


# The PSYCARE model: Its efficacy in mental health care during the fourth outbreak of COVID-19 in Vietnam

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## ABSTRACT

**Objective:** Ho Chi Minh City (Vietnam) was seriously affected by the 4<sup>th</sup> COVID-19 outbreak. This study aimed to provide mental health care services for people through a psychological intervention model, called “PSYCARE.” The model included five MHC services: active and passive education, propagation, 24-h hotline consultation, online interventions/counseling, and crisis intervention.

**Methods:** The entire workflow was implemented in the three steps under the leadership of the Ho Chi Minh City government: (1) Preparation and mobilization, (2) Multidisciplinary team establishment, and (3) Feedback mechanism, and project completion. By statistical method on service usage data of people during the outbreak, we evaluated the results as well as discussed the model’s effectiveness.

**Results:** In 42 days of implementation, there were a total of 149 posts, 1660 shares in social networks with more than 4,000 interactions per week. A MHC handbook was published. Ten episodes of MHC radio and ten live TV programs were broadcast with more than 10,000 listening times. We successfully propagated 35 topics at 4 COVID-19 hospitals and 34 quarantine areas. A total of 2,069 hotline consultations were done. 1,382 cases were counseled online, and 145 one-on-one crisis interventions were done to three groups: COVID-19 infected/affected children and adults, vulnerable people, frontline medical, and military staff.

**Conclusion:** The PSYCARE model has been proven to positively affect the general population’s mental health during the COVID-19 outbreak. Our framework and model could be used as an expert reference guide in providing effective psychological intervention in the COVID-19 pandemic.

**Keywords:** 24-h hotline consultation, crisis intervention, mental health care, passive education, propagation

## Introduction

The first COVID-19 case in Vietnam was detected on January 23, 2020. On February 25, 2020, all the first 16 cases of COVID-19 had recovered. After more than 20 days without new cases, Hanoi City convened an emergency meeting on March 6, 2020, and confirmed the city’s first COVID-19 case and the 17<sup>th</sup> case of Vietnam, opening the second outbreak. On March 20, 2020, the Vietnamese Ministry of Health announced that the third outbreak of the COVID-19 pandemic in Vietnam began with the context that the disease had spread widely in the community, and the first patient could not be traced. Since the pandemic’s beginning, Vietnam has had 1,975,444 cases of COVID-19, ranking 28<sup>th</sup> out of 224 countries and territories (updated on January 15, 2022). In the fourth outbreak (from April 27, 2021, to the current), the number of infections recorded was 1,969,294 cases. Ho Chi Minh City - the most

significant economical center in the country, is affected severely by the disease and has the highest number of infected people.

From the outbreak in Ho Chi Minh City (May 29, 2021) to September 15, 2021, it is 110 days. Millions of households have had their income reduced or lost over the past 3 months. Many businesses have had to downsize or stop operating. The Government maintained the lives of more than 10 million people and the operational capacity of nearly 300,000 businesses in Ho Chi Minh City. In this case, strengthening mental health care (MHC) services was essential.

## Mental health issues and mental health care for people amid the prolonged COVID-19 outbreak

In the context of the COVID-19 pandemic, each individual will experience many different worries and stresses: health, finance, the safety of loved ones.<sup>[1-5]</sup> There are also have more

mental health issues related to COVID-19, especially post-traumatic stress disorder (PTSD). Pandemic experience is a trauma that causes both physical damage and severe mental trauma, leading to many significant risks of mental illness.<sup>[6,7]</sup> The WHO warned that stress during the COVID-19 outbreak could increase the risk of depression in all ages.<sup>[8]</sup> Therefore, it is imperative to properly understand COVID-19 and how to take care of mental health in this context.

Mental trauma appears in COVID-19-infected people and spreads to groups of medical staff, volunteers on the front lines of the fight against the COVID-19, and individuals living in lockdown, quarantine areas.<sup>[9,10]</sup> The city lockdown caused people to limit their space, social relationships and change almost all living habits. Among them is a group of people whose loved ones have to be treated, or do not survive the pandemic, will have to face long-lasting feelings of insecurity and pain.<sup>[11,12]</sup>

Research data from countries that have experienced the devastation of COVID-19 and Vietnam's actual conditions in terms of post-pandemic MHC capacity show that this need is enormous and should be developed through an online approach.<sup>[13,14]</sup> However, our understanding of the consequences for their mental health after the pandemic is limited, and Vietnamese people could not easily access digital equipment.<sup>[15,16]</sup> Therefore, it is essential to provide MHC services to people focusing on online care as part of the national overall disease prevention strategy. Besides, the most evidence-based treatment for mental health disorders or illnesses is cognitive behavior therapy (CBT), especially internet CBT that can prevent the spread of infection during the pandemic.<sup>[17]</sup> This is the current trend in mental health support during the COVID-19 pandemic of the developed countries.<sup>[18-20]</sup> This is a strategic action for recovery and development plans.

## Theoretical framework

According to the Stress Model of Crisis in therapeutic crisis intervention strategies, when faced with prolonged stress, or crisis, individuals often go through four stages: (1) Pre-crisis State, (2) Escalation Phase, (3) Outburst Phase, and (4) Recovery Phase.<sup>[21]</sup> It is fundamental to understand the typical behavior in a pre-crisis state. This is the first step in identifying a situation that may lead to a potential crisis. It is only by knowing each individual's baseline behavior when not stressed that we can identify the first phases of the crisis, intervene early, and prevent the situation from escalating. In this state, it is necessary for early education or passive education through communication channels (social networks, handbooks, radio stations, and live T.V.) to raise social awareness of the MHC's importance.<sup>[22]</sup> When a COVID-19 outbreak such as a stress trigger event occurs, the individual enters the Escalation Phase. There are obvious signs of increased anxiety and failure to cope effectively with the stressful situation during this phase. As the behaviors increase in duration and frequency, responding

to interventions decreases. An individual may be threatening or behaving in ways that are recognizable signs of escalation. During this period, in addition to continuing to use passive education, the supplement of support activities, psychological and health counseling for people through 24/7 hotline, video clips, talk-show, and going directly to the lockdown, quarantine areas, and COVID-19 hospitals to propagate and encourage people. In the outburst phase, individuals may act out aggressively that is dangerous to themselves or others. During this phase, a crisis intervention strategy between the psychologist and individual is needed in online calls or face-to-face counseling (in the lockdown, quarantine areas, or COVID-19 hospitals). The recovery phase is the last section of the Stress Model of Crisis. After the outburst, individuals should be allowed to calm down. The body begins to calm itself naturally by relaxing the mind and muscles. In all crises, there are three possible outcomes: the lower-level outcome, no change/no growth, and the higher-level outcome. For crisis intervention, the MHC strategy after controlling the pandemic – the event that provoked the crisis – should focus on educating/training people in self-care and self-protection skills, continuing to provide counseling and crisis intervention for individuals in need, and in particular, focusing on crisis intervention strategies by communication channels to reach people from all social classes easily.

With the above requirements, the MHC program should meet the following criteria: (1) promoting mental health knowledge and improving the society's awareness of MHC by communication channels; (2) offering user-friendly mental assistance to support people in the lockdown, quarantine areas, or COVID-19 hospitals by 24/7 hotlines, online interactive programs, and directive propaganda; (3) providing online and on-site crisis intervention/counseling; and (4) providing post-pandemic crisis intervention with online counseling, skills training, and educating channels. A psychological intervention called the PSYCARE model - COVID-19 Mental Health Care Model was developed in this case.

## Methods

This study was conducted ethically under the World Medical Association Declaration of Helsinki. The study protocol was approved by the research ethics committee of the Science and Technology Department of the Ho Chi Minh City University of Education (under the Ministry of Education and Training) and implemented by the Psychology Department (Ho Chi Minh City University of Education) – the critical training department of human resources in counseling, psychotherapy and applied psychology of the Southern region of Vietnam.

## Organization set up

Under the leadership of the Ho Chi Minh City government, Ho Chi Minh City University of Education (Vietnam) established a leading group comprised of authoritative MHC experts in crisis

training and intervention and was responsible for the overall planning. According to the aim of providing the MHC for Vietnamese people released by the National Steering Committee for COVID-19 Prevention and Control released in 2021, this leading group developed working programs for psychological intervention based on various channels in Ho Chi Minh City. The entire workflow was implemented in the following steps.

### Step 1: Preparation and mobilization

Initially, the leading group had planned to implement a MHC project for people affected by COVID-19 in Ho Chi Minh City with two main pillars: (1) Propagating and guiding MHC skills during and after the COVID-19 pandemic and (2) Counseling and crisis intervening for people. Then, the leading group recruited counselors, clinicians, and applied psychologists to create groups responsible for specifically implementing the two pillars. After the recruitment, the leading group conducted a series of pre-training workshops for the MHC expert team involved in the psychological intervention and the directive MHC propagation in the lockdown, quarantine areas, and COVID-19 hospitals.

### Step 2: Multidisciplinary team establishment

A psychological intervention and counseling team were established supported by mental health professionals in the Psychology Department, Ho Chi Minh City University of Education (Vietnam). This team consisted of 60 multidisciplinary members, including doctors, psychiatrists, psychotherapists, clinicians, counselors, and psychologists. Subsequently, they were divided into four groups: (1) media group; (2) hotline consultation group; (3) crisis intervention and counseling group; and (4) propaganda group. Each group had a leader responsible for regularly reporting their daily work progress to the leading group.

### Step 3: Feedback mechanism and project completion

Problem feedback mechanisms were established. The leading group listened to the feedback report of each team regularly so that they could supervise and adjust the intervention work in a timely and prompt manner. At the same time, the leading group based on the expert group's feedback and surveyed the mental health care needs of the people to improve and upgrade the service quality of the project.

## Structured psychological intervention program implementation

We established a structured framework of psychological intervention (Figure 1 and Table 1).

PSYCARE model officially operates from July 30, 2021, until the COVID-19 outbreak in Ho Chi Minh City and other southern provinces is under control and then moves to phase 2, crisis intervention in the post-pandemic for people from January 2022.

## Data analysis

Based on the five services that the PSYCARE model provided, we collected service usage data and people's feedback. We applied statistical methods to process the parameters and discussion on these results from the initial primary data to reflect the study's results.

## Results

It was evident that our framework and project were proven feasible and thriving in the provision of MHC assistance to Vietnamese people who were affected or infected with COVID-19, including the children, adults, vulnerable people,



Figure 1: COVID-19 Crisis Palliative and Mental Health Care Model

**Table 1:** The psychological intervention structured framework of the PSYCARE project

Pillar	PSYCARE's programs	In charge	Detailed implementation
Propagating and guiding MHC skills during and after the COVID-19 pandemic	Mental health active and passive education	Media group	<p>Communication channels deployed by the project:</p> <ol style="list-style-type: none"> <li>Social network: design and edit content published on the PSYCARE project fan page, included: <ul style="list-style-type: none"> <li>PSYCARE's information: mental and physical health; Government announcements and regulations related to COVID-19.</li> <li>PSYCARE's exercises: mental health improvement exercises, skills training, and living tips in the context of city lockdown.</li> <li>PSYCARE's consulting: public posts with a passive advisory role through common causes during the COVID-19 outbreak.</li> </ul> </li> <li>Handbooks: design concise content guiding people on positive activities during the lockdown.</li> <li>Radio stations: provide helpful information channels for sharing and encouragement.</li> <li>Live T.V.: provide a set of tips, advice, or suggested exercises that experts briefly produce in Crisis intervention and counseling groups.</li> </ol>
	Directive MHC propagation	Propaganda group	Visiting, encouraging, and propagating people to maintain a positive mental state during the lockdown and treatment.
	24-h hotline	Hotline consultation group	<p>Provided 24/7 free consultation services by the hotline number 09.44.13.13.37 with ten psychologists as operators on duty.</p> <p>Operators used a self-developed scale to collate data that callers were seeking, such as (1) general inquiries or requests for emergency assistance; (2) COVID-19 related health problems, (3) mild mental health problems, (4) severe mental health problems. With (1), operators will immediately advise the caller to ensure timeliness.</p> <p>Operators solicited feedback from the clients immediately after the hotline consultation or crisis intervention, using a three-option category: (1) problem solving, (2) health monitoring, or (3) shift request.</p>
Counseling and crisis intervening for people	Online interventions/ counseling	Crisis intervention and counseling group	<p>Operators, after confirming the problem encountered by the caller (belonging to (2), (3), (4) issues), will contact the Crisis intervention and counseling group to organize an online call on the Zalo platform (Vietnamese social networking application).</p> <p>Each case takes from 30 to 45 min.</p>
	Crisis intervention		<p>On-site crisis intervention was mainly provided for:</p> <ol style="list-style-type: none"> <li><i>Children (under 18) and adults (over 18):</i> We trained and provided self-developed assessment criteria for adults, medical staff, and the children's families to assist in crisis screening and instruct them to contact the PSYCARE.</li> <li><i>Vulnerable people (homeless, poor, orphans, disabled people):</i> This was the most vulnerable group during the pandemic. We trained medical staff, residential groups, and social workers on crisis identification and screening in this group. Then, come directly to visit, support, and intervene in the crisis.</li> <li><i>Medical and military staff:</i> They were the ones on the front lines against the pandemic. We directly support, encourage, share and intervene in crisis for this group working.</li> </ol>
		Leading group	<p>The leading group provided training and supervision during the entire process. They held weekly communication meetings so that they could coordinate and solve the existing problems, and supervised the staff.</p> <p>In addition, this group is also a working representative, connecting with the pandemic prevention and control steering committees of the Government.</p>

frontline medical and military staff, and the general population at large in Ho Chi Minh City and other Vietnamese Southern provinces.

### Mental health active and passive education

From July 30, 2021, to September 10, 2021, the media group announced active and passive educational communication products on MHC and recorded the following initial results:

1. Social network: on the PSYCARE fan page with posts

in the three categories mentioned above, 149 posts, 1660 shares, 8310 likes, 9340 followers, more than 50,000 people reach used per week, more than 4,000 interactions per week.

2. Handbook: The handbook (Figure 2) has been printed and distributed directly to people in the lockdown, quarantine, and COVID-19 hospitals in Ho Chi Minh City. In addition, the leading team also contacted Long An, Binh Duong, Tien Giang, and Can Tho provinces in



the South of Vietnam to deliver the handbook to people affected/infected with COVID-19. The number of manuals scanned online and downloaded is 14,200 times.

3. Radio station: the media group has designed ten radio broadcast episodes and coordinated to broadcast on Tuoi Tre News - the largest newspaper in Ho Chi Minh City and the South of Vietnam - to take care of MHC for the population. Four episodes have been broadcast with listeners more than 10,000 times/episode in the past month. Through radio episodes, the number of questions about MHC and overcoming the crisis caused by COVID-19 ranged from 40 to 500 inquiries ( $M = 334$ ) per day sent to the PSYCARE fan page and hotline calls.
4. Live T.V.: in one month, the media group has successfully designed and broadcast ten live T.V. programs about communication between mental health experts and people, as well as video clips to guide the MHC exercises, skills to practice during the pandemic outbreak. Live T.V. is broadcast on two main channels: the YouTube channel and Fanpage PSYCARE, with more than 20,000 views as of September 10, 2021. In addition, the media group also cooperates with news channels of Vietnam National Television (VTV) and Ho Chi Minh City Television (HTV) to broadcast small excerpts in talk shows, tutorials in the 24/7 News section that are shown from 6 pm to 7 pm every day.

### Directive mental health care propagation

This program starts from August 3, 2021, to August 21, 2021. After that, this program must be stopped due to the government strengthening and tightening the city lockdown under Directive 16, August 23, 2021. It is expected that after September 30, 2021, when the pandemic in the city is under control, the propaganda group will continue their work to propagate MHC activities and crisis palliative care for people to restore in society.

In 18 days of implementation, the propaganda group successfully propagated 35 topics at four COVID-19 hospitals and 34 concentrated quarantine areas in 24 Ho Chi Minh City districts. The propaganda group helped patients relieve negative emotions and transmit positive lessons on MHC skills.

In addition, the propaganda group also performed three topics on MHC for medical staff in COVID-19 hospitals suffering from crisis and five topics on MHC for military staff who have done the transportation and handling of the COVID-19 deaths. These two frontline forces against the pandemic have witnessed the most trauma and crisis.

### 24-h hotline

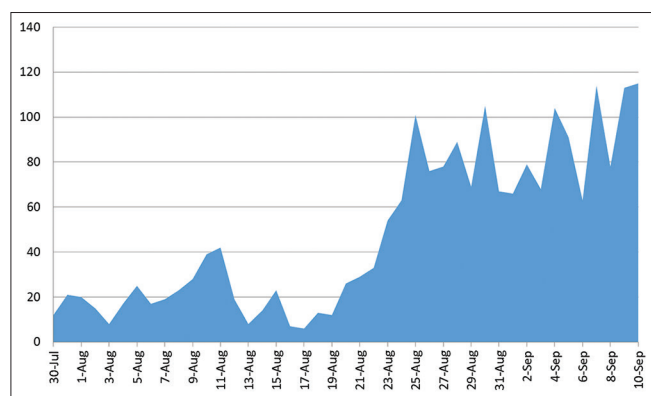
Over one month from July 30 to September 10, 2021, there were a total of 2,069 hotline consultations, with an average duration of 7.56 ( $\pm 5.24$ ) min. Since Ho Chi Minh City tightened social distancing from August 23, 2021, the number of hotline consultation calls has increased continuously. It is forecasted that after September 10, this number of calls will continue to remain at a high level if the city has not reached its pandemic control target (Figure 3).

By analyzing 1,932 valid hotline consultation data, we found no difference in the gender of the caller (female accounted for 51.02% and male accounted for 49.98%). However, there is a difference in the age of people when using the hotline consultation service. The average age of callers is 38 (the lowest is 17, and the highest is 67). It can be seen that the project has an impact from young to old ages, and almost everyone who is infected or affected by COVID-19 needs MHC.

Regarding the type of consultations, 876 cases were related to general inquiries about mental health or requests for



Figure 2: Handbook of mental health care during the COVID-19 outbreak



**Figure 3:** Hotline consultation calls trend of PSYCARE from July 30 to September 15, 2021

emergency and welfare assistance (45.34%), 514 cases were about COVID-19 related health problems (26.61%), 461 cases involved mild mental health problems (23.86%), and 81 cases were severe mental health problems (4.19%). Regarding the feedback on our consultations, 45.12% of the clients stated that their problems were solved, 39.85% continued to monitor their health and mental health, though practical difficulties still existed, and 15.03% had more complicated mental health problems needing further intervention and the expert request to shift the clients to another expert with in-depth intervention. Our findings indicated that the PSYCARE project and the framework for crisis intervention model meet the psychological support of infected or affected people by the COVID-19 pandemic in Ho Chi Minh City.

### Online interventions/counseling

This program is implemented in parallel with the consultation hotline. From July 30 to September 10, 2021, a total of 1,382 cases were successfully counseled online. 1,056 cases were connected from the consultation hotline (76.41%), and 326 cases were contacted directly by the medical staff at the COVID-19 hospital for online counseling for patients (23.59%).

We deploy online interventions/counseling in many different ways, not only on the Zalo platform (Vietnamese social network) because there are cases where it is necessary to change according to the clients' circumstances. The leadership group agreed to add other forms of online interventions/counseling, such as counseling by message on the Facebook platform and exchange via regular voice call. Specifically, there were 688 cases done on the Zalo (65.15%), 314 cases made by voice call (29.74%), and 54 cases made by messaging on the Facebook platform (5.11%).

### Crisis intervention

Between July 30 and September 10, 2021, we offered 145 directive one-on-one crisis interventions to 29 children (20%), 42 adults (28.96%), 48 vulnerable people (33.10%), 12 frontlines

medical staff (8.28 %), and 14 military staff (9.66%). Of these, more than two-thirds of the clients were infected with COVID-19. They were being treated in hospitals and self-treating at home (the hospitals were already overwhelmed). Eight online professional training sessions on the Zoom platform on identifying and screening crises for medical staff (two sessions), residential groups (one session), parents (one session), social workers (two sessions) as well as for people affected/infected with COVID-19 (two sessions) so they can guide clients to contact PSYCARE. 121 cases received crisis intervention with support from our project's training groups (83.45%), the remaining 24 cases were self-contacted through the PSYCARE hotline (16.55%).

### Discussions

This is the first online mental health care project in Vietnam to be implemented and accepted to the best of our knowledge. The core concept is to directly combine psychological counseling and crisis intervention with communication technology. Ethical standards of crisis counseling/intervention are maintained on technology platforms. The evidence and achievements of the PSYCARE project have demonstrated that this project can be replicated in countries long-term affected by COVID-19, especially in Southeast Asian countries whose socio-cultural characteristics are pretty similar to Vietnam and other developing countries.

Based on the Stress Model of Crisis of Residential Child Care Project, the PSYCARE model meets the crisis prevention and intervention requirements corresponding to the four stages of the crisis.<sup>[21]</sup> The two main pillars of the PSYCARE framework, (1) Propagating and guiding MHC skills during and after the COVID-19 pandemic and (2) Counseling and crisis intervention for people, have ensured that mental health and crisis issues are covered and addressed, as well as matching the four stages of the crisis according to the original theoretical model. Pillar (1) ensured the provision and maintenance of social awareness of MHC in four phases. Pillar (2) focused on crisis intervention in the Outburst phase and ensuring resilience in the recovery phase.

The mental health active and passive education program has equipped people with the first knowledge about MHC during the pandemic and created positive effects, helping people release negative emotions during the prolonged city lockdown or being treated for COVID-19. Social awareness about mental health in general and MHC during the pandemic has been enhanced. This is a necessary preparation step in the pre-crisis state to minimize the risk of a severe and prolonged crisis when the pandemic breaks out. In the escalation phase, the Directive MHC propagation program is a practical and humane idea that the project has implemented in more than one month of implementation. We came directly to visit and encourage people treated in quarantine areas and COVID-19 hospitals. Based on the motivation theory of Petri *et al.* and the study of positive psychological atmosphere in hospital

of Narang *et al.*, PSYCARE has created a spillover effect of positive psychological atmosphere between patient and patient, patient with medical staff, medical staff with medical staff so that they can balance their mental health and be motivated to overcome the pandemic.<sup>[23,24]</sup> In addition, PSYCARE also focused on MHC and crisis intervention for the military staff - the key and characteristic anti-pandemic force of Vietnam.

The directive mental health care propagation program has helped the Vietnamese military relieve the pressure and stress of witnessing the suffering of the people, the death, and the handling of corpses. According to Stikkelbroek *et al.* and Tebeka *et al.*, witnessing continuously and long-term the death of people around hurt an individual's mental health.<sup>[25,26]</sup> In this case, the Vietnamese military staff is no exception, even more heavily because they have to witness this terrible situation in the context that they can be infected at any time. Therefore, parallel to the MHC propagation is the Crisis intervention program for people (executed when entering the outburst phase). This program focused on solving the crisis encountered by people during the pandemic and was carried out directly in the place where they were quarantined/treated. Thanks to this program, PSYCARE has reached vulnerable groups and frontline groups to provide intensive support to their crisis.

Throughout the four-crisis stages of the COVID-19 pandemic in Vietnam, all the five programs under the PSYCARE project continuously supported each other to take care of social, mental health. If the 24-h hotline consultation program is best served during the escalation phase when promptly solving the escalating needs of people in terms of morale, wellbeing, and health, which is reflected in the number of calls continuously increasing and the leading group must change the form of hotline consultation to suit the reality. Online interventions/counseling programs best support people during the outburst phase when mental health issues related to COVID-19 begin and worsen. Previous studies on mental health during the COVID-19 pandemic have noted that psychologists' timely support and psychological intervention will promote people's trauma recovery process.<sup>[27]</sup> In the recovery phase, the period in which mental health researches is forecasted after the COVID-19 pandemic will generate the most mental health problems.<sup>[28]</sup> Once the individual's safety has been addressed (the pandemic is under control), the need for emotional support and care will increase.<sup>[29]</sup> The PSYCARE framework solved this problem and has developed a strategy for palliative care in crisis and mental health issues for people during and after the pandemic. This is both an opportunity and a limitation of this research when the COVID-19 outbreak is still not under control in Ho Chi Minh City. We have not implemented a crisis palliative care program for people. However, we have already laid the groundwork for MHC in the programs, which focused on mental health active/passive education and crisis intervention. These two programs met the criteria for raising social awareness about post-pandemic MHC to the population.

With feedback from individuals using PSYCARE's services, it can be seen that the framework met the needs of people's mental health support. With 45.12% of cases feeling satisfied when their problem is solved (almost were medical treatments and requests), PSYCARE continuously monitors 39.85% for more effective intervention. These results reflected the effectiveness of MHC during the pandemic that can provide quick support in medical and mental help for people. It can be said that the application of communication technology to mental care is a valuable and effective strategy for the field of MHC in the context of the COVID-19 pandemic currently.

Compared with several other countries' COVID-19 MHC programs, the PSYCARE model has differences in audience and model implementation. In the United States, some steps have been taken to address the impact of the pandemic on mental health. The vast majority of MHC programs in the U.S. focus on supporting mental health disorders (focusing on stress disorders, depression, and suicide) and substance use disorders. These programs are allocated to autonomous states within the scope of oversight and use of a high-quality U.S. mental health workforce.<sup>[30]</sup> In Japan, the Health System Response Monitor (HSRM) is designed to collect and organize up-to-date information on how countries respond to the COVID-19 outbreak. The HSRM is focused on healing more comprehensive public health initiatives. The HSRM presents information under six heads: Preventing local transmission, ensuring adequate physical infrastructure and workforce capacity, health services effectively, paying for services, Governance, measures in other sectors. The program meets the level of comprehensive health support and other social security policies, including MHC. This program is more relevant to developed countries than developing countries and can be experienced through further specializations in developing countries.<sup>[31]</sup> In China, traditional (direct) psychological interventions have been suspended due to the high risk of transmission. An integrated psychological intervention model coined the "COVID-19 Psychological Resilience Model" has been developed in Chengdu, China, including live media, 24-h hotline consultation, online video intervention, and on-site crisis intervention sessions. This model has provided valuable experience and is a reference guide for other countries to provide adequate psychological interventions and reduce adverse mental health outcomes during a public health emergency.<sup>[32]</sup> In terms of implementation, China's MHC program is similar to ours. The difference is that our model focuses more on propaganda and MHC for pandemic frontline forces (medical staff and the military).

In summary, to apply the PSYCARE model successfully in a developing country, through the findings in this study, we summarized into three highlights: First, take advantage of passive/active educational channels on traditional media channels (T.V. and newspapers), social networks, handbooks to raise the community awareness about MHC before and after the pandemic. Second, effectively use the hotline consultation



and online connection platforms (Facebook, Zalo, Instagram, Zoom, Google meet) to provide counseling/crisis intervention for individuals in need. Third, pay attention to MHC for frontline staff against the pandemic and vulnerable groups on-site and online. We improved the overall public and mental health in Ho Chi Minh City (Vietnam) during the COVID-19 pandemic with concerted effort. We believe that this model can offer guidance for a systematic and effective psychological intervention program when there is any sudden outbreak of public health shortly.

## Limitations

Our study has some limitations. First, the implementation of crisis intervention in an online form and the broadcasting of online media faced many difficulties due to the unstable internet connection quality. Therefore, the intervention has not been effective in some cases, causing the clients to become discouraged and lose belief. Second, during the same time as the Ho Chi Minh City outbreak, many other spontaneous MHC groups and projects were being carried out. This led to many channels and sources of communication about different MHC programs and services for people to choose from. Therefore, despite the support of the city government when implementing the PSYCARE model and being the only project recognized legally, the number of people accessing the model was quite limited. Third, the proposed model is designed and applied in both phases during and after the pandemic is controlled. However, because Ho Chi Minh City has not been able to control the pandemic in the fourth quarter of 2021, our results only reflected the effectiveness that PSYCARE brought during the pandemic. However, we have initially mentioned the crisis intervention for people with media and propagation products and a clear plan for MHC after controlling the pandemic. In summary, the lesson learned for MHC strategies/projects for people during a prolonged pandemic in the future is (1) Must have the unity in communication and direction from management agencies, (2) Must have a good preparation of digital communication infrastructure the Wi-Fi connection must be smooth, and (3) Should have coordination in forecasting the pandemic with the Ministry of Health to implement an appropriate MHC strategy for the community.

## Conclusion

The fight against COVID-19 in Ho Chi Minh City, particularly Vietnam, will continue to progress with the change and development of the health, economy, society, culture, and educational network. Promoting long-term MHC strategies for the community in different pandemic contexts is urgent. Our PSYCARE framework and model could be used as an expert reference guide to other regions in Vietnam or to other Southeast Asian and developing countries in the provision of effective psychological intervention which essentially reduce adverse mental health outcomes, especially the crisis in a sudden outbreak of a public health emergency, or also in COVID-19 pandemic.

## Authors' Declaration Statements

### Ethics approval and consent to participate

Ethical approval was obtained from the Science and Technology Department of the Ho Chi Minh City University of Education (under the Ministry of Education and Training) and implemented by the Psychology Department (Ho Chi Minh City University of Education). This study was conducted ethically following the World Medical Association Declaration of Helsinki revised in 2008. All the participants agreed to participate and publish the study's results. The PSYCARE team gave the written consent and the people who used the PSYCARE MHC services gave their voice recording consent to participate in the study.

### Availability of data and material

The data used in this study are available and will be provided by the corresponding author on a reasonable request.

### Competing interest

The authors admit that this study has no conflicts of interest. All authors have read and approved the manuscript and have met the criteria for authorship listed above.

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None.

## Authors' Contributions

Van-Son Huynh: Conception, supervisor, final approval. Thien-Vu Giang: Data interpretation and drafting the article. Tat-Thien Do: Design, data interpretation. Hong-Quan Bui: Data analysis. Thi-Tu Nguyen: Article revising, editing, proof reading. Vinh-Khuong Nguyen: Proof reading, ethical approval and process.

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