Kesmas

Volume 16
Issue 3 *August*

Article 11

8-31-2021

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## Recommended Citation

Afifi L, Prasopchai P, Kiflan D, et al. COVID-19 Preparedness and the Anxiety of Thai Citizens. *Kesmas*. 2021; 16(3): 213-220
DOI: 10.21109/kesmas.v16i3.4375
Available at: https://scholarhub.ui.ac.id/kesmas/vol16/iss3/11

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Lateh, *et al. Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*. 2021; 16 (3): 213-220
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**Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)**

# COVID-19 Preparedness and the Anxiety of Thai Citizens

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**Abstract**

The outbreak of COVID-19 has brought sickness and fatality to Thai citizens. In addition, it left a tremendous psychological impact on mental health as they experienced panic and anxiety about controlling situations and preserving their physical and mental well-being. This study aimed to analyze the factors influencing COVID-19 preparedness and anxiety based on groups of Thai citizens. Online questionnaires were employed to collect data from 2,768 respondents selected through convenience sampling and snowball sampling on Facebook, having shared questionnaires with 190 other users. Data were collected from March 29 to April 3, 2020. The acquired data were analyzed using percentage and logistic regression analyses. It found that the influencing factors of preparedness included citizens' sex, residing province, and work or off-house conditions. In contrast, the influencing factors of anxiety included their sex, age, residing province, and income adequacy. The results conveyed that Thai citizens were anxious about the pandemic and had been attempting to cope. In addition, issued policies should respond to the public promptly to prevent unnecessary panic and to maximize public cooperation against future situations put forth by the pandemic.

**Keywords**: anxiety, COVID-19, mental healthcare, preparedness, Thai citizens

## Introduction

Coronavirus disease 2019 (COVID-19) has rapidly spread in many countries worldwide, causing notable deaths. As a result, the World Health Organization (WHO) declared the situation as a public health emergency of international concern (PHEIC) on January 30, 2020.[1] The Thai Minister of Public Health congruently said COVID-19 is a dangerous communicable disease following the Communicable Disease Act BE 2558 (2015) on February 29, 2020.[2] The origin of this disease was in Wuhan, Hubei, China, and was first identified at the end of December 2019. This strand of large ribonucleic acid (RNA) enveloped viruses can be found in mammals and poultry. It can infect humans via the respiratory system through droplet transmission (e.g., through coughing and sneezing), similar to the spread of influenza and contact transmission (e.g., by initially touching objects contaminated by secretions and subsequently touching the nose, mouth, or eye).[3]

As of June 14, 2020, Thailand had 3,135 confirmed cases, 58 deaths, and 2,987 recovered cases. The top five provinces with confirmed cases include Bangkok, Phuket (Southern Thailand), Yala (three southern border provinces), Songkhla (Southern Thailand), and Nonthaburi (metropolitan region) with 1,542, 226, 133, 128, and 116 confirmed cases, respectively.[4] Currently, there are no specific vaccines or antiretroviral treatments available for COVID-19. Hence, infected patients are treated as necessary based on symptoms and complications, whereas those in severe conditions are closely monitored and treated in hospitals. Most patients can self-recover from infection through symptomatic treatment. Through the coordination of the WHO, global efforts and clinical trials have been invested in to develop vaccines and cures for COVID-19.[5] The outbreak of this disease has brought sickness and fatality and left tremendous psychological impacts on mental health. Citizens experience anxiety about coping with grave situations and maintaining their physical and mental well-being. Moreover, social stigmas might overly pressure the infected to conceal their conditions to avoid discrimination, or they might not receive the immediate treatment they need, thus feeling discouraged to afford behavioral changes to preserve their good health.[6] When

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Received : October 29, 2020
Accepted : April 27, 2021
Published: August 24, 2021

considering psychological preparedness as an ability to manage and cope with one's emotional response during a disaster, to better one's cognitive and behavioral response, the widely employed classification of disaster preparedness has three categories: 1) Material Preparedness, 2) Planning Activities, and 3) Knowledge and Skills.[7] Anxiety, on the other hand, is one of the emotions that serve the positive function of alerting us to things we might need to worry about: potentially harmful things. More importantly, these emotions help evaluate potential threats and respond to them appropriately, perhaps by quickening our reflexes or focusing our attention.[8] COVID-19 is a global pandemic that requires meticulous mitigation preparation and coordination. Thailand is inevitably another affected nation. Hence, it needs to be ready to support its citizens with necessary health care, mental health care, food supplies, environmental facilitation, and livelihood adaptation.

Past studies on 2003 SARS preparedness, psychological preparedness, and anxiety are worth investigating in terms of social factors. First, Peng, *et al.*,[9] reported that older adults in Taiwan who were over 50 years old with high school education were the group with more increased preparedness and more personal experiences with the epidemic than others. Hence, they suffered more damage to their mental health. Second, Hauksdottir, *et al.*,[10] examined the impact of a widower's preparedness before his wife's death from cancer on his risk of long-term morbidity. The results found that men aged 38-61 years with a low degree of preparedness at the time of their spouse's death had an increased risk of psychological morbidity and other symptoms; such as anxiety, a heightened startle response, emotional numbness, little or no grief resolution, and sleep disorders, even 4-5 years after the loss. For older widowers (aged 62-80 years), a low degree of preparedness increased the risk of repeated painful memories and a heightened startle response at follow-up. Finally, Cagle and Kovacs,[11] discovered the perceptions of preparedness and support provided by informal caregivers among hospice oncology patients, who interpreted preparedness broadly and identified multiple sources of support, including hospice personnel, family, friends, neighbors, and spiritual beliefs. Additionally, informational support, such as education and enhanced communication, is essential for preparing and supporting caregivers.

Although public agencies in Thailand are reasonably prepared to handle the COVID-19 pandemic, many Thai people remain anxious about the situation. More specifically, the general public is concerned about the issued public measures to counteract the outbreak, the levels of awareness of others, and future living adjustments. Therefore, the results were projected to reflect the outbreak preparedness and anxiety management in conjunction with various factors based on Thai demographics. Furthermore, although this devastating humanitarian crisis is far from its ending, the results would systematically offer a better understanding of the situation and help stakeholders with future strategic reviews and formulations. Therefore, this research aimed to investigate the factors influencing preparedness and anxiety among Thai citizens.

## Method

This study was a web-based cross-sectional survey. The population in this study was Thai citizens, with a total population of 66,558,935 in 77 provinces,[12] and 37,805,475 internet users (56.8% of the entire population) who were expected to complete the constructed online questionnaires.[13] The sample size was 2,500 Thai citizens in 77 provinces who were projected to have access to the constructed online questionnaires based on Yamane's formula with an error margin of 2% (Formula 1). The sample with returned and complete questionnaires included 2,768 respondents selected using convenience sampling and a snowball sampling method. The author shared the questionnaire via their personal Facebook wall, with the shared questionnaires reaching 190 other users. The survey was conducted through the URL: https://forms.gle/MwzsHJiCRePF7fvZ8 from March 29 to April 3, 2020.

The instrument used was a three-section online questionnaire. Section 1 included response items on demographic data, such as sex, age, education level, occupation, residing province, characteristics of family members, income adequacy, and conditions of regular work or off-house errands. Section 2 comprised 24 response items on COVID-19 preparedness using a 5-point Likert scale where 5 represented "most important" and 1 represented "least important." Section 3 comprised nine response items on COVID-19 anxiety using a 10-point Likert scale where 10 represented "most anxious" and 1 represented "least anxious." This section of the instrument was developed based on the guidelines for the self-assessment of patients, other relevant medical examples, and psychological principles extracted from expert suggestions by Cao, *et al.*,[15] and Hu, *et al.*[16] Three experts validated the instrument to demonstrate an Item-

$$\left(n = \frac{N}{1+Ne^2} = \frac{37{,}805{,}475}{1+37{,}805{,}475(0.02^2)} = 2{,}499.83\right)$$

**Notes:**
n = Sample size
N = Population size
e = Acceptable sampling error

**Formula 1. Yamane's Formula,[14]**

Objective Congruence (IOC) range of 0.67-1.00. Section 2 pertaining to COVID-19 preparedness and section 3 examining COVID-19 anxiety were pilot-tested with 30 respondents to indicate a Cronbach's alpha of 0.84 and 0.81.

Based on the preparedness of COVID-19, the citizens were classified into three groups, wherein one was omitted: Group 1 with low outbreak preparedness (<50% total scores), Group 2 with moderate preparedness (50-79% total scores), and Group 3 with high preparedness (80% total scores or higher). However, since Group 1 only contained 128 respondents (4.62%), it was omitted from the analyses. Hence, the remaining two groups included 2,640 respondents.

Statistical analysis was assessed using the R program. Percentages were used to exhibit demographic insights, and univariate logistic regression (one dependent variable and one independent variable by taking just one independent variable at a time) and multivariate logistic regression analyses (one dependent variable and more than one independent variables by taking all the independent variable at a time) were performed to explore potential influencing factors of the Thai citizens' levels for outbreak preparedness and anxiety. Odds ratios (ORs), adjusted odds ratios (AORs), and 95% confidence intervals (95% CIs) were obtained from the logistic regression analysis. Additionally, the significance level was accepted as p-value <0.05 in all statistical analyses.

## Results

The majority of the sample was female (74.13%), aged between 26 and 45 years (48.53%), and 27.50% were under 26 years of age. Mainly, the sample was graduated with a bachelor's degree (40.07%), and 31.86% had graduated with a master's degree or higher. In terms of occupation, 35.98% were teachers, lecturers, and academic employees, whereas 38.18% had other fields, such as corporate employees, homemakers, business owners, or retirees. Of 25.4% resided in the provinces of Southern Thailand, 22.06% were in the three southern border provinces, and 17.77% were in the Bangkok Metropolitan Region. In terms of family members, 27.61% of the respondents were in households with children and older adults, whereas 31.74% were not. Forty-two point six percent of respondents received adequate income to cover expenses but without savings, whereas 23.14% received adequate income with excess savings. The respondents mainly worked from home or did weekly off-house errands (45.69%), whereas 32.34% were obligated to leave their houses for work every day. However, some respondents (32.34%) were obligated to leave their houses for work every day. Based on the levels of COVID-19 preparedness and anxiety, the respondents were classified into two groups. Group 1 comprised 1,032 (39.09%) and 812 (30.76%) respondents who had moderate preparedness and anxiety, respectively, and scored between 50% and 79%. Group 2 comprised 1,608 (60.91%) and 1,828 (69.24%) respondents with high preparedness and anxiety, scoring higher than 80%, as shown in Table 1.

Table 2 shows the following data: the top five results of COVID-19 preparedness (with a maximum score of five) and anxiety (with a maximum score of ten). For COVID-19 preparedness, the respondents prioritized preliminary health check-ups (77.92%) and research on outbreak-related knowledge (68.22%). For COVID-19 anxiety, the respondents reported their concerns over public measures against the pandemic (54.70%), followed by delays and corruption within the public sector in remediating and reversing grave situations (53.94%).

Table 3 reports data based on the univariate logistic regression analysis. The influencing factors of Thai citizens' levels of outbreak preparedness with statistical significance were sex, age, education level, occupation, province of residence, and conditions of work or off-house errands. More specifically, female respondents were 1.37 times more prepared than males (95% CI = 1.14-1.63). The respondents aged between 26-45 years and over 46 years were, respectively, 1.21 and 1.39 times more prepared than those under 26 (95% CI = 1.01-1.46, 1.12-1.73). Respondents with a master's degree or higher were 1.43 times more prepared than those with lower education (95% CI = 1.16-1.75). The respondents who

**Table 1. Preparedness and Anxiety Groups among Thai Citizens (n = 2,640)**

| Variable | Category | n | % |
|---|---|---|---|
| Preparedness | Group 1 Moderate | 1,032 | 39.09 |
| | Group 2 High | 1,608 | 60.91 |
| Anxiety | Group 1 Moderate | 812 | 30.76 |
| | Group 2 High | 1,828 | 69.24 |

**Table 2. Top Five Results of COVID-19 Preparedness and Anxiety (n = 2,640)**

| Variable | Category | n | % |
|---|---|---|---|
| Preparedness | Prioritized preliminary health check-ups | 2,057 | 77.92 |
| | Study for outbreak-related knowledge | 1,801 | 68.22 |
| | Monitoring of public announcements of epidemiological news | 1,698 | 64.32 |
| | Social distancing cooperation | 1,684 | 63.79 |
| | Preservation of mental health for themselves and family members | 1,660 | 62.88 |
| Anxiety | Public measures against the pandemic | 1,444 | 54.70 |
| | Delays and corruption within the public sector in remediating and reversing situations | 1,424 | 53.94 |
| | Increased consumption costs and crimes | 1,384 | 52.42 |
| | Poor public responsibility | 1,311 | 49.66 |
| | Unemployment and income inadequacy | 1,267 | 47.99 |

**Table 3. The Influencing Factors of Thai Citizens' Levels of Outbreak Preparedness and Anxiety Based on Univariate and Multivariate Logistic Regression Analyses**

| Variable | Category | Preparedness | | Anxiety | |
|---|---|---|---|---|---|
| | | OR (95% CI) | AOR (95% CI) | OR (95% CI) | AOR (95% CI) |
| Sex | Male | 1.00 | 1.00 | 1.00 | 1.00 |
| | Female | 1.37 (1.14-1.63)** | 1.35 (1.13-1.62)** | 1.36 (1.13-1.64)** | 1.42 (1.18-1.72)** |
| Age | <26 years | 1.00 | 1.00 | 1.00 | 1.00 |
| | 26-45 years | 1.21 (1.01-1.46)* | 1.24 (0.88-1.75) | 0.93 (0.75-1.14) | 0.74 (0.49-1.11) |
| | >46 years | 1.39 (1.12-1.73)** | 1.28 (0.88-1.86) | 0.47 (0.38-0.60)** | 0.42 (0.27-0.64)** |
| Education | Lower education | 1.00 | 1.00 | 1.00 | 1.00 |
| | Bachelor degree | 1.02 (0.85-1.24) | 1.02 (0.74-1.40) | 0.95 (0.77-1.17) | 1.13 (0.80-1.61) |
| | Master degree or higher | 1.43 (1.16-1.75)** | 1.31 (0.93-1.86) | 0.70 (0.57-0.87)** | 0.98 (0.67-1.42) |
| Occupation | Students | 1.00 | 1.00 | 1.00 | 1.00 |
| | Healthcare profession | 1.10 (0.71-1.72) | 0.99 (0.54-1.85) | 0.48 (0.31-0.75)** | 0.76 (0.39-1.47) |
| | Academic profession | 1.24 (1.01-1.53)* | 0.95 (0.60-1.52) | 0.83 (0.66-1.04) | 1.40 (0.83-2.36) |
| | Others | 1.10 (0.90-1.36) | 0.93 (0.61-1.44) | 0.82 (0.65-1.02) | 1.18 (0.72-1.91) |
| Residing province | Bangkok and metropolitan | 1.00 | 1.00 | 1.00 | 1.00 |
| | North | 1.12 (0.75-1.66) | 1.13 (0.75-1.69) | 0.86 (0.58-1.29) | 0.77 (0.51-1.18) |
| | Central | 0.98 (0.70-1.37) | 1.04 (0.74-1.45) | 0.85 (0.60-1.20) | 0.75 (0.52-1.06) |
| | East | 1.27 (0.77-2.08) | 1.34 (0.81-2.21) | 1.03 (0.62-1.70) | 0.95 (0.56-1.61) |
| | North-eastern | 0.94 (0.71-1.23) | 0.97 (0.73-1.29) | 0.91 (0.69-1.21) | 0.69 (0.51-0.93)* |
| | West | 0.58 (0.35-0.99)* | 0.59 (0.35-1.01) | 0.98 (0.56-1.72) | 0.81 (0.45-1.46) |
| | South | 1.12 (0.87-1.43) | 1.26 (0.97-1.63) | 0.98 (0.76-1.27) | 0.74 (0.56-0.98)* |
| | Southern border provinces | 0.70 (0.55-0.90)** | 0.76 (0.58-1.00)* | 1.09 (0.83-1.42) | 0.76 (0.57-1.03) |
| Family members | Without children or older adult | 1.00 | 1.00 | 1.00 | 1.00 |
| | With children but without older adult | 0.88 (0.69-1.13) | 0.96 (0.74-1.23) | 1.31 (1.01-1.71)* | 1.12 (0.85-1.47) |
| | With older adult but without children | 1.07 (0.87-1.31) | 1.04 (0.84-1.29) | 0.87 (0.70-1.08) | 0.83 (0.66-1.03) |
| | With children and older adult | 0.98 (0.80-1.20) | 1.05 (0.85-1.30) | 1.36 (1.09-1.70)** | 1.16 (0.92-1.46) |
| Adequate income | Adequate income with excess for savings | 1.00 | 1.00 | 1.00 | 1.00 |
| | Cover expenses but without excess for savings | 0.86 (0.70-1.06) | 0.89 (0.72-1.10) | 1.58 (1.29-1.94)** | 1.47 (1.19-1.82)** |
| | Unstable | 0.84 (0.67-1.06) | 0.96 (0.74-1.23) | 2.03 (1.59-2.60)** | 1.84 (1.41-2.40)** |
| | Inadequate income to cover debts | 0.88 (0.67-1.16) | 0.90 (0.67-1.20) | 2.44 (1.80-3.32)** | 2.37 (1.72-3.27)** |
| Conditions of work or off-house errands | Leave house for work every day | 1.00 | 1.00 | 1.00 | 1.00 |
| | On shift or 2-3 times a week | 1.02 (0.83-1.26) | 0.97 (0.78-1.21) | 0.89 (0.71-1.12) | 0.85 (0.67-1.08) |
| | Worked from home or left home weekly | 1.43 (1.20-1.72)** | 1.40 (1.16-1.69)** | 1.06 (0.88-1.29) | 0.99 (0.81-1.22) |

**Notes:** OR = Odds Ratio, AOR = Adjusted Odds Ratio, CI = Confidence Interval, *p-value < 0.05 **p-value < 0.01

worked as teachers, lecturers, and academic employees were 1.24 times more prepared than the students (95% CI = 1.01-1.53). The respondents who resided in the West and the three southern border provinces were, respectively, 42% and 30% less prepared than those in the Bangkok Metropolitan Region (95% CI = 0.35-0.99, 0.55-0.90). The respondents who worked from home or left home weekly were 1.43 times more prepared than those who still left home for work or left home regularly/every day (95% CI = 1.20-1.72).

Table 3 further reports the univariate logistic regression results on the influencing factors of anxiety with statistical significance and included sex, age, education level, occupation, family members, and income adequacy. More specifically, the female respondents were 1.36 times more anxious than the males (95% CI = 1.13-1.64). Respondents aged over 46 were 50% less anxious than those under 26 years (95% CI = 0.38-0.60). Respondents with a master's degree or higher were 30% less anxious than those with lower than undergraduate education (95% CI = 0.57-0.87). Respondents who worked as physicians, nurses, or other medical professionals were 50% less anxious (95% CI = 0.31-0.75). Respondents who were in a household with children and/or older adults were 1.31 and 1.36 times less anxious than those living without children and older adults, respectively (95% CI = 1.01-1.71, 1.09-1.70). Finally, respondents with adequate income to cover expenses, unstable income, and inadequate income with debts were, respectively, 1.58, 2.03, and 2.44 times more anxious than those with adequate income with excess for savings (95% CI = 1.29-1.94, 1.59-2.60, 1.80-3.32).

In addition, the multivariate logistic regression analysis in Table 3 indicated that the only influencing factors of COVID-19 preparedness that were statistically significant among Thai citizens included sex, residing province, and conditions of work or off-house errands. The number of factors was less than that of the univariate logistic regression and with lower AORs. Specifically, female respondents were 1.35 times more prepared than males (95% CI = 1.13-1.62). The respondents in the three southern border provinces were 24% less prepared than those in the Bangkok Metropolitan Region (95% CI = 0.58-1.00). The respondents who worked from home

or left home weekly were 1.40 times more prepared than those who still worked or left home regularly every day (95% CI = 1.16-1.69).

Similar insights from Table 3, based on the multivariate logistic regression analysis, demonstrated that the only influencing factors of anxiety with statistical significance were sex, age, and income adequacy. In addition, the number of factors was less than that in the univariate logistic regression and had lower AORs (except for the sex factor). However, the residing province factor was included as a variable. More specifically, the respondents in the northeast and south (excluding the three southern border provinces) were 31% and 26% less anxious than those in the Bangkok Metropolitan Region (95% CI = 0.51-0.93, 0.56-0.98), respectively. The female respondents were 1.42 times more anxious than the males (95% CI = 1.18-1.72). Respondents aged over 46 years were 40% less anxious than those aged <26 years (95% CI = 0.27-0.64). The respondents with adequate income to cover expenses but without excess for savings, unstable income, and inadequate income with debts were, respectively, 1.47, 1.84, and 2.37 times more anxious than those with adequate income and savings (95% CI = 1.19-1.82, 1.41-2.40, 1.72-3.27).

**Discussion**

The majority of the respondents had high outbreak preparedness (60.91%) as they paid attention to personal health check-ups, maintained healthy mental conditions, sought knowledge on the pandemic, monitored governmental news on the situation, and cooperate in asserting social distance. However, most of them also had high anxiety (69.24%), as they were concerned about public measures, delayed remediations and restoration, increased consumption costs, unemployment, income inadequacy, crimes, and inadequate public responsibility. The results indicated that the influencing factors based on the univariate logistic regression analysis of the Thai citizens' levels of outbreak preparedness with statistical significance were sex, age, education level, occupation, province of residence, and conditions of work or off-house errands. In contrast, the influencing factors of outbreak anxiety were sex, age, education level, occupation, family member, and income adequacy. The multivariate logistic regression analysis indicated that the only influencing factors of COVID-19 preparedness that were statistically significant among Thai citizens included sex, residing province, and conditions of work or off-house errands. While, the influencing factors of outbreak anxiety were sex, age, and income adequacy.

The results were consistent with those of Roy, *et al.,*[17] discovered; Indian citizens were committed to following governmental guidelines on quarantines and social distancing and possessed high levels of anxiety. Furthermore, over 80% of these citizens were preoccupied with the COVID-19 outbreak. Wang, *et al.,*[18] found that 84.7% of Chinese citizens spent 20-24 hours per day at home during the outbreak. Many reported moderate to severe psychological effects (53.8%) and developed symptoms of moderate to severe depression (16.5%) as well as moderate to severe levels of anxiety (28.8%) and stress (8.1%). The univariate logistic regression and multivariate logistic regression analyses revealed that female respondents had higher preparedness and anxiety than male respondents.

Similarly, the older or more educated the respondents were, the higher their tendency to have higher preparedness and lower anxiety. These notions were congruent with study done by Guo, *et al.,*[19] wherein an academic synthesis on the prevalence of anxiety disorders in China from 2000-2015 stated that female informants had higher anxiety than males regarding general anxiety disorders, panic disorder, and social anxiety disorder. In addition, Lai, *et al.*,[20] indicated that female medical practitioners in China experienced more intense depression and anxiety than males regarding COVID-19.

This study also illustrated that sampled citizens in the west, and the three southern border provinces of Thailand had lower preparedness than those in other regions. Nonetheless, the northeast and south samples, except for those in the three southern border provinces, were found to have lower anxiety than those in other regions. In addition, the citizens who worked from home or left home weekly tended to demonstrate higher preparedness than those in the other two groups. Citizens in households with children and/or older adults tended to have higher anxiety than those in the other two groups.

For citizens who lived in a household with children and older adults, it was not unexpected for them to be anxious, as they had to pay special attention to caring for the vulnerable. Likewise, it was also inevitable for those with poor economic conditions to feel anxious about this pandemic. The results are partially consistent with the survey conducted by Prince of Songkla University, Pattani Campus,[21] which stated that 91% of the respondents were worried about an information overload. However, in contrast to this study, the survey suggested that those with lower income suffered lower anxiety or mental impacts than those with a higher income. Likewise, McGreal,[22] described this coronavirus as the "inequality virus". Ali, *et al.*,[23] also reported social inequality arising from COVID-19, highlighting that professionals in some occupation groups were unable to work from home, and many jobs were on hold or terminated as businesses in several industries were forced to shut down. Consequently, this economic hardship immediately posed financial risks. Furthermore, those in

ethnic minorities and marginalized groups were more prone to infections due to the long-standing structural problems of social inequality, health inequality, and genetic immunity among the vulnerable.

Moreover, the results regarding anxiety were also consistent with Egunjobi's study,[24] which conducted an online survey on COVID-19 fear by involving participants in 11 countries, most of whom were Nigerians. The results showed that the participants perceived COVID-19 as a biological weapon (29.2%) and divine punishment (19.8%). As many as 77% of the participants were moderately or highly frightened by the disease. Similarly, Presti, *et al.,*[25] classified the dynamics of fear into three courses: 1) anxiety-derived fear, especially towards COVID-19, as discussed here during this period which could pressure people to escape from affected areas; 2) disruption to the sense of self, for example, spending time finding detailed information, discussing in search for clarifications, as well as repeated thinking and reviewing on what is correct or incorrect; and 3) prejudices and discrimination, for example, in cases such as Corona Beer, with a name resembling coronavirus, receiving backlash, or Asians being reportedly prejudiced in media, as this virus originated in China.

The results conveyed that Thai citizens were anxious about the pandemic and attempted to cope with it autonomously. For example, by producing their masks and alcohol gel,[26] donating consumer items, artists and celebrities donating money to hospitals, groups of volunteers giving away free food, and groups of volunteers giving up their accommodations such as hotels to establish field hospitals.[27] The survey results from the Office of the National Economic and Social Development Council,[28] revealed that 67% of the sample were aware of state measures but did not have access to such aids. It was suggested that measures should be extended to cover all groups or that eligibility should be reduced to enhance outreach.

The results of this study demonstrated that over 2,600 sampled respondents had high levels of COVID-19 preparedness and anxiety. Hence, it is not surprising that the number of confirmed cases admitted to hospitals tended to decrease. The data provided were relevant as of June 14, 2020, when there were only nine confirmed cases, 90 active cases, 2,987 (89.01%) recovered cases, and 3,135 accumulated confirmed cases.[4] However, there were still other factors at play, for example, the promulgation of the Emergency Decree, news reports on the intensity of COVID-19 in the United States and European countries, the outbreak in Singapore, and the influences of news and knowledge through social media sharing. Nevertheless, stakeholders should be aware that significant restoration and adjustment among various dimensions, such as economic, social, cultural, and livelihood, in Thailand will take place after COVID-19 is under control. Hence, the phenomenon known as the "new normal" is a future challenge for everyone.

Although only sex and residing provinces influenced both preparedness and anxiety, it seemed that Thai citizens with the most important preparedness for COVID-19 congruently demonstrated the most anxiety. It was seen wherein the number of respondents who had high preparedness and anxiety (scored higher than 80%) was equal to 60.91% and 69.24%, respectively. However, Thai citizens were aware that self-reliance was the most crucial component during this outbreak. They understood that this outbreak is not based on factors such as social class, status, or wealth. Instead, it spreads through the air, which is a public commodity. In addition, the disease generally took longer before the infection showed symptoms (approximately 5-21 days), causing the course of this situation to be longer than other crises that the global community has ever encountered.

The limitations of this study are as follows: 1) The data were collected from an online questionnaire, which was not equally distributed across all regions due to the selected sampling techniques. Furthermore, those without access to the Internet were not included in this study. During the data collection period, the outbreak was only severe in Bangkok and the three southern border provinces. 2) The results of this study were only projected to reflect the situation from January to March 2020 adequately. After the data were collected, the government promulgated the Emergency Decree, and the epicenter of the COVID-19 pandemic shifted from China to Italy, Spain, and the United States. Hence, various data began to fluctuate rapidly and might also have, to some extent, impacted the outbreak preparedness and anxiety. However, this study should help understand the COVID-19 situation among several aspects, including public health, sociology, and economic problems, thereby helping stakeholders with future strategic reviews, managing the public, and mitigating the problem based on demographic distinctions.

## Conclusion

Sex, age, education level, and occupation were the main factors influencing COVID-19 preparedness and anxiety. While residing provinces and work or off-house conditions only influenced preparedness, family members and income adequacy mainly affected anxiety. The following strategies are suggested for utilizing this study's results for future outbreak mitigation. First, the government should identify, classify, and manage the public in groups based on demographic distinctions. Second, issued policies should respond promptly to the

public's needs to prevent unnecessary panic and maximize public cooperation against future pandemic situations. Third, future studies should consider collecting more in-depth data through interviews and focus group discussions on obtaining practical data that match specific needs. In-depth insights are highly beneficial, as they can more effectively optimize outbreak preparedness and mitigate public anxiety during the pandemic.

**Abbreviations**

COVID-19: Coronavirus. Disease 2019; WHO: World Health Organization; PHEIC: Public Health Emergency of International Concern; RNA: Ribonucleic Acid; IOC: Item-Objective Congruence; OR: Odds Ratio; AOR: Adjusted Odds Ratio; CI: Confidence Interval.

**Ethics Approval and Consent to Participate**

Electronic informed consent was obtained from all respondents prior to starting the investigation. Therefore, respondents could withdraw from the survey at any moment without providing any justification.

**Competing Interest**

The author declares that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

**Availability of Data and Materials**

The data that support the findings of this study are available from the corresponding author upon reasonable request. However, the data are not publicly available because they contain information that could compromise research participant privacy and consent.

**Authors' Contribution**

As the principal investigator, AL conceived the idea, designed, analyzed, interpreted the study results, and drafted the manuscript. PP gave his expert opinion in sampling design and data collection and critically analyzed the data for important intellectual content. KD gave his input in the manuscript drafting and submission. PK and SC helped find the literature review and provided feedback and academic information during the study design. Finally, PhP and AlL conceived the study and co-drafted the manuscript; all authors read and approved the manuscript as submitted.

**Acknowledgment**

The authors thanked all of the respondents.

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