was utilized to test the association between mental health (behavioural health) and the fear of COVID-19 (independent variable) and sociodemographics. Meanwhile, the regression analysis was used to examine the association between mental health symptoms associated with the fear of COVID-19 (independent variable) and socialisation status (independent variables). The multivariate correlation between the study variables was carried out following the criteria of Montgomery et al. (2014). The mental health variable in the descriptive and regression statistics was the sum of the eight mental illness symptoms related to the fear of COVID-19. The depression and anxiety variables were the sums of three-item for each. In contrast, the loneliness variable was the sum of two-item. A *p*-value below 0.05 was considered statistically significant.

RESULTS

Respondents' Sociodemographic and Socialisation Opportunities

Two hundred and fifty-eight respondents were involved in the study (response rate: 85.72%). Most of the respondents (39.1%) were from 26 to 39 years of age, followed by 33.3% of the respondents from 18 to 25 years. Meanwhile, 21.3% were from 40 to 59 years old, and only 6.2% were above 60. More than half of the respondents (60.1%) were female, while 39.9% were male. Regarding occupation, 58.1% of the respondents were students, 31.8% were employed, and 8.5% were unemployed. Over half the respondents (55.0%) reported that they lived with two adults or more, 35.3% were living with one adult, and

9.7% lived alone. Furthermore, half of the respondents (50.0%) reported that they went outside once or twice per week for shopping or basic needs during MCO; 33.7% said that they never went outside during MCO; 14.7% stated that they went outside for a short time daily for shopping or basic needs during MCO. Only 1.6% of the respondents said they went outside a long time daily for work, visits, or other obligations during MCO. The respondents' sociodemographic characteristics and social status are presented in Table 1.

Table 1
Respondents' sociodemographic characteristics and socialisation opportunities (n = 258)

Characteristic		n	%
Gender	Male	103	39.9
	Female	155	60.1
Age Group	18–25	86	33.3
	26–39	101	39.1
	40–59	55	21.3
	60 and above	16	6.2
Occupation	Student	150	58.1
	Employed	82	31.8
	Unemployed	22	8.5
	Missing	4	1.6
Number of household members during MCO	Living alone	25	9.7
	Living with one adult	91	35.3
	Living with two adults or more	142	55.0
Frequency of going outdoors for basic needs during MCO	Never going outside during MCO	87	33.7
	Going outside once or twice per week for shopping or basic needs during MCO	129	50.0
	Going outside a short time daily for shopping or basic needs during MCO	38	14.7
	Going outside a long time daily for work or other needs during MCO	4	1.6

The Severity of Symptoms Associated with Mental Illness Related to Fear of COVID-19

The overall mean score of symptoms associated with mental health behaviours related to the fear of COVID-19 in respondents was 23.12 ± 8.02, reflecting moderate symptoms associated with mental health problems related to the fear of COVID-19 (Table 2). 41.0% of the respondents had symptoms associated with mental illness score ≥25. Only 1.6% of the respondents had no symptoms of mental issues related to fear of COVID-19, while 23.6% had minimal symptoms of mental illness associated with the fear of COVID-19 (9 to ≥16). Meanwhile, the mean scores of symptoms associated with depression, anxiety, and loneliness related to fear of COVID-19 in respondents were 8.45 ± 3.14, 8.79 ± 3.33, and 5.87 ± 2.43, respectively (Table 2). Over half the respondents (49.6%, 48.4%, and 54.7%) had symptoms associated with depression, anxiety, and loneliness related to fear of COVID-19.

Table 2
The severity of mental illness related to fear of COVID-19 among Selangor residents

Severity of symptoms	Mean ± SD
The overall mental problems related to the fear of COVID-19	23.12 ± 8.02
Symptoms of depression	8.45** ± 3.14
Symptoms of anxiety	8.79** ± 3.33
Symptoms of loneliness	5.87* ± 2.43

Note. **The total mean score of depression and anxiety ranged from 3 to 15; *The total mean score of loneliness ranged from 2 to 10.

Symptoms Associated with Mental Illness Related to Fear of COVID-19 Based on Demographics

The ANOVA test showed that the respondents' age group was positively associated with the symptoms of mental illness related to fear of COVID-19 (p = 0.01, Table 3). This result indicated that age significantly predicted the symptoms of psychosocial issues related to fear of COVID-19. However, other sociodemographic characteristics, including respondents' gender and occupation, were not associated with the mental health associated with fear of COVID-19 (p > 0.05). Individually, the age group of the respondents was also positively associated with the symptoms of depression (p = 0.008), anxiety (p = 0.005), and loneliness (p= 0.019) related to fear of COVID-19 in the regression analysis. Multiple comparisons analysis using the Bonferroni test was applied to the significant results of ANOVA. Bonferroni test showed differences in the symptoms of mental illness related to fear of COVID-19 between the age group 18–25, age groups (p > 0.01) 26–39 and 60 and above (p > 0.01).

This result indicated that participants aged 26-39 and 60 and above reported higher symptoms of psychosocial issues related to fear of COVID-19 than participants aged 18–25. Bonferroni test showed that participants aged 60 and above reported higher symptoms of depression ($p > 0.05$) and loneliness ($p > 0.05$) related to fear of COVID-19 than participants aged 18–25. It also showed that participants aged 26–39 reported higher symptoms of anxiety ($p > 0.01$) and loneliness ($p > 0.05$) related to fear of COVID-19 than participants aged 18–25. This result indicated that as the participants were older, they had higher symptomology of mental illness related to fear of COVID-19 (Table 4). Besides, respondents' occupation (work status) was positively associated with the symptoms of depression ($p = 0.022$) related to fear of COVID-19 (Table 3). Bonferroni test showed differences in the symptoms of depression related to fear of COVID-19 between the students and unemployed participants ($p > 0.05$). This result indicated that unemployed participants had higher symptoms of depression related to fear of COVID-19 than students (Table 5). There was no association between the mean score of depression, anxiety, and loneliness related to fear of COVID-19 and other demographic variables ($p > 0.05$).

Table 3
Symptoms of mental illness related to fear of COVID-19 based on sociodemographic characteristics

Variable		Mean square	F	*p*-value
The overall mental problems related to the fear of COVID-19	Gender	16.52	0.25	0.613
	Age group	238.53	3.82	0.01*
	Occupation	91.90	1.42	0.24
Symptoms of depression	Gender	0.24	0.02	0.87
	Age group	38.66	4.03	**0.01****
	Occupation	37.21	3.85	**0.02***
Symptoms of anxiety	Gender	5.73	0.51	0.47
	Age group	46.25	4.33	**0.01****
	Occupation	14.92	2.53	0.08
Symptoms of loneliness	Gender	0.84	0.14	0.70
	Age group	19.51	3.38	**0.01***
	Occupation	91.90	1.42	0.24

Note. The table reports ANOVA test; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

Table 4
Differences in symptoms of mental illness related to fear of COVID-19 based on age

Dependent Variable	(I) Age group	(J) Age group	Mean difference (I-J)	Std. error	*p*-value	95% Confidence interval	
						Lower bound	Upper bound
The overall mental problems related to the fear of COVID-19	18–25	26–39	-4.07	1.15	0.01**	-7.13	-1.02
		40–59	-2.19	1.35	0.63	-5.79	1.40
		60 and above	-6.88	2.13	**0.01****	-12.56	-1.21
	26–39	18–25	4.07	1.15	**0.01****	1.02	7.13
		40–59	1.87	1.31	0.92	-1.61	5.37
		60 and above	-2.81	2.10	1.00	-8.41	2.79
	40–59	18–25	2.19	1.35	0.63	-1.40	5.79
		26–39	-1.87	1.31	0.92	-5.37	1.61
		60 and above	-4.68	2.22	0.21	-10.60	1.23
	60 and above	18–25	6.88	2.13	**0.01****	1.21	12.56
		26–39	2.81	2.10	1.00	-2.79	8.41
		40–59	4.68	2.22	0.21	-1.23	10.60
Symptoms of depression	18–25	26–39	-1.17	0.45	0.06	-2.38	0.03
		40–59	-0.67	0.53	1.00	-2.09	0.74
		60 and above	-2.50	0.84	**0.02***	-4.74	-0.26
	26–39	18–25	1.17	0.45	0.06	-0.03	2.38
		40–59	0.49	0.51	1.00	-0.88	1.87
		60 and above	-1.32	0.83	0.67	-3.54	0.88
	40–59	18–25	0.67	0.53	1.00	-0.74	2.09
		26–39	-0.49	0.51	1.00	-1.87	0.88
		60 and above	-1.82	0.87	0.23	-4.16	0.51
	60 and above	18–25	2.50*	0.84	**0.02***	0.26	4.74
		26–39	1.32	0.83	0.67	-0.88	3.54
		40–59	1.82	0.87	0.23	-0.51	4.16

Table 4 *(Continue)*

Dependent Variable	(I) Age group	(J) Age group	Mean difference (I-J)	Std. error	*p*-value	95% Confidence interval	
						Lower bound	Upper bound
Symptoms of anxiety	18–25	26–39	-1.58	0.47	**0.01****	-2.86	-0.31
		40–59	-0.22	0.56	1.00	-1.72	1.27
		60 and above	-0.13	0.88	1.00	-2.49	2.23
	26–39	18–25	1.58	0.47	**0.01****	0.31	2.86
		40–59	1.35	0.54	0.08	-0.09	2.81
		60 and above	1.45	0.87	0.59	-0.88	3.79
	40–59	18–25	0.22	0.56	1.00	-1.27	1.72
		26–39	-1.35	0.54	0.08	-2.81	0.09
		60 and above	0.09	0.92	1.00	-2.37	2.56
	60 and above	18–25	0.13	0.88	1.00	-2.23	2.49
		26–39	-1.45	0.87	0.59	-3.79	0.88
		40–59	-0.09	0.92	1.00	-2.56	2.37
Symptoms of loneliness	18–25	26–39	-0.94	0.35	**0.04***	-1.87	-0.00
		40–59	-0.96	0.41	0.12	-2.06	0.13
		60 and above	-1.92	0.65	**0.02***	-3.66	-0.18
	26–39	18–25	0.94	0.35	**0.04***	0.00	1.87
		40–59	-0.02	0.40	1.00	-1.09	1.04
		60 and above	-0.42	0.64	1.00	-2.14	1.29
	40–59	18–25	0.96	0.41	0.12	-0.13	2.06
		26–39	0.02	0.40	1.00	-1.04	1.09
		60 and above	-0.39	0.68	1.00	-2.21	1.41
	60 and above	18–25	1.92	0.65	**0.02***	0.18	3.66
		26–39	0.42	0.64	1.00	-1.29	2.14
		40–59	0.39	0.68	1.00	-1.41	2.21

Note. The table reports the Bonferroni test of multiple comparisons. $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

Table 5
Differences in symptoms of depression related to fear of COVID-19 based on occupation

(I) occupation	(J) occupation	Mean difference (I-J)	Std. error	*p*-value	95% Confidence interval	
					Lower bound	Upper bound
Student	Employed	-0.66	0.42	0.36	-1.68	0.36
	Unemployed	-1.83	0.70	**0.03***	-3.53	-0.12
Employed	Student	0.66	0.42	0.36	-.036	1.68
	Unemployed	-1.16	0.74	0.35	-2.96	0.62
Unemployed	Student	1.83	0.70	**0.03***	0.12	3.53
	Employed	1.16	0.74	0.35	-0.62	2.96

Note. The table reports the Bonferroni test of multiple comparisons; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

Symptoms of Mental Illness Related to Fear of COVID-19 Based on Socialisation

The regression analysis showed a negative association between symptoms of mental illness related to fear of COVID-19 and respondents' socialisation status, including household size (β = -0.393, $p = 0.000$) and the frequency of going outdoors during MCO (β = -0.270, $p = 0.001$, see Table 6). This result indicates that household members and outdoor visits variables significantly predicted the overall psychosocial issues related to fear of COVID-19. Additionally, multiple regression analyses showed a negative association between the symptoms of depression related to fear of COVID-19 and respondents' socialisation status, including household size (β = -0.291, $p = 0.000$) and the frequency of going outdoors (β = -0.278, $p = 0.001$, Table 6). There was also a negative association between symptoms of anxiety related to fear of COVID-19 and respondents' household size (β = -0.243, $p = 0.003$) and the frequency of going outdoors (β = -0.225, $p = 0.004$). Besides, loneliness related to fear of COVID-19 in respondents was negatively associated with household size (β = -0.372, $p = 0.001$) and the frequency of going outdoors (β = -0.239, $p = 0.003$). These results mean that respondents with lower socialisation opportunities were significantly experiencing symptoms of depression, anxiety, and loneliness related to fear of COVID-19.

DISCUSSION

This study contributes to the body of knowledge on the immediate impact of social isolation during the COVID-19 pandemic on the quarantined individuals' mental health symptoms. As the coronavirus (COVID-19) vaccine rollout began in 2022, social distancing measures and quarantines were reduced worldwide. However, the

Table 6
Symptoms of mental illness related to fear of COVID-19 based on socialisation

Variable		B	Std. error	β	t	*p*-value
The overall mental problems related to the fear of COVID-19	(Constant)	38.39	1.85		20.74	0.00
	Household size	-3.94	0.68	-0.39	-5.77	**0.00*****
	Frequency of going outdoors	-3.03	0.63	-0.27	-4.82	**0.01****
Symptoms of depression	(Constant)	14.02	0.73		18.98	0.00
	Household size	-1.37	0.27	-0.29	-5.03	**0.00*****
	Frequency of going outdoors	-1.19	0.25	-0.27	-4.96	**0.01****
Symptoms of anxiety	(Constant)	13.6	0.81		16.86	0.000
	Household size	-1.213	0.30	-0.24	-4.04	**0.01****
	Frequency of going outdoors	-1.03	0.27	-0.22	-3.75	**0.01****
Symptoms of loneliness	(Constant)	10.68	0.55		19.20	0.000
	Household size	-1.35	0.20	-0.37	-6.60	**0.01****
	Frequency of going outdoors	-0.80	0.18	-0.23	-4.23	**0.01****

Note. The table reports regression analysis; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

pandemic is not over yet, and subsequent waves of COVID-19 cause excessive panic and streams of quarantine (Wu et al., 2020; Zhang & Ma, 2020). Notably, the short and medium-term impacts of COVID-19 will be severe on individuals worldwide, causing human suffering and challenging societal well-being. Beyond the immediate impacts on the health and economy, the pandemic is increasing individuals' concerns, affecting their social relations, personal security and sense of society (Organisation for Economic Co-operation and Development [OECD], 2020; Zhang & Ma, 2020). Based on a longitudinal qualitative study by Perez-Brumer et al. (2022), COVID-19 led to significant shifts in physical socialisation and social support, such as using social networks rather than physical interaction. However, physical socialisation and material support are critical in promoting psychosocial health (Perez-Brumer et al., 2022).

Most importantly, the subsequent social distancing taken to limit COVID-19 infection led to immediate effects on health, mental health, income loss, and social isolation (OECD, 2020). Therefore, the current study examines the impact of social

distancing during the COVID-19 pandemic on symptoms associated with mental health among the Selangor community in Malaysia. Consistent with that objective, this study found that symptoms of mental illness related to fear of COVID-19 (including depression, anxiety, and loneliness) are adversely associated with the likelihood of social interaction. More specifically, people who suffered a higher social isolation level during the COVID-19 pandemic showed a higher level of different symptoms of psychosocial problems. These results contribute to the findings reported by OECD (2020) highlighted that temporary measures taken to limit COVID-19 cases through social distancing could have unintended consequences, such as social isolation and income loss, in addition to their immediate effects on health. Another qualitative study by De Vos (2020) stated that social distancing and lack of socialisation imposed by COVID-19 might negatively affect subjective well-being and health status. Another qualitative study by Hsieh et al. (2020) also confirmed that biological disaster like COVID-19 impacts the mental health of those infected and their family and affect the public's well-being.

The overall score of symptoms of mental health related to the fear of COVID-19 in respondents of the current study indicated moderate symptoms of psychosocial problems, reflecting a possible chance of experiencing mental health problems. Almost half of the respondents have experienced depression, anxiety, and loneliness symptoms related to fear of the COVID-19 pandemic. However, the respondents had no diagnosis of mental health problems before the pandemic. This finding contributes to the results of an online survey from Singapore conducted among hidden-frontline healthcare workers found that there is an increased experience of fear, anxiety and depression among healthcare workers worldwide (Teo et al., 2020). Similarly, Perez-Brumer et al. (2022) confirmed that the familiar feeling described during isolation by the whole sample was loneliness. Another study by Keller et al. (2023) stressed the relationship between COVID-19 and mental health by considering anxiety and loneliness as sustaining factors of depressive symptoms related to COVID-19. The evidence also asserted that people are showing more negative emotions (anxiety, depression, and indignation), excessive panic, and less positive emotions (like happiness) after the declaration of COVID-19 (Li et al., 2020; Müller et al., 2021; Zhang & Ma, 2020). However, a survey study by Zhang and Ma (2020) revealed that the COVID-19 pandemic was associated with mild stressful impact in a sample from mainland China. One possible explanation for these different results is that the COVID-19 virus outbreak was not severe during the previous study in China. Although social distancing during the COVID-19 pandemic led to possible psychological problems, the most appropriate control measure to fight against COVID-19 has mainly proven successful in controlling the COVID-19 pandemic, especially in Malaysia (Shah et al., 2020).

Furthermore, the age variable was significantly associated with higher symptomatology of mental problems related to fear of COVID-19. Home-quarantined individuals aged 60 years and over showed higher symptoms of psychosocial issues related to fear of COVID-19 than individuals aged 16–25. The occupation variable was also significantly associated with symptoms of depression related to fear of COVID-19. Home-quarantined unemployed individuals showed higher symptoms of depression related to fear of COVID-19 than home-quarantined students. These findings align with the existing evidence showing that the perception of the current social isolation varies by demographic characteristics like education, age, and gender (Bezerra et al., 2020). However, the present study results showed that the gender variable was not significantly associated with symptoms of mental health problems related to fear of COVID-19 among quarantined individuals living in Selangor, Malaysia. The possible reason for these different results is that the Malaysian community's socio-cultural experience differed from those experienced in Western societies.

Overall, the present study contributes to the corpus of knowledge by revealing the relationship between social isolation during the COVID-19 pandemic and quarantined individuals' mental health symptoms during the spread of COVID-19. It discloses how social isolation negatively affects mental health due to the increase in symptoms of depression, anxiety, and loneliness, affecting individuals' well-being, especially in Malaysia. Perhaps public health officials agree that the end of the pandemic is on the horizon. However, the negative impact of the pandemic is causing many social and economic issues to persist in the future. Therefore, the current and proposed guidelines must consider the at-risk community's social condition and mental needs. The current study extended the existing knowledge of the mental health-related issues of home-quarantined individuals during the COVID-19 pandemic. A significant practical implication of this study is the importance of observance of socialisation factors in managing mental and psychosocial problems in mental health assessments, protocols, and clinical interventions. The current study contributes to a deep understanding of the role of social status in individuals' mental health behaviours. The findings of this study contribute to new knowledge in the literature on the mental and psychosocial impact imposed by social distancing during the COVID-19 pandemic. Sparse studies examine the role of socialisation in psychosocial problems during biological disasters. Therefore, the present study results would provide a reference for any intervention program for mental health problems during biological disasters, particularly in Southeast Asia. It enriches the insights available to understand better the individuals' mental health related to social behaviours. It also may provide references for policymakers to plan measures considering people's psychological status in fighting COVID-19.

CONCLUSION

In summary, the results of the current study found a positive and significant relationship between the symptoms associated with mental health problems related to fear of COVID-19 in home-quarantined persons and the lack of socialisation opportunities. In more detail, the symptoms of depression, anxiety, and loneliness related to fear of COVID-19 are adversely associated with the likelihood of social interaction. Socially isolated individuals during the COVID-19 pandemic showed a higher level of different symptoms of psychosocial problems. The results are consistent with previous studies where there is a significant relationship between psychosocial problems and social support. Furthermore, it found that age (being older) and occupation (unemployed) variables were significantly associated with higher symptomatology of mental problems related to fear of COVID-19. Therefore, public efforts are needed to provide opportunities for sound social interaction to improve mental health. There is a need to necessitate innovative multimodal strategies for healthy socialisation and community involvement that learn from lived experiences across various pandemic stages. Besides, measures and guidelines must consider the mental needs of the at-risk community as the pandemic continues.

Limitations of the Study

Thy study's limitation included a convenience sampling approach of a sample of individuals living in Selangor State, and the respondents do not adequately represent the whole community of Malaysia. Besides, the current analysis is based on a movement control period in response to the COVID-19 pandemic, which has specific influences on the trend of social mentality. Hence generalizability of the results is limited. Hsieh et al. (2020) confirmed that when people feel more vulnerable to disease transmission, they exaggerate attitudes and prejudices. Additionally, more sociodemographic characteristics can be studied (e.g., income, education level, and accommodation). Bezerra et al. (2020) revealed that various sociodemographic characteristics like income and education are critical variables associated with social isolation during pandemic mitigation.

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