

# Demographic, Mental Health, Medical, and Social Characteristics of COVID-19 Patients who Underwent Home Isolation Treatment at the King Chulalongkorn Memorial Hospital, Thailand

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**Background:** The SARS-CoV-2 virus began spreading worldwide in 2019. This new pandemic was a challenge to public health measures worldwide. Coronavirus disease affects physical health, mental well-being, and way of life. The disease itself, the isolation measures, and the economic impact interplayed in worsening the situation. Psychosocial and mental health factors should not be overlooked to improve care for patients.

**Objective:** To explore the demographic, clinical, and social characteristics of COVID-19 patients who underwent home isolation treatment. The authors also investigated the prevalence of mental health problems, which are depression, anxiety, problematic alcohol use, nicotine use, and other substance use.

**Materials and Methods:** The present study is a cross-sectional descriptive study that includes 150 patients with COVID-19 infection treated at King Chulalongkorn Memorial Hospital (KCMH). One hundred and twenty-two of them received home-isolation treatment, and 38 were admitted to the field hospital, where they were later isolated at home. Demographic data, psychosocial factors, substance use habits, clinical characteristics, and adherence to the isolation policy were collected. The authors conducted screenings for mental health problems at that time through psychiatric interviews carried out by either psychiatrists or psychiatric residents.

**Results:** The prevalence of mental health problem among home-isolated patients for COVID-19 infection was 20%. The prevalence of anxiety and depression were 4% and 2.7%, respectively. In terms of substance use, 12% of the participants were active smokers, and 5.3% had problematic alcohol use. The participants who underwent home isolation procedures were more likely to have limited space for isolation at home. However, they had adequate and appropriate individual knowledge and basic social support during the quarantine.

**Conclusion:** Mental health problems should be addressed during COVID-19 pandemic, in which substance use was the most prominent problem. Most residences in Bangkok had limited separate spaces for home isolation. However, the social support was adequate in facilitating their daily routine at home during home isolation.

**Keywords:** COVID-19; Home isolation; Quarantine; Mental health; Social support

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Since 2019, COVID-19 pandemic has a profound impact worldwide, including Thailand. As of January 2022, the number of confirmed cases reached 2,261,039<sup>(1)</sup>. This pandemic has exerted far-reaching effects on various aspects of

human life, encompassing physical health, mental well-being, and our society. It has directly and indirectly compromised people health and brought about unprecedented changes in the way of life<sup>(2,3)</sup>. Managing COVID-19 infections has required novel strategies that public health organizations worldwide have never before encountered, placing a substantial strain on resources<sup>(4)</sup>.

The impacts of this pandemic have not been confined solely to those infected but also extended to non-infected individuals, especially healthcare personnel. The pandemic's enduring presence suggests that it may become an enduring part of people new normal<sup>(5)</sup>. Therefore, the collection and examination of data pertaining to this novel pandemic is crucial. Such efforts are essential for gaining

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insights and enhancing the ability to provide care to patients and the public alike.

The COVID-19 pandemic had a profound impact on mental health, potentially triggering the onset of new mental health issues and exacerbating existing conditions. Several factors contributed to this, including the overwhelming amount of pandemic-related information, social isolation, limited access to healthcare services, and economic recession, all of these were widely recognized as risk factors<sup>(6-8)</sup>. Moreover, mental health problems such as depression, anxiety, and substance abuse reciprocally worsened the pandemic crisis<sup>(3)</sup>. The success of home isolation programs relied heavily on public understanding and compliance with policies. COVID-19 patients with comorbid mental health issues faced a heightened risk of violating isolation measures, thereby potentially spreading the virus within their communities<sup>(9-11)</sup>. Thus, the significance of addressing mental health issues during the pandemic cannot be overstated.

Globally, the prevalence of mental health problems, with anxiety being the most prevalent, has surged since the wake of the pandemic<sup>(12,13)</sup>. The COVID-19 pandemic, along with government and societal responses, may be contributing factors to this upward trend<sup>(14)</sup>. Social isolation, both from family and peers, played a substantial role in deteriorating mental well-being<sup>(15)</sup>. Concurrently, problematic alcohol and other substance abuse, including nicotine and cannabis, have increased during these challenging times<sup>(16,17)</sup>. Focusing solely on physical health may have adverse effects on the care of COVID-19 patients and society at large, as the pandemic impacted every dimension of people's lives. Addressing this multi-dimensional crisis would save efforts and resources for healthcare professionals and public health organizations.

Mental health problems, encompassing depression, anxiety, and substance use issues among COVID-19 patients, might further complicate patient care, particularly in terms of selecting appropriate treatment settings. Effective resource management was crucial for the care of non-COVID-19 patients and to prevent burnout among healthcare personnel during the pandemic<sup>(4)</sup>. The authors proposed that psychosocial factors could play a role in mitigating this crisis while efficiently managing limited resources.

Currently, there is a lack of studies examining the magnitude of mental health problems as well as the demographic, medical, and social characteristics among COVID-19 patients in the home isolation program in Bangkok, particularly at

King Chulalongkorn Memorial Hospital (KCMH). The objective of the present study was to investigate the prevalence of depression, anxiety, problematic alcohol use, nicotine, and other substance use, medical symptoms, chest X-ray findings, and important social characteristics among COVID-19 patients at the KCMH home isolation program. Based on the present study findings, this information would prove invaluable in refining policies and facilitating effective management for both current COVID-19 patients and for addressing future pandemics.

## Materials and Methods

### Research design

The present study was a cross-sectional descriptive study with the objective of assessing the prevalence of mental health issues, including depression, anxiety, problematic alcohol use, nicotine use, and other substance use, as well as the medical, demographic, and social characteristics among COVID-19 patients in the home-isolation program at KCMH, Bangkok, Thailand. The study period was between June and September 2021.

The study was approved by the Institution Review Board of the Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, registration number: COA 1168//2021 (IRB No.620/64).

### Participants

The authors enrolled 150 COVID-19 patients who were admitted to a home isolation program. On the day of diagnosis, the patients either received the home isolation program or admitted to the field hospital of the KCMH healthcare system between June and September 2021. All patients in the field hospital setting received early discharge before 14-day isolation at the field hospital and continued home isolation at their residences. The study included mild COVID-19 cases aged 18 to 60 years who were able to participate in a psychiatric interview conducted via phone or video call. The authors excluded individuals with moderate to severe COVID-19 infection and those unable to participate in a psychiatric interview due to various reasons, such as language barriers as not being fluent in Thai, sensory impairments such as visual or auditory deficits, states of psychosis or delirium, and pre-existing diagnoses of dementia, mental retardation, or severe psychiatric disorders necessitating emergency care. Cochran's formula was used to estimate the sample size:

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

To the authors' knowledge, there was no available data regarding the prevalence of all mental health problems in the home isolation population. Therefore, the P in the formula was set at 0.5. This number represented the default prevalence value to achieve an appropriate sample size. The calculated sample size was 107 participants.

The authors eventually collected 150 COVID-19 patients in both home isolation and field hospital that were later discharged to the home isolation program settings because of the high number of patients referred to the routine psychiatric screening of the home isolation program. This might further strengthen the statistical result of the present study.

### Data collection

During the period of home isolation or while patients were staying at field hospitals and about to be discharged, the authors established contact with them through video or phone calls to conduct interviews regarding their well-being. Before starting the interviews, the researchers provided patients with a clear explanation of the purpose of the interview and sought their consent for participation in the present study. These interviews were carried out by either psychiatrists or psychiatric residents. During the interviews, information including demographic data, psychosocial factors, substance use habits, and their adherence to isolation policies were collected. Additionally, the interviewers conducted screenings for mental health issues using the psychiatric interview based on questions from the Patient Health Questionnaire 2-item (PHQ-2) and generalized anxiety disorder 2-item (GAD-2) tools. The clinical characteristics of the patients were reviewed and collected through electrical medical records. This information were also utilized to assess the applicability of the COVID-19 Psychosocial Home Isolation Evaluation Tool (CCPHIET) in another study<sup>(18)</sup>. Important social characteristics included residence ownership, having a separate bedroom and bathroom, hospital transportation capability, and having a support person during the home isolation period<sup>(18)</sup>.

### Clinical assessment

Of the 150 enrolled patients, the authors separated the participants into two groups, the home isolation group and the field hospital group that was later discharged to their home-isolated setting. These two groups were considered mild COVID-19 infection patients who underwent home isolation, but with

nuanced psychosocial factors. Therefore, the authors further assessed the difference in all dimensions of these two groups, to be used for improving the quality of care in each setting in the future.

The prevalence of mental health problems consisted of depression, anxiety, problematic alcohol use, active smoking, and other substance use. Questions used in the psychiatric interview were applied from the PHQ-2, GAD-2 tools, and diagnostic criteria of substance use disorder in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Depression was defined as having any of the following symptoms during the past two weeks, feeling sad, depressed, hopeless, or having little interest in doing things. Anxiety was defined as having any of the following symptoms during the past two weeks, feeling very nervous, anxious, or worrying unstopably. Problematic alcohol use was defined as drinking regularly and having a negative effect on work or current relationship with others. Active nicotine use was defined as regularly and currently smoking before and during the isolation period. Although, this information might not be enough to diagnose the patients with major psychiatric illness, the authors intended to screen for the magnitude of the mental health and substance use problems.

### Statistical analysis

Frequency and percentages were used to describe categorical variables, including demographic data such as gender, marital status, and educational level, clinical characteristics such as COVID-19 symptoms and chest X-ray results, social support factors including place of residence, availability of a separate room or bedroom, community characteristics, caregiver availability, and hospital accessibility, tendencies towards compliance as compliance with isolation measures, food supply, sanitation, and trash management, and the prevalence of mental health issues such as depression, anxiety, problematic alcohol use, nicotine use, and other substance use. Continuous variables, including age and monthly income, were presented as means with standard deviations. Pearson's chi-square and Fisher's exact tests were used to compare categorical variables between the two groups. A logistic regression model was used to show the association between psychosocial factors and mental health problems. The statistical significance was set at a p-value less than 0.05 and a 95% confidence interval (CI). All statistical analyses were performed using IBM SPSS Statistics,

**Table 1.** Demographic data comparing COVID-19 patients in home isolation group and field hospital group in KCMH

Demographic data	Total (n=150)	Home isolation (n=112)	Field hospital (n=38)	p-value
Sex; n (%)				0.575
Male	73 (48.7)	56 (50.0)	17 (44.7)	
Female	77 (51.3)	56 (50.0)	21 (53.3)	
Age (years); mean [SD]	36.2 [12.5]	34.6 [11.6]	40.9 [14.0]	0.063
Marital status; n (%)				0.110
Couple	68 (45.3)	44 (39.3)	24 (63.2)	
Non-couple	82 (54.7)	68 (60.7)	14 (36.8)	
Education; n (%)				0.038
Below bachelor's degree	102 (68)	71 (63.4)	31 (81.6)	
Bachelor's degree and above	48 (32)	41 (36.6)	7 (18.4)	
Monthly income; n (%)				0.507
<15,000 THB	100 (67.7)	73 (65.2)	27 (71.1)	
≥15,000 THB	50 (33.3)	39 (34.8)	11 (28.9)	

SD=standard deviation

version 28.0 (IBM Corp., Armonk, NY, USA).

## Results

One hundred fifty participants met the inclusion criteria and were recruited into the analyses. One hundred twelve patients were in the home isolation group, and 38 were in the field hospital group.

The demographic data for each group are shown in Table 1. The participants in the home isolation group were equal female and male ratio, mostly unmarried at 60.7%, received below-bachelor's degrees of education at 63.4%, and their mean age was 34.6 years. Participants from the field hospital group were mostly female at 53.3%, with married status at 63.2%, and mostly had below-bachelor's degrees of education at 81.6%. The mean age of the latter group was higher at 40.9 years.

Table 2 shows the prevalence of mental health problems in all patients who received home isolation program. The total prevalence of any mental health problem was 20%. Four percent of the patients screened positive for anxiety symptoms, followed by 2.7% for depressive symptoms, and 0.7% for suicidal ideation. In terms of substance use, active nicotine use was the most prominent. The prevalence of active nicotine use was 12%, followed by problematic alcohol use at 5.3%, and other substance use such as cannabis and kratom at 2.7%.

Table 3 shows the clinical characteristics of home isolation and field hospital groups. More than 50% of the patients reported no symptoms except coughing and fever in both groups. Coughing was the most common symptom found in 58.9% and 68.4% of the participants in the home isolation and field hospital

**Table 2.** Prevalence of mental health problems of all the patients who underwent home isolation program for COVID-19 infection in KCMH (home isolation group and field hospital group)

Mental health problems	All home-isolated patients (n=150); n (%)
Depression	
Yes	4 (2.7)
No	146 (97.3)
Suicidal ideation	
Yes	1 (0.7)
No	149 (99.3)
Anxiety	
Yes	6 (4.0)
No	144 (96.0)
Problematic alcohol use	
Yes	8 (5.3)
No	142 (94.7)
Smoking	
Yes	18 (12.0)
No	132 (88.0)
Other substance use	
Yes	4 (2.7)
No	146 (97.3)
Any mental health problem	
Yes	30 (20.0)
No	120 (80.0)

group, respectively. Sputum production and chest X-ray results were statistically significant features that differed between the two groups. Participants in the field hospital group exhibited higher occurrences of sputum production and abnormal chest X-ray findings compared to those in the home isolation group.

**Table 3.** Clinical data comparing COVID-19 patients in home isolation group and field hospital group in KCMH

Clinical data	Total (n=150); n (%)	Home isolation (n=112); n (%)	Field hospital (n=38); n (%)	p-value
Fever				0.571
Yes	73 (48.7)	53 (47.3)	20 (52.6)	
No	77 (51.3)	59 (52.7)	18 (47.4)	
Malaise				0.265†
Yes	29 (19.3)	24 (21.4)	5 (13.26)	
No	121 (80.7)	88 (78.6)	33 (86.8)	
Runny nose, nasal congestion			0.830	
Yes	57 (38.0)	42 (37.5)	15 (39.5)	
No	92 (61.3)	69 (61.6)	23 (60.5)	
Cough				0.299
Yes	92 (61.3)	66 (58.9)	26 (68.4)	
No	58 (38.7)	46 (41.1)	12 (31.6)	
Sore throat				0.399
Yes	60 (40.0)	47 (42.0)	13 (34.2)	
No	90 (60.0)	65 (58.0)	25 (65.8)	
Sputum				0.003†
Yes	3 (2.0)	0 (0.0)	3 (7.9)	
No	147 (98.0)	112 (76.2)	35 (23.8)	
Anosmia				0.783†
Yes	34 (22.7)	26 (23.2)	8 (21.1)	
No	116 (77.3)	86 (76.8)	30 (78.9)	
Ageusia				0.111
Yes	17 (11.3)	10 (8.9)	7 (18.4)	
No	133 (88.7)	102 (91.1)	31 (81.6)	
Dyspnea				0.159
Yes	18 (12.0)	11 (9.8)	7 (18.4)	
No	132 (88.0)	101 (90.2)	31 (81.6)	
Chest X-ray				<0.001†
Abnormal	18 (12.1)	3 (2.7)	15 (39.5)	
Normal	132 (88.0)	109 (97.3)	23 (60.5)	

† Fisher's exact test

Table 4 demonstrates the social support factors of the COVID-19 patients. Most of the participants in the home isolation group owned a place of residence at 87.5% with separate bedroom at 59.8% and isolated living area at 56.3%, but not separate bathroom at 54.5%. Most of their residences were not located in slum areas at 64.3%. Most of the participants had at least one caregiver for 86.6% and they could go to the hospital by themselves for 78.6%. Likewise, the participants in the field hospital group had the same characteristics regarding these social factors, and no statistical difference was shown between either group.

Table 5 shows the tendency to be compliant with home or field hospital isolation and their complaint to public health policy before the infection. Participants in both groups were confident about their compliance

with the isolation policy. Many of them were assured that they could stay isolated from others, supply their own food, and safely manage their sanitation and trash. More participants in the field hospital group affirmed these two matters than in the home isolation group, with a statistical difference. Social distancing appeared to be the least compliant among these new regulations.

Table 6 shows the correlation between the psychosocial factors and mental health problems in the home isolation and field hospital groups by using the logistic regression model. The result showed that being female was a protective factor (adjusted OR 0.25, 95% CI 0.01 to 0.64,  $p=0.004$ ). Poor compliance with social distancing policies before infection was a risk factor for mental health problems (adjusted OR 2.95, 95% CI 1.17 to 7.41,  $p=0.022$ ).

**Table 4.** Social factor data comparing between COVID-19 patients in the home isolation group and field hospital group in KCMH

Social factor	Total (n=150); n (%)	Home isolation (n=112); n (%)	Field hospital (n=38); n (%)	p-value
Owner or tenant of the residence				0.080†
No	15 (10.0)	14 (12.5)	1 (2.6)	
Yes	135 (90.0)	98 (87.5)	37 (97.4)	
Community characteristics				0.643
Slum	52 (34.7)	40 (35.7)	12 (31.6)	
Not slum	98 (65.3)	72 (64.3)	26 (68.4)	
Bedroom				0.067
Not separated	54 (36.0)	45 (40.2)	9 (23.7)	
Separated	96 (64.0)	67 (59.8)	29 (76.3)	
Bathroom				0.932
Not separated	82 (54.7)	61 (54.5)	21 (55.3)	
Separated	68 (45.3)	51 (45.5)	17 (44.7)	
Separated communal areas with other family members				0.013
No	57 (38.0)	49 (43.8)	8 (21.1)	
Yes	92 (61.3)	63 (56.3)	29 (76.3)	
Capability to go to hospital without using public transportation				0.534
No	34 (22.7)	24 (21.4)	10 (26.3)	
Yes	116 (77.3)	88 (78.6)	28 (73.7)	
Having at least 1 close supporter				0.017†
No	15 (10.0)	15 (13.4)	0 (0.0)	
Yes	135(90.0)	97 (86.6)	38 (100)	

† Fisher's exact test

**Table 5.** Isolation policy compliance data comparing COVID-19 patients in the home isolation group and field hospital group in KCMH

Isolation compliance	Total (n=150); n (%)	Home isolation (n=112); n (%)	Field hospital (n=38); n (%)	p-value
Need to leave the residence				0.681†
Yes	17 (11.3)	12 (10.7)	5 (13.2)	
No	133 (88.7)	100 (89.3)	33 (86.8)	
Need to contact others				0.003†
Yes	34 (22.7)	32 (28.6)	2 (5.3)	
No	116 (7.3)	80 (71.4)	36 (94.7)	
Incapability to supply own meals				0.040†
Yes	18 (12.0)	17 (15.2)	1 (2.6)	
No	132 (88.0)	95 (84.8)	37 (97.4)	
Incapability to clean personal items and room				0.145†
Yes	6 (4.0)	6 (5.4)	0 (0.0)	
No	144 (96.0)	106 (94.6)	38 (100)	
Incapability to safely manage trash				0.285
Yes	34 (22.7)	23 (20.5)	11 (28.9)	
No	116 (77.3)	89 (79.5)	27 (71.1)	
Regularly wore masks				0.324†
Yes	149 (99.3)	111 (99.1)	38 (100)	
No	1 (0.7)	1 (0.9)	0 (0.0)	
Regularly washed hands				0.988†
Yes	146 (97.3)	109 (97.3)	37 (97.4)	
No	4 (2.7)	3 (2.7)	1 (2.6)	
Regular kept social distancing				0.133†
Yes	75 (50.0)	52 (46.4)	38 (100)	
No	75 (50.0)	60 (53.6)	0 (0.0)	

† Fisher's exact test

**Table 6.** Logistic regression model showed an association between psychosocial factors and mental health problems in COVID-19 patients who underwent a home isolation program in KCMH

Psychosocial factor	No mental health problem (n=120) n (%)	Any mental health problem (n=30) n (%)	Crude OR	95% CI	p-value	Adjusted OR	95% CI	p-value
Being female	69 (57.5)	8 (26.7)	0.27	0.11 to 0.65	0.004	0.25	0.01 to 0.64	0.004
Not an owner or tenant of the residence	14 (11.7)	1 (3.3)	0.26	0.03 to 2.07	0.204	0.23	0.03 to 1.97	0.179
Having no caregiver	14 (11.7)	1 (3.3)	0.26	0.03 to 2.07	0.204	0.10	0.01 to 1.10	0.059
Need to leave the residence	12 (10)	5 (16.7)	1.80	0.58 to 5.57	0.308	4.03	0.90 to 18.09	0.069
Not regularly washing hand	2 (1.7)	2 (6.7)	4.21	0.57 to 31.23	0.159	3.51	0.36 to 34.16	0.280
Not regularly keep social distancing	54 (45)	21 (70.0)	2.85	1.21 to 6.74	0.017	2.95	1.17 to 7.41	0.022

OR=odds ratio; CI=confidence interval

## Discussion

The first major finding of the present study was that the prevalence of mental health problems of patients who underwent home isolation programs at KCMH for COVID-19 infection was 20%. The prevalence of anxiety problems was 4%, and depression was 2.7%. In 2021, Dragioti et al. reported the pooled prevalence of anxiety and depression among COVID-19 patients at 24% and 29%, respectively<sup>(13)</sup>. Anxiety seemed to be more prevalent in this work as well as in other reviewed studies<sup>(12,14)</sup>. Throughout the COVID-19 pandemic, there was a significant influx of uncertain information regarding various aspects of the disease, including transmission, natural history, treatment, and mortality rates. Media outlets inconsistently reported on the number of confirmed cases, contributing to widespread fear and anxiety that had a profound impact on the mental health of the population<sup>(6)</sup>.

The pre-pandemic prevalence of anxiety and depression in Bangkok, according to the Thai National Mental Health Survey 2013, was 1.4% and 0.4%<sup>(19)</sup>. The tool used in the survey was World Mental Health-Composite International Diagnostic Interview version 3.0 (WMH-CIDI 3.0), therefore, it might be difficult to compare due to different assessment tools. However, the prevalence of depression among COVID-19 patients in Bangkok between April and May 2020 was 16.5%, according to a study by Sawangri et al<sup>(20)</sup>. Additionally, Boondiskulchok et al. found the prevalence of depression at 11.8% in patients admitted to the field hospital at the Saraburi Hospital network between August and October 2020<sup>(21)</sup>. These two studies assessed depression using the 9Q for depression questionnaires<sup>(20,21)</sup>. Unsurprisingly, the results of the present study and the previous study pointed in the same direction. The rate of anxiety and depressive symptoms in the home and field hospital-isolated patients was higher

than the pre-pandemic prevalence. The COVID-19 pandemic had an impact on mental health due to the disease mechanism itself as well as other psychosocial sequelae such as social isolation, the risk of unemployment, and economic recessions<sup>(2,3)</sup>. Therefore, mental health issues should not be overlooked during a pandemic, especially anxiety problems, which were the most prevalent<sup>(12,13)</sup>. Health education, consistent information about the pandemic, and economic support could be the keys to preventing mental health problems during a pandemic<sup>(6-8)</sup>.

On the other hand, the anxiety and depressive prevalence of the present study were lower than the reported rate of asymptomatic or mildly symptomatic COVID-19 patients in the general hospital or the field hospital in Thailand<sup>(22)</sup>. This variation may be attributed to differences in data collection methods between studies. In the present research, the authors employed questions from PHQ-2 and GAD-2 to screen for depression and anxiety during online interviews. However, these lower prevalences may indicate the mental health benefits of home isolation compared to hospital admission. Patients may feel more physically and emotionally comfortable in their home settings rather than in isolated rooms during the hospitalization<sup>(23)</sup>.

In the present study, 12% of the participants who underwent home isolation were active smokers. While 5.3% had problematic alcohol use, and five participants used other substances such as marijuana and Kratom. Interestingly, the rate of nicotine and alcohol use in the COVID-19 home isolation patients was slightly lower than the rate in the Thai general population<sup>(19)</sup>. However, problematic alcohol use and other substance use could be underreported due to the online interviewing process. Nicotine, alcohol, and other illicit substance use were the important psychosocial risk factors that can impact

home isolation compliance, as substance withdrawal symptoms may drive COVID-19 patients to break the quarantine protocol<sup>(10,11)</sup>.

The second major finding of the present study was that the medical symptoms between the home isolation patients and field hospital patients were not statistically different. The most important clinical marker to differentiate between the two studied groups was an abnormal X-ray finding. This result was quite similar to the home isolation population in different countries<sup>(24,25)</sup>.

Another important finding of the present study was that most of COVID-19 patients who underwent home isolation procedures experienced constraints due to limited space. However, they exhibited sufficient and appropriate individual knowledge as well as basic social support during the quarantine period. The COVID-19 pandemic posed significant challenges for developing countries, primarily due to limitations in medical and economic resources. Various sociocultural factors related to home isolation, including understanding of the disease and quarantine procedures, adherence to social norms, perceived risk of infection, and practical considerations such as access to food, medication, and finances, played crucial roles in facilitating easier isolation and better disease transmission control<sup>(26)</sup>.

The most important finding of the present study was the social factor data of patients undergoing home isolation in the Bangkok area, which could potentially enhance the efficiency of quarantine measures. Although most participants had their own place of residence, many faced limitations in their capacity for isolation. Half of them did not have separate bedrooms or bathrooms and had to share communal areas with other family members. Conversely, most participants expressed confidence in adhering to home isolation policies and had at least one caregiver available to assist them during this period. They demonstrated a responsible approach, managing to confine themselves in their residences, provide their own meals, and handle waste disposal safely. This observation aligned with the prevailing characteristics of Thai culture, where extended family support is commonly observed<sup>(27)</sup>. The strong sense of familial support, where members assisted one another in meeting the needs of an infected family member, may underscore the resilience of Thai society in the face of the COVID-19 pandemic.

To the authors' knowledge, the present study is the first study in Thailand that provided demographic, mental health, medical, and social data on the

COVID-19 patients who underwent home isolation during the period of the healthcare crisis. The present study imparted a valuable lesson for future infectious pandemic crisis policies in Thailand: asymptomatic or mildly symptomatic infectious patients may be better suited for community isolation settings, especially considering the constraints posed by their residential environments<sup>(28)</sup>. Given the preparedness and availability of essential resources within their familial and peer networks, most Thai patients could safely undergo isolation in their own residences with sufficient medical monitoring and treatment. This diminished the necessity for external support in terms of food, supplies, or emergency transportation<sup>(29)</sup>.

The present study revealed that being female served as a protective factor against mental health problems. Drawing on data from the Thai National Mental Health Survey 2013, there were higher prevalence rates of depression and anxiety among females, yet a lower prevalence of any substance use disorder<sup>(19)</sup>. In the present study, mental health problems consisted of depression, anxiety, and substance abuse. In contrast, a meta-analysis by Deng et al. reported no significant gender-based differences in the prevalence of depression, anxiety, and sleep disturbance<sup>(12)</sup>. The authors hypothesized that substance use may be a contributing factor to the observed correlation between gender and mental health problems. However, these conflicting results can be further elucidated in future studies regarding gender as a protective factor for mental health and substance abuse prevalence. The present study findings also indicated that poor compliance with social distancing policies before infection was a risk factor for mental health problems. The authors posited that individuals familiar with social distancing may exhibit better adaptation to home isolation.

The first limitation of the present study is that we did not use standardized diagnostic tools for collecting mental health data. The future study may consider using the Patient Health Questionnaire 9-item (PHQ-9)<sup>(30)</sup>, generalized anxiety disorder 7-item (GAD-7)<sup>(31)</sup>, Hospital Anxiety and Depression Scale (HADS)<sup>(32)</sup>, or Structured Clinical Interview for DSM Disorders (SCID)<sup>(33)</sup>. Secondly, this was a cross-sectional study that reported the point prevalence of mental health problems. The authors did not reassess the patients during the recovery phase, so could not explore the incidence or impact of the COVID-19 infection and home isolation on mental health. In addition, the authors were unable to obtain the health behavior and completion of the 14-day home isolation



during the COVID-19 crisis months. Therefore, the correlation between demographic, clinical, and social factors and compliance with home isolation protocols cannot be described.

## Conclusion

Mental health problems were presented during the COVID-19 pandemic and should be addressed. Substance use was the most prominent mental health problem among COVID-19 patients who underwent home isolation, where nicotine use was the most prevalent. Most residences in Bangkok have limited separate spaces for patients. However, the social support in the family seemed to be adequate in facilitating their daily routine at home during home isolation. Risk factors for developing mental health problems in COVID-19 patients were being male and having poor compliance with social distancing policies before infection.

## What is already known on this topic?

The COVID-19 pandemic had a great impact on mental health. The prevalence of depression, anxiety, and substance use were increasing in COVID-19 patients all over the world. However, there are few studies about the magnitude of mental health problems of COVID-19 patients who received home isolation programs as a mode of treatment.

## What does this study add?

This study investigated the prevalence of mental health problems in COVID-19 patients who underwent a home isolation program in Bangkok, in which substance abuse was the most prominent. Moreover, this study showed the social factors, which are residence ownership, having a separate bedroom and bathroom, hospital transportation capability, and having a support person during the home isolation period, were adequate for COVID-19 patients to be isolated at home.

## Conflicts of interest

The authors declare no conflict of interest.

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