ORIGINAL ARTICLE

PSYCHOLOGICAL DISTRESS, COVID-19 FEAR, QUALITY OF LIFE, AND COPING STRATEGIES AMONG GENERAL POPULATION DURING THE POST-LOCKDOWN PERIOD OF THE COVID-19 PANDEMIC IN MALAYSIA

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ABSTRACT

This study examined the prevalence and predictors of psychological distress among the general population of Malaysia after nationwide lockdown restrictions were lifted, querying if psychosocial factors including quality of life, COVID-19 fears, and coping strategies affected levels of psychological distress beyond sociodemographic predictors. A total of 4,904 (male = 798, female = 4106) Malaysian adults participated in an online survey conducted August-December 2021, just after the gradual release of lockdown restrictions. Psychological distress was assessed using the General Health Questionnaire-12; quality of life was measured by the WHOQOL-BREF. The Fear of COVID-19 scale and Brief COPE tool measured the level of COVID-19 fear and coping mechanisms, respectively. The prevalence of psychological distress among respondents was 37.6%, 95% confident interval (36%—39%). Results suggested demographic indicators of higher psychological distress, specifically younger adults, childless adults, and adults with lower income. Prior medical diagnoses and COVID-19-related stressful events increased psychological distress. Results demonstrated an association between lower quality of life across all domains and higher psychological distress. Fear of COVID-19 and avoidant coping amplified distress while problem-focused and emotional coping mechanisms played protective roles. Pronounced and prolonged mental health deterioration was observed after the nationwide lockdown was relaxed; cost-effective interventions are needed to prevent new mental health issues and promote well-being and resilience.

Keywords: *post COVID-19; mental health; fear of COVID- 19; quality of life; coping; general population*

INTRODUCTION

The COVID-19 pandemic is the most serious health crisis of the 21st century[1]. The unleashing of uncontrollable and multidimensional stressors, including health-related anxiety, bereavement, financial loss, and loneliness evokes the symptoms psychological distress[2]. An increased prevalence of short-term mental health issues throughout the progression of the virus outbreaks is already evident[3-4]. Although the world is transitioning to a period of pandemic recovery, the potentially adverse psychological long-term consequences of the pandemic remain unknown. This study seeks to bring addition insight to this topic by investigating the prevalence of psychological distress, defined as a state of emotional disturbance that may impact the social functioning and individual's daily life[5]. It also aims to identify possible vulnerability or protective factors of quality of life (QoL), fear of COVID-19, and coping associated with distress symptoms among Malaysian general population after the COVID-19 lockdown.

Studies have demonstrated that the QoL has been curtailed during the pandemic[6-7]. Quality of life (QoL) refers to an index of subjective well-being and to living a fulfilling life[8]. While QoL is a highly attributed available resource that can be a protective factor for mental health[9]; poor mental health can adversely affect QoL[10-11]. Lockdown measures have directly and indirectly generated various stressors related to health issues and social isolation such as job loss, lifestyle changes that unexpectedly disrupted numerous social, financial activities and daily lives, relevant to deterioration of Qol. To date, there have been few pandemic or post-pandemic studies focused on mental health that results from poor QoL, creating a gap in the literature. Examining this connection between QoL and psychological distress is particularly pressing, as COVID-19 outbreaks negatively affect physical, social, and economic status. If the assumption that QoL deteriorates during a pandemic is a reliable finding, it would be informative to examine if QoL also predicts mental health among the general population.

Fear has been one of the most frequent psychological reactions to the pandemic[12]. It refers to an unpleasant emotional state that is triggered by threating stimuli (i.e. disease and

its consequences)[13]. While fear is an adaptive emotion that mobilizes energy to deal with potential threats, it can be maladaptive when it is not well-calibrated to the actual threat[14]. Studies have demonstrated that individuals may develop pervasive fears about aspects of the coronavirus[15] and may even be triggered to consider suicidal behavior[16]. COVID-19 associated fear can also lead to feeling of insecurity and impairment of daily functioning, and research suggested that fear predicted both physical and mental aspects of QoL[17]. In addition, fear as a negative emotion may also be the source of psychological stressor[18] that have further detrimental consequences on mental health, including psychological distress. Early evidence from a meta-analysis[19] demonstrated that fear of COVID-19 was associated with a wide range of mental health problems among the general population. As the pandemic progresses through different phases, more evidence is needed to understand the effects of COVID-19 fear on psychological distress.

According to stress and coping perspective[20], the ability to cope is critical in adjusting to stressful and aversive conditions during the pandemic. Coping is broadly defined as the constantly changing cognitive and behavioral efforts made by individuals to manage stress[20]. It serves many functions, including reduction of tension, restoration of equilibrium, management or alteration of the sources of stress, and regulation of emotions[21]. Some scholars[21-22] have classified types of coping, including problem-focused coping, which refers to strategies aimed at solving and actively responding to stressful situations, and emotion-focused coping, which alludes to strategies that manage or reduce feelings related to stressful situations. Both classifications of coping are assumed to be adaptive styles[23]. Avoidant coping implies strategies to avoid stressful situations; it is considered a maladaptive style of coping[23]. There is significant debate about whether certain coping strategies are more beneficial than others[24]. Early work during the pandemic[25] found that problem-focused and avoidant coping was associated with more mental health symptoms, while emotion-focused coping was associated with fewer mental health symptoms. Another body of evidence[23] suggested that emotional coping was associated with better outcomes, while problem-focused coping was weakly associated with decreased psychological health. Given the mixed findings, more evidence is needed to understand the role of coping and to help promote appropriate coping strategies that better serve the general public and, ultimately, minimize outbreak-related distress.

There have been reports[26-27] of increased mental health symptoms among Malaysian general population during the early months of lockdown order. Wong et al. (2021)[26] for example, reported increased depression, anxiety, and stress symptoms, with depression rates showing the greatest increase among 1,163 adults, a few months after the lockdown order. While these results are suggestive of declines in mental health among the population during the nationwide lockdown in Malaysia, what is known has been limited to demographic characteristics[26-27]. Nonetheless, it is clearly impossible to manipulate such demographic factors via public mental health intervention. The number of studies exploring potential correlates of psychological distress of the general population is still sparse. Therefore, this study tested the probable link between QoL, fear of COVID-19 and coping mechanisms and psychological distress in a Malaysian adult general population. Data were collected in August-December 2021, when stay-at-home orders and restrictions on businesses were being lifted gradually. This context provided a unique vantage point for assessing post-lockdown psychological distress and its predictors. This study could contribute to formulating policies, tailoring public mental health interventions and enhance the understanding of future pandemic preparedness and response. In light of the previous literature, we expected that psychological distress would have positive relationships with COVID-19 fear and avoidant coping and have inverse relationships with QoL, problem-focused coping, and emotional coping, after controlling for covariates.

METHODS

This cross-sectional study included adults 18 years of age or older from the general Malaysian population. A nationwide online survey was conducted between August and December 2021, following the lifting of lockdown restrictions on August 31, 2021. The survey was created using Google Forms and sent to potential participants via social media and mailing lists using snowball sampling, drawn from all states across Malaysia. The sample size was calculated using the formula[28]

$$n = \frac{Z^2 P (1 - P)}{d^2}$$

n = sample size, Z = z statistic for a level of confidence, P = expected prevalence, d = precision

At a 95% confidence interval, the z statistic value was 1.96, and the expected prevalence (*P*) was determined to be 0.29 from a previous national mental health survey[29], with a precision (*d*) of 0.05. Based on the calculation, the sample size was 323. The study protocol was approved by the Malaysian Research Ethics Committee, registered with the National Malaysian Research Registry (21-1452-60229).

Assessment tools

Sociodemographic variables including age, gender, education level, marital status, socioeconomic status (SES), employment status, medical comorbidities, and COVID-19 contact history were collected. We defined SES based on income across three groups[30]: low, middle and high incomes (see Table 1). However, in the analyses, SES was used as a dichotomous variable (low income group ≤ MYR 4850) or higher income group (more than MYR 4850).

Psychological distress was assessed using the twelve-item General Health Questionnaire (GHQ-12)[31], measuring non-specific distress over the past two weeks. The questionnaire was validated in Malay in a previous study[32]. GHQ-12 items are scored on a 4-point scale that ranges from (0) *less than usual* to (3) *much more than usual*, with higher score indicating higher distress. GHQ-12 scores equal to 3 or more demonstrate psychological distress[31]. The Cronbach's alpha for this scale was 0.90.

QoL was measured using the WHOQOL-BREF[33], adapted in Malay[34]. The tool is a 26-item scale that measures 4 domains: physical health, psychological health, social relationships, and environment. Items are rated on a 5-point Likert-type scale with higher scores indicating higher QoL. Items within each domain are averaged and the mean score is multiplied by 4; domain scores have a maximum score of 20. A total score is obtained by summing all scores. The overall Cronbach's alpha of the WHOQOL-BREF was 0.95. Fear of COVID-19 was assessed using a seven-item scale[35]. The Malay version of this scale has been validated and shown to have properties equivalent to the original[36]. Responses are on a 5-point scale, from (1) *strongly disagree* to (5) *strongly agree*. A total score is calculated by adding each item score, with higher scores representing greater fear of COVID-19. The Cronbach's alpha for this scale was 0.88.

To assess coping mechanisms, the study used the Brief COPE scale, a 28-item measure of strategies used by individuals to cope with problems and stress[37].This scale has been validated in Malay[38]. Each item is rated along a 4-point Likert scale, from (1) *I haven't been doing this at all* to (4) *I have been doing this a lot*. In line with previous research[17], the study employed a three-factor model for its analyses: problem-focused coping, emotional coping and avoidant coping. Brief COPE had a Cronbach's alpha of 0.88 overall, and 0.83-0.89 for the three subscales.

Statistical analysis

The data were analyzed using the SPSS software version 25.0. Descriptive analysis included the calculation of means and standard deviations. The preliminary links between dichotomous predictor variables and outcome variable were examined using point-biserial correlation while Pearson correlation was used to examine the relationship between continuous predictor variable and the outcome variable. A multiple hierarchical regression analysis was conducted in which the outcome variable, psychological distress, was regressed onto different groups of predictors.

RESULTS

The sociodemographic characteristics of the study population are presented in Table 1. A total of 4,904 respondents participated in the survey, corresponding to an overall response rate of 70%. The majority were women (83.7%). The surveyed individuals had a mean age of 32 years, ranging from 18 to 76 years. With regard to monthly income, 67.0% of the respondents was categorized as lower income group.

Table 1a: Sample characteristics (N = 4,904)

Characteristic	N = 4904	%
Gender		
Male	798	16.3
Female	4106	83.7
Marital Status		
Never married	2022	41.2
Married	2660	54.2
Widow/Widower/Separated/Divorced	222	4.5
Number of Children		
0	2398	48.9
1	594	12.1
2	735	15.0
3 or more	1177	24.0

Table 1b: Sample characteristics (N = 4,904)

Education Level		
Less than university	2940	60.0
University degree	1964	40.0
Status of Employment		
Unemployed/students	1560	31.8
Employed	3344	68.2
Socio-economic status[a]		
Low income group	3285	67.0
Middle income group	1332	27.2
High income group	287	5.9
Medical Comorbid		
Yes	1126	23.0
No	3778	77.0
History of being infected		
Yes	486	9.9
No	4418	90.1
History of family being infected		
Yes	1416	28.9
No	3488	71.1
History of an acquaintance being infected		
Yes	2491	50.8
No	2413	49.2
History of family death due to COVID-19	450	9.2
Yes	4454	90.8
No		
History of acquaintance death due COVID-19		
Yes	758	15.5
No	4146	84.5

Note. a The income group definitions were based on the Department of Statistics Malaysia (2019)30. While sample was drawn from each state in Malaysia, the study was not designed to assess state differences.

Table 2 presents the mean and standard deviations of the GHQ12, WHOQOL-BREF, Fear of COVID-19 Scale, and BRIEF COPE tool scores across all domains. Based on a cut-off score ≥ 3, the prevalence of psychological stress among respondents was 37.6% [Confident Interval, CI] 95% (.36 —.39).

Table 2. Mean and Standard Deviation (N = 4,904)

	N	%	Mean	SD
GHQ ≥ 3	1845	37.6		
GHQ < 2	3056	62.4		
Mental health			28.25	7.50
Fear of COVID			21.29	5.32
QoL sub scores				
Physical health QoL			46.42	12.28
Psychological QoL			51.53	13.62
Social QoL			56.15	22.05
Environment QoL			55.33	15.57
Total QoL				
Brief COPE sub scores				
Problem focused coping			15.96	4.12
Emotional coping			26.20	5.46
Avoidant coping			24.18	6.69

Table 3 shows the correlation matrix between demographic variables and psychological distress. Results of point-biserial correlations showed that except for education all demographic variables, medical comorbidities and Covid-19 related experience variables were statistically significant. As displayed in Table 4,

problem-focused, emotional coping, and each domain of QoL were inversely correlated with psychological distress, while fear of COVID 19 and avoidant coping were positively correlated with psychological distress.

Table 5 presents results from hierarchical multiple regression models predicting psychological distress adjusted by selected control variables. Demographic variables were entered as a first step and accounted for adjusted R^2 = 11.1% of psychological distress (F = 86.78, df = 7, 4876, p = 0.001). Age, employment status, socioeconomic status, and parenting status were significant. Psychological distress was higher among younger people (β= -.17, 95% CI [-.02, -.01]), among participants from lower family income groups (β= .06, 95% CI [.06, .19]), among unemployed participants (β= -.11, 95% CI [-.31, -.19], and among participants without children (β= -.06, 95% CI [-.22, -.04]) than their counterparts.

In step 2, medical comorbidities and COVID-19-related experience variables were analyzed; they accounted for an additional 4.9% of the variance (F = 47.67, df = 6,4870, p = 0.001). All predictors were significant except for a history of acquaintances being COVID-19-infected. Higher levels of psychological distress were reported for participants with medical comorbidities (β= .20, 95% CI [.41, .54]), among people with histories of being infected by COVID-19 (β= .02, 95% CI [.00, .18]), and histories of family infected by COVID-19 (β= .03, 95% CI [.01, .13]) than their counterparts. Participants who experienced the death of family (β= .04, 95% CI [.05, .24]) or acquaintances (β= .05, 95% CI [.06, .22]) due to COVID-19 had higher psychological distress compared to those without that history.

QoL domains, fear of COVID-19, and coping strategies were included in final step, controlling for other variables. This addition contributed a strong and significant 47.3% explanation of the variance of psychological distress (F = 784.41, df = 8, 4862, p = 0.001). Higher distress was predicted by higher fear of COVID-19 and higher use of avoidant coping. However, higher QoL for each domain and higher reported use of problem-focused and emotional coping strategies predicted lower distress symptoms. Taken together, all hypotheses were confirmed. Age, income, employment status, parenting status, medical comorbidities, history of being infected, and death among family and acquaintance remained significant at all steps.

DISCUSSION

The study results suggested that mental health issues persisted when COVID-19 lockdown restrictions were lifted, as evidenced by the 37.6% prevalence of psychological distress reported by our sample. This finding supports the projection of an expected rise of mental health problems during the post-pandemic period, problems resulting from the long-term effects of the pandemic[39]. As no large local epidemiological study has been conducted using a similar assessment method, no comparison of conditions prior to the pandemic and during the lockdown period can be proposed. Our findings indicate that the prevalence of psychological distress was higher compared to a post-lockdown study[40] among the general population in Italy. That study reported the prevalence of mental health problems to be 15%, using the GHQ cut-off point of ≥4. Despite differences in assessment and methodology, other studies in wealthier countries[41-42] have provided early evidence of improved mental health status associated with lifting lockdown orders. While the explanation for these findings is unclear, one possibility is that, compared with high-income countries, many developing countries, including Malaysia, experienced a more severe impact of the economic consequences of the pandemic[43-44] and generally had fewer services to combat mental health problems during the pandemic's early stages[45].

The emergence of new stressors such as unemployment and employment uncertainty, poverty, and social disruption caused by economic lockdowns, along with other problems related to adjusting to the post-pandemic period, are more likely to impact long-term psychological state. Nevertheless, there is latest evidence to indicate noticeable improvements in mental health levels in a study comparing the during and after COVID-19 lockdown timelines reported in Malaysian student population[46]. Hence, the long-term course of the psychological distress among general population warrants further investigation.

Our findings corroborated results from multiple studies[3, 47-48] that reported that younger age was associated with higher psychological problems during the pandemic. It has been suggested that younger people may be vulnerable to negative mental health impacts due to higher exposure to different stressors related to pandemic life, more reactivity to the stressors, less effective coping, and low adaptability compared to older people[49]. Further, the significant effect of socioeconomic disparities and unemployment on distress are noteworthy. Similar to converging evidence[26,27,43], the current study indicated that lower income remained significantly predictive of higher levels of psychological distress. This is not surprising, as the relationship between low economic status and elevated incidence and prevalence of mental health problem has been well documented since before the pandemic[50]. While there are complex relationships among various stressors and increased mental health issues among lower-income groups, a study[51] found that financial stress, which has become

increasingly apparent during the pandemic, was associated with higher odds of depression. This study found that people without children had greater psychological vulnerability, a result that coincided with a study that identified an association between having no children and a higher level of depression[52]. This study also confirmed evidence of vulnerabilities among individuals with existing medical conditions[3,53] and among those with a history of family/acquaintance COVID-19 infection and death[54].

It worth noting, that while recent longitudinal evidence[55] reported an overall decrease of mental health problems in the general population after the pandemic, however, persistence of psychological distress overtime has been observed among a significant proportion of the sample, particularly among vulnerable groups. Findings from this study, in line with other studies, have highlighted the urgent need to ensure that those most at risk receive support and to provide appropriate psychological intervention toward mitigating debilitating mental health symptoms.

To our knowledge, there is no available literature reporting Malaysian population norms as tested by the WHOQOL-BREF before the pandemic. However, the current study results demonstrated that the mean of the dimensions scores of the WHOQOL-BREF were significantly lower compared to those obtained by another post-lockdown Malaysian studies[56-57]. This study's results may suggest the immensity of the epidemiological picture as well as the need for comprehensive crisis intervention to prevent further impairment of QoL among the general population. Echoing a previous work[8], our study found that physical health was evaluated lowest compared to other WHOQOL-BREF domains, indicating that daily activities and quality of sleep and rest were disturbed by quarantine or associated lifestyles changes. This finding seems to confirm a local study[58] that found sleep quality has dropped significantly during the lockdown as compared to the pre-lockdown among the Malaysian population. Findings also suggested the strong association between decreased QoL and susceptibility to symptoms of distress, confirming previous Malaysian studies published at the beginning of the pandemic [27,56]. Therefore, the present study has supported the assumption about the inverse association between QoL and poor mental health. Mounting evidence has indicated that people with mental health problems reported lower QoL in most non-pandemic studies[10-11]. However, given the cross-sectional nature of the current study, it was impossible to determine if psychological distress was a consequence of lower QoL as evidenced in this study, or vice versa. A future randomized longitudinal study could better determine correlation and causation.

While a trend showing significantly decreased fear post-lockdown has been reported[59], interestingly, the analyses of this study revealed that reported fear was higher than fear reported in a previous meta-analysis[60]. That meta-analysis, covering 44 studies during the early stages of the pandemic, reported a pooled mean of 18.57, compared to the 21.29 value in the current study. This study's report of fear level was higher in comparison with Malaysian data during the lockdown period[61]. This difference may be explained by continuing fear and concern about safety felt by most people contemplating leaving their homes; they may have feared catching and transmitting the virus or worried about another virus surge in the current wave due to reopening. Past research[62] suggested that many individuals expressed negative attitudes toward easing the lockdown in part due to their experiences with the disease, perceived risk of the virus, ongoing virus threats, and reluctance to follow standard procedures and transmission-reduction strategies.

As expected and in line with previous study[19], this study's findings indicated that higher fear of COVID-19 was strongly predictive of mental health. While several studies have pinpointed various psychological vulnerability factors that may play a role in the link between fear of COVID-19 and poor mental health, including inability to tolerate uncertainty, information-driven fears[63], more studies are needed to understand these mechanisms. Results from future studies may offer possibilities for preventive and therapeutic interventions. For example, as media exposure may heighten fear among the public, media communication should be clear and unambiguous to reduce uncertainty[14]. It has been proposed that fear can trigger safety behaviors in some people[35], suggesting that perceived threat may be a motivational factor that encourages prevention strategies and measures[63]. Discovering effective ways to reinforce preventive behaviors utilizing existing fear of COVID-19 is of utmost importance.

The study found that problem-based coping and emotional coping were beneficial and related to reduced mental health. These findings support the idea that both coping mechanisms can act as adaptive or functional strategies[23]. However, the findings were at odds with other studies that suggested that problem-focused coping[25] and emotional coping[23,64] were associated with higher levels of depressive symptoms at the start of lockdown. Conflicting results could be explained by the changing context of the pandemic.

Table 3. Correlations between demographic backgrounds, medical histories and psychological distress (N= 4904)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Distress	-													
2. Gender	.03*	-												
3. Age	-.29**	-.11**	-											
4. Employment	-.22**	-.07**	.37**	-										
5. Marital	-.22**	.03*	.55**	.24**	-									
6. Child	-.22**	.03*	.54**	.19**	.81**	-								
7. Education	.01	-.07**	-.02	.01	-.20**	-.18**	-							
8. Income	-.27**	-.05**	.42**	.46**	.35**	.30**	.15**	-						
9. Comorbid	.15**	-.05**	.17**	.02	.06**	.03**	-.05**	.00	-					
10.History of being infected	.05**	.04**	-.06**	.00	-.00	.00	-.06**	.06**	.00	-				
11.History of family being infected	.06**	.08**	.05**	.08	.05**	.03**	-.03*	.04**	.01	.14**	-			
12.History of acquaintance being infected	.06**	-.00	.09**	.22**	.09**	.08**	-.02	-.16**	.00	-.07**	.07**	-		
13.History of family death	.06**	.03**	-.00	-.00	.03*	.02*	-.03**	.03*	.03**	.06**	.22**	.10**	-	
14.History of acquaintance death	.03**	-.00	.07**	.04**	.06**	.04**	.00	-.04	.03*	-.00	.14**	.28**	.21**	-

*Note. *p < 05. **p<.001; Responses for age were reported as a continuous variable while other responses were grouped: gender was male (0) or female (1); education was lower (less than university) (0) or higher (university degree) (1); marital status was single/divorced/widowed (0) or married (1); children status was no children (0) or having ≥ 1 child(ren) (1); employment status was unemployed (0) or employed (1); socioeconomic status was low income (below MYR 4850) (0) or higher income (MYR 4850 and above (1). Medical comorbidities, histories of COVID 19 infection including that of family and acquaintance, and death of family or acquaintances were recorded as no (0) or yes (1).*

Table 4. Correlations between Fear of COVID-19, QoL, coping strategies and psychological distress (N= 4904)

	1	2	3	4	5	6	7	8	9
1. Psychological distress	-								
2. Fear of COVID-19	.24**	-							
3. Physical QoL	-.62**	-.15**	-						
4. Psychological QoL	-.67**	-.15**	.66**	-					
5. Social QoL	-.63**	-.17**	.58**	.65**	-				
6. Environment QoL	-.64**	-.25**	.67**	.62**	.67**	-			
7. Problem coping	-.14**	.09**	.19**	.26**	.20**	.21**	-		
8. Emotional coping	-.10**	.05**	.15**	.22**	.18**	.19**	.80**	-	
9. Avoidant coping	.53**	.25**	-.34**	-.38**	-.41**	-.39**	.31**	.35**	-

*Note. *p < 05. **p<.001; QoL refers to quality of life*

Table 5. The hierarchical regression analysis for variables predicting psychological distress (N= 4904)

	Step 1		Step 2		Step 3	
	Coefficient β	95% CI	Coefficient β	95% CI	Coefficient β	95% CI
Gender	.00	-.06—.08	.00	-.05—.08	.00	-.02—.06
Age	-.17***	-.02—-.01	-.22***	-.02—-.02	-.04***	-.00—-.00
Marital[a]	-.02	-.14—.04	-.04	-.17—.01	-.00	-.02—.10
Child[b]	-.06**	-.22—-.04	-.04	-.17—.00	-.04	-.14—-.02
Education[c]	.05	-.03—.08	.11	-.00—.10	.05	.08—.15
Income[d]	.06***	.06—.19	.05***	.04—.17	-.02**	-.10—-.01
Employment	-.11***	-.3—-.19	-.10***	-.28—-.16	-.04**	-.12—-.04
Medical Comorbid			.20***	.41—.54	.08***	.16—.24
History of being infected			.02*	.00—.18	.02*	.00—.12
History of family being infected			.03*	.01—.13	.00	-.02—.05
History of acquaintance being infected			.02	-.11—.00	.01	-.00—.06
Family death			.04**	.05—.24	.01*	.00—.12
Acquaintance death			.05***	.06—.22	.01*	.00—.10
Fear of COVID-19					.06***	.04—.08
Physical QoL					-.18***	-.21—-.16
Psychological QoL					-.21***	-.24—-.19
Social QoL					-.13***	-.15—-.10
Environment QoL					-.09***	-.12—-.06
Problem Coping					-.06***	-.09—-.03
Emotional Coping					-.04**	-.07—-.01
Avoidant Coping					.29***	.27—.32
ΔR^2		.11***		.04***		.47***
R^2		.11***		.16***		.63***

Note. * p < 05. **p < .01. ***p < .001. 95% CI = 95% confidence intervals. QoL refers to quality of life. Responses for age were reported as a continuous variable while other responses were grouped: gender was male (0) or female (1); education was lower (less than university) (0) or higher (university degree) (1); marital status was single/divorced/widowed (0) or married (1); children status was no children (0) or having ≥ 1 child(ren) (1); employment status was unemployed (0) or employed (1); socioeconomic status was low income (below MYR 4850) (0) or higher income (MYR 4850 and above (1). Medical comorbidities, histories of COVID 19 infection including that of family and acquaintance, and death of family or acquaintances were recorded as no (0) or yes (1).

It is possible that these two types of coping strategies may not be useful during unfathomable pandemic, when there is uncertainty and lack of control, but may be beneficial and provide long-term adjustment in situations that are perceived as controllable after the lockdown.

In this study, avoidant coping emerged as the strongest predictor of higher levels of distress symptoms. This is in line with studies that found that avoidant coping precedes the development of psychological symptoms in the context of a crisis or a disaster[65-66]. The current research mirrors previous local studies that demonstrated that avoidant coping strategies were associated with increased depression during the early lockdown period[27], which may suggest the enduring association between this type of coping and mental health symptoms even after the current crisis abates. Relatedly, researchers have also found elevated levels of substance use[67], internet use, online gaming[68], and problematic eating behavior[69] as maladaptive coping strategies to relieve unsettling, anxiety-provoking feelings related to the pandemic. These findings may indicate that specific adversities are related to the maladaptive nature of avoidant coping and can be understood as important risk factors during a health crisis. The obvious public health implication of the study findings is that focus should be on interventions such as stress management apps, cognitive behavior therapies, and online social support[24] to help people improve their coping behaviors during the COVID-19 pandemic. There is evidence[70] to indicate that coping responses in the pandemic context to be relatively stable over time, implying that it would be difficult to change maladaptive coping to more adaptive coping. However, it remains critical to create an entrance point from which to target intervention. Additional research and effort are needed to examine the stability of coping strategies and the efficiency of coping interventions in alleviating psychological distress and to build knowledge of the benefits of these interventions in the pandemic context.

Limitations

While this study's strength was the inclusion of a broad number of people exposed to the COVID-19 pandemic from states throughout Malaysia, the study was not random and may not be representative of the Malaysian population. Although no gender differences were expected, results may be biased, as the majority of respondents were women. Of note, the sample included a high percentage of low-income group, probably due to the fact that 20% of household from middle income group have moved to the low-income group while 12.8 % of high-income group has shifted to middle income group due to loss or reduction of income during the pandemic[71]. The study employed a cross-sectional design; it was not possible to determine if psychological distress was maintained over time or if it improved or worsened over time. Future research is needed to examine the long-term mental health impact of the pandemic. The study's questionnaire was an online survey, a format that raises issues related to sampling frames, response rates, participant deception, and access to populations.

CONCLUSIONS

The present study utilized one of the largest population-based surveys conducted after the lockdown in Malaysia. Pronounced and prolonged mental health deterioration was observed after the nationwide lockdown was relaxed. Given the findings, and consistent with the suggestions of Rossi et al. (2020)[72], there may be significant advantages to epidemiological monitoring and targeted intervention, as large-scale stress events can have enduring effects on mental health. A key finding of the present study was that psychological related factors contributed the highest variance in explaining distress, suggesting the need for cost-effective interventions that prevent mental health issues from arising and that promote overall well-being and resilience.

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Conflict of interest

The authors declare that they have no known competing financial or personal interests that could have appeared to influence the work reported in this paper.

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