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Community responses to COVID-19 pandemic first wave containment measures: a multinational study

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Abstract

Introduction: National strategies to control COVID-19 pandemic consisted mostly of social distancing measures such as lockdowns, curfews, and stay-home guidelines, personal protection such as hand hygiene and mask wearing, as well as contact tracing, isolation and quarantine. Whilst policy interventions were broadly similar across the globe, there were some differences in individual and community responses. This study explored community responses to COVID-19 containment measures in different countries and synthesized a model. This exaplains the community response to pandemic containment measures in the local context, so as to be suitably prepared for future interventions and research.
Methodology: A mutlinational study was conducted from April-June 2020 involving researchers from 12 countries (Japan, Austria, U.S., Taiwan, India, Sudan, Indonesia, Malaysia, Philippines, Myanmar, Vietnam and Thailand). Steps in this research consisted of carrying out open-ended questionnaires, qualitative analyses in NVivo, and a multinational meeting to reflect, exchange, and validate results. Lastly, a commuity response model was synthesized from multinational experiences.
Results: Effective communication is key in promoting collective action for preventing virus transmission. Health literacy, habits and social norms in different populations are core components of public health interventions. To enable people to stay home while sustaining livelihoods, economic and social support are essential. Countries could benefit from previous pandemic experience in their community response. Whilst contact tracing and isolation are crucial intervention components, issues of privacy and human rights need to be considered.
Conclusions: Understanding community responses to containment policies will help in ending current and future pandemics in the world.

Introduction

The coronavirus disease, COVID-19, is an infectious disease caused by a newly discovered coronavirus [1]. It originated in China in 2019 and spread quickly to the rest of the world, later, announced as a pandemic by World Health Organization [2].

Though most COVID-19 confirmed individuals experience mild to moderate symptoms and recover, older adults, and people with underlying medical issues such as cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. Following the outbreak,

countries reacted differently by putting in place large-scale public preventive and containment measures such as lockdowns, curfews, stay-at-home guidelines, health messaging for individual measures, and isolation hopsitals or quarantine centers [3]. Public health determinants such as health literacy, law enforcement, and collective action, played a key role in the enforcement of public health policies and in containment of the virus. Personal protection included hand hygiene, mask wearing, and social isolation, with individual behaviors, impacted by a wide range of factors, leading to different community responses. Some countries quickly formed taskforces to design, implement and evaluate COVID-19 policy, while others took longer to respond. While it is difficult to pinpoint precisely how individual interventions of country measures' impacted on COVID-19 containment, this research explored the different measures put in place in various countries and how these affected the community responses in those countries. During this study, the epidemic curve in many countries started to flattern, therefore, the lockdown measures were eased [4]. After the first wave of the COVID-19 pandemic was tackled, a second wave made its way impacting many countries, and now a third wave is ongoing in many places. As we go through these waves of the pandemic, reflecting on first hand experiences and consolidating evidence of community behaviors and responses to public health measures across the globe is helpful for designing and adapting cuturally-senstive interventions that aim to contain the spread of future epidemics and pandemics. This paper does not intend to cover these twelve national experiences in depth. Rather it focuses on collecting thematic examples of country responses which might have contributed to some extent to containment of the pandemic. It is hoped that this exploratory and reflective summary of the evidence will contribute to further research and serve as a guide for countries' public policies which seek successful community engagement and participation.

Methodology

This study was conducted from April to June 2020, using several research methodologies. At the time of data collection, as the whole world was under different degrees of lockdown and with travel restrictions implemented, we purposefully avoided direct face-to-face interviews. Researchers from twelve countries participated in the study: Japan, Austria, U.S., Taiwan, India, Sudan, Indonesia, Malaysia, Philippines, Myanmar, Vietnam and Thailand. The research team comprised members of faculties of global health, nursing and public health, economists, physicians in community health or family medicine, and directors of ministries of health. Several steps were followed in this project. First, we sent an open-ended questionnaire to researchers from each country. The respondents gave consent to participate and have the findings from the questionnaires published. Answers provided were based on in-country experiences and a review of national public policy regarding COVID-19. The questions asked were the following: 1. "How did the community respond to infection control? Discuss one or more examples"; 2. "How did the community respond to social distancing? Discuss one or more examples"; and 3. "Were there any notable community responses effective in containing the pandemic? Discuss one or more examples." After this step, results were analysed qualitatively using NVivo software, and English transcriptions were converted for data analysis. After analysis, a multinational meeting was organized to reflect on the findings from the questionnaires and to provide comments and further discussion [5]. A three and a half-hour long Zoom meeting was held, where each country representative presented and clarified their country's responses.

During the meeting, attendees also had the opportunity to discuss the similarities and differences between the countries' responses. More than 70 participants attended the multinational meeting. They were faculties teaching global health in many countries, researchers, public health and medical professionals from several ministries of health, consultants from non-governmental organizations and thinktanks, and graduate students. Themes emerged and led to discussions about individual prevention measures, such as hand hygiene, mask wearing, and social distancing, as well as national measures including quarantine measures, lockdowns, community messaging, policies put in place to support households (financial and social), mechanisms used such as tracking apps, and the importance of privacy. After analysis of the questionnaires and discussions from the multinational meeting, themes influencing community responses were extracted for reflection and synthesis. Finally, a model was derived using the socio-ecological model and the health belief model, to show the underlying factors driving community responses to COVID-19 containment measures.

Results

Responses to the open-ended questionaries were analysed and reflected upon in a mutinational online

meeting. The themes which emerged from the meeting were:

1. Communication strategy
2. Habit and behaviour of people according to national characteristics
3. Sustained essential social services
4. Economic support
5. Prevention of clusters as a result of cultural norms and festivals
6. Alternative ways to maintain social activities
7. Public experience of pandemics
8. Privacy and human rights

Communities in various countries responded diffently to the COVID-19 pandemic containment measures. The responses seem to be shaped by different factors at different levels (government, organizational, interpersonal, and individual – influenced by beliefs). From the themes that emerged from the questionnaires and the multinational meeting, the factors that shaped the community response at various levels will now be discussed (Table 1).

Political environment

The level of trust in governmental officials played a key role in determing how well the pandemic policies were followed [6]. For instance, in Japan, citizens usually obey governmental rules and regulations. Containment policy in Japan consisted of emergency declarations, requests to stay at home during the outbreak and cooperation with local policy to stay in place. At the same time, the government provided economic support and continued to run essential social services. Similarly in India, the government provided economic support [7]. On March 26, Finance Minister of India announced a 170,000 crore rupees (US$24 billion) stimulus package to help those affected by the lockdown, and the following day, March 27, the Reserve Bank of India (RBI) announced a slew of measures to help mitigate the economic impacts of the lockdown [8]. Furthermore, special parcel trains were put in place to transport essential goods in addition to the regular freight service, and national rail operators announced plans to convert coaches into isolation wards for patients of COVID-19. In Vietnam, citizens also tend to trust their governemntal officals. Without strict law enforcement, Vietnamese people stayed at home and maintained social distancing as advised by the government. The Vietnamese government earned the highest national public trust in their COVID-19 response globally, according to Dalia Research [9]. The government was willing to sacrifice economic benefits in the short term for the health of the people and work

according to principles of not leaving anyone behind. In Malaysia, the Ministry of Health is highly respected. National information was, therefore, taken seriously with most Malaysians tuning in to listen to the daily announcements from the Director of General Health [7].

Quarantine measures

Quarantine, a centuries-old public health intervention, was applied in many countries during the COVID-19 pandemic to prevent not only internal transmission, but also external transmission through people entering the country from abroad [10]. Myanmar and India were some of the first countries that carried out an extensive quarantine measures for infected persons within the country, but also for returnees to prevent imported transmission of COVID-19. Thousands of Myanmar nationals working in Thailand returned home, when Thailand underwent lockdown in March 2020 [11]. Quarantining with such large numbers of returnees was a hard task to carry out inside cities and along the Thailand-Myanmar border where resources were limited. In India the government developed guideline manuals to implement quarantine measures.

The basic needs and safety of individuals in quarantine showcased the local leaderships' vision and managment skills. Temporary quarantine facilities were built using bamboo and thachets, communities were asked to provide food and water for those in quarantine, and faith-based donation funds from local religious settings were used. Restrictions were also placed on all unnecessary international travel except for a limited number of foreign nationals working on humanitarian missions who were able to get exemption. Everybody was required to quarantine upon arrival for 3 weeks, although this was later reduced to one week of hotel quarantine and one week at home covered by personal expenses. In Taiwan quarantine was required for two weeks in a room with a private bathroom. Since January 15, 2021, the policy has been updated to require quarantine in a single house without any family members for two weeks. A cell phone tracking system was initiated when travellers landed inside the airport. From that time, governmental officals were able to track whether the travellers moved outside of the address indicated in the landing information. So far, the Taiwanese system has seen a positive outcome with a low number of infections (a high of 900 on January 18, 2021). Due to early containment of the COVID-19 pandemic in the first wave, only 7 people died as a result of COVID-related complications.

In contrast, in countries with a greater tendancy towards individualism, such as the USA and European countries, governmental quarantine was not a popular method of containing the spread of COVID-19. Individuals were encouraged to stay at home if coming into contact with COVID-19, unless treatment was needed. As it turned out, people still traveled for work, family gatherings and personal business.

Lockdowns and restriction of movement

India went through several phases of lockdowns in response to the COVID-19 pandemic. Action was taken fast with the country divided into several "risk zones" in the initial phase. Travel was limited according to the zones, with the highest risk being the most restrictive. Later, restrictions were eased to allow essential workers to continue working whilst keeping certain prevention measures in place. Other countries, underwent similar measures. For instance, in Myanmar during the second wave of the pandemic, restrictions on travel were put in place, during which individuals could not travel beyond their township, and vehicles required a QR code to justify the reason for their travel. In the Philippines, checkpoints were in place for any travel, and a strict lockdown was enforced in which only one member of the family was allowed to do grocery shopping. Due to the strictness of this policy, the government passed several regulations to assist the people, such as in the provision of food, the exemption of rent and/or electricity payments, the offer of cash and food allowances, and assistance with burial cremations. The local government in Da Nang City (Vietnam) also issued 'shopping coupons' for residents, in order to prevent large gatherings at markets. Each family was given five coupons to be used within 15 days. In Austria, travel restrictions were put in place in early March 2020. Public gatherings were prohibited and shops and non-essential businesses were closed. As the pandemic was controlled in certain areas, restrictions were eased, but the wearing of face masks and social distancing remained obligatory.

Such policies were difficult to maintain, mainly due to fatigue with social distancing, loneliness, isolation, and the need for family and friends' support. In countries such as Myanmar, India, and Sudan, individuals with a lower socioeconomic status (such as blue collars workers) needed to go back to work in order to sustain their livelihoods. This highlights the need for governments to step in to provide for people's basic living needs, to combat loneliness and isolation, as well as provide financial support for low socioeconomic individuals in order to continue the stay-at-home policy.

A good example of this practice was in Vietnam where entrepreneurs installed "free Rice ATMs" across the country to help those affected by the pandemic [12, 13]. People were allowed a 1.5kg supply of rice twice a day to help feed their families. It has been estimated that so far 3,000 tons of free rice have been given out across Vietnam. With more than 1,000 sponsors on board from Vietnam and overseas, around 100 rice ATM machines were eventually opened. Similarly, "free Mask ATMs" have been established in Vietnam to encourage people to wear masks and support people who cannot afford to buy safety masks.[12, 13].

Indonesia had outstading examples at village level: various solidarity actions has been conducted such as providing public kitchen, providing foods, or distributing basic food/sembako for affected community. Family welfare empowerment team was participating actively in these action, in every village. Indonesian culture of solidarity and collaboration became strength in addressing COVID-19.

Outreach, health education and messaging, and community engagement

A song on youtube carried a COVID-19 prevention message to more than 40 million people in Vietnam [14]. In India, training materials were developed for health staff to better communicate with communities in raising awareness and sending key messages about COVID-19 containment. Furthermore, community health workers, as well as several NGOs and self-help groups, worked to deliver essential PPE material and support communities by providing affordable food in community kitchens. In many cities, the buildings in the commuties such as schools and stadiums were transformed to use as quarantine facilities.

Community health workers played a key role in several Asian and African countries. Thailand is another country that heavily relied on its health volunteers. Over one million in the country, named "Silent Heroes", provided information at the village level on containing the pandemic. This volunteer network acts as a crucial mechanism in Thailand's robust primary health care system [15]. They served as strong intermediaries between health professionals and the local commuties. In Malaysia, community needs are focused on with a movement called "KitaJagaKita" which means, "we take care of each other". Similar models were used in some African countries such as Sudan, where volunteers traveled to remote places to distribute face masks and hand sanitizers, give talks on COVID-19 prevention, and carry out essential services

such as supporting food security and providing essential medicines for people in need.

Cultural norms

Culture plays an important role in epidemic outbreaks as speculated in the pathogen epidemic hypothesis [16]. Individualism and collectivism are two distinct cultural values. Individualism values personal autonomy, uniqueness and independence, while collectivism values other-person relatedness or interdependence, with a person seen as being part of a collective [17]. In the case of Asian countries, such as China, previous studies have found that collectivism in the south is generally higher than in the north [18]. The pathogen prevalence hypothesis holds that collectivism is more likely to promote protection against epidemics than individualism does, as collectivism places more emphasis on in-group vigilance, and as such may contribute to people's intention to prevent the spread of COVID-19 [19, 20].

In many countries, the most difficult time to maintain social distancing is during traditional cultural events during which communities and familes gather to celebrate. For instance, during the Sakura Cherry Blossom festival in Japan, the water festivities in Thailand and Myanmar, and the Chrismas and New Year celebrations in Western countries, people get together to celebrate with friends and families. In Indonesia, Malaysia, and Sudan, gatherings had to be limited for Ramadan, whereas in normal times, Muslims worldwide engage in month-long community events of fasting, praying, and celebrating the end of the fast. It is learnt that India has many such festivals every month. Despite having policies in place, public health preventive measures were more difficult to maintain during these public gatherings, and likely negatively impacted on attempts to control the COVID-19 transmission.

Nevertheless, it was seen that in more collectivist cultures, the stay-at-home policies were followed more than in individualist countries, such as the US and European countries. Cultural norms also play a role with regard to individual behavior. A study carried out during the COVID−19 pandemic showed that face mask use rate measured in airport settings was the highest in Asia (46%) and the lowest in the USA (2%) [21]. This may be a result of Asia being more inclined to collectivism compared to western societies, especially in the US, where individualism prevails [22].

Tracking phone applications

The use of phone applications was another measure that was quite successful in Asian countries, such as Taiwan, India, and Thailand. These were helpful in recording information of suspected COVID-19 cases, linking individuals to health services, and informing if someone had COVID-19 in the surrounding area. This enabled the tracing of infected people and promoted a better disease surveillance. However, such apps were not so successful in other parts of the world, such as in certain European countries and the U.S.A. As previously mentioned, these cultures are more individualist, with citizens tending to value personal autonomy and the protection of privacy more. Furthermore, the reseachers discussed how human rights could be violated in contact tracing. In some countries, namely in India, private information on who had COVID-19 would be posted online or on social media chats. Although apps recording private patient information intended to trace and warn about the potential infection of people in the area, disclosing personal information could cause stigmatization of the infected individuals and their families. In Taiwan, the locations of infected people were disclosed without exposing their names and addresses, enabling people living in nearby areas to be informed of the potential risk and to avoid these locations. In contrast, whilst the Japanese public health authority introduced the tracking apps, the public did not widely use them. As a response, the government counted on individual accountability by recommending people with symptoms to stay at home and practice self-isolation to ensure the privacy of infected or suspected-infected individuals. A similar approach was taken in Austria where infected individuals were advised to stay at home when experiencing mild symptoms.

Health beliefs, stigma and human rights

We identified psychological determinants of community behaviours in different countries. The first relates to health beliefs (Figure 1). In India, Indonesia, Myanmar, and the USA, during the first wave of the pandemic, people did not believe in the severity of the virus causing people to neglect the health messages. In India and Myanmar, many believed that the virus would die in hot temperatures. Furthermore, people in several Asian countries used disinfectant on skin and clothes believing this would kill the coronavirus. Such beliefs are dangerous as the resulting behavior can be harmful, with people having a false sense of protection as well as negatively impacting on the chance to contain the virus.

While contact tracing was at the core of this pandemic investigation, revealing the list of infected people to the public caused discrimination within the community. Blaming victims led to isolation of the infected individuals, and avoidance of their contacts to undergo testing. Even without strict regulations, some communities experienced growing social stigma in relation to COVID-19. Therefore, concern about human rights, privacy and confidentiality is of equal importance to intensive contact tracing. The key to addressing these social pyschological issues is empowering communities with proper health education, effectively communicated in order to shape health beliefs, group norms and conformity of preventive behaviours (Figure 1).

All constructs of the Health Belief Model (HBM) play a role in individual behavior, and ultimately in the containment of the pandemic.Looking at the first construct of the HBM, knowledge about transmission and risks of getting the virus, as well as its reported prevalence, all impact on the 'perceived susceptiblity' and 'perceived severity' of the virus. For instance, several countries, especially lower-income countries which did not have the capacity to perform accurate testing, initially reported a very low number of cases. That gave the impression that the susceptibility of getting COVID-19 was low in these countries. In some countries, such as India, Myanmar, and the USA, during the first wave of the pandemic, people did not believe in the severity of the virus, causing people to neglect the health messages and preventive measures. 'Perceived benefits' is affected by one's belief in the efficacy of COVID-19 prevention practices in reducing the risk of transmission, for which accurate information is crucial. In India and Myanmar, many believed that the virus would die in hot temperatures. Furthermore, people in

Figure 1. Community responses to covid-19 pandemic first wave containment measures: a model synthesized from multinational experiences in 2020.
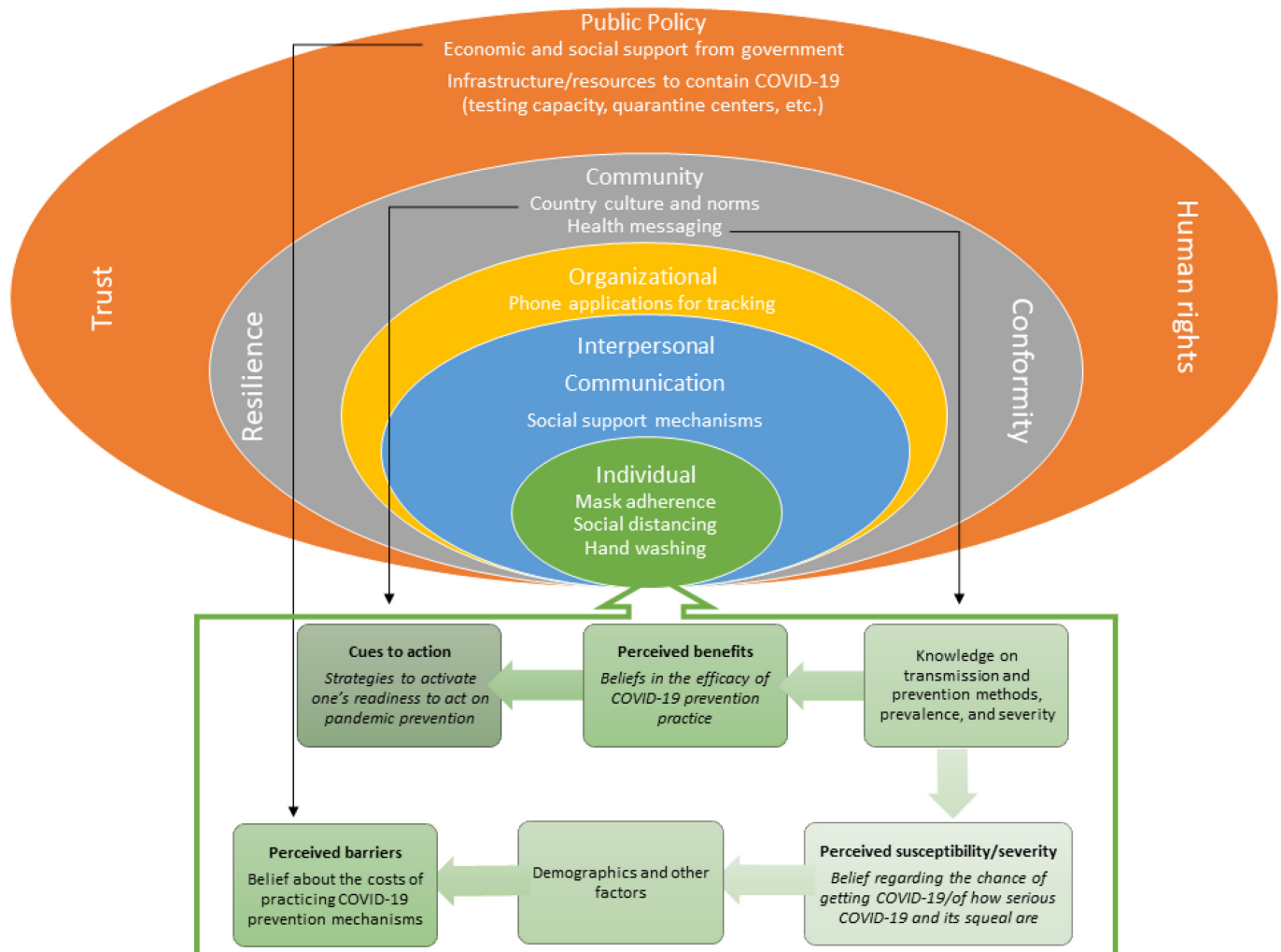
several Asian countries used disinfectant on skin and clothes believing this would kill the coronavirus. Such beliefs or false messages are dangerous as the behavior can cause harm. People may have a false sense of protection, and, moreover, the chance to contain the virus from the outset may be lost. 'Perceived barriers', or one's beliefs about the costs of practicing COVID-19 prevention measures, such as staying at home, are also crucial. For instance, in resource-limited settings, the cost of losing incomes is often greater than the perceived benefit of staying home (Figure1). In Myanmar and Sudan, for example, it was a challenge to keep street vendors at home since their loss of income made it difficult for their family to survive. Therefore, in these countries, stay-at-home orders can be difficult to sustain.

As there was a limited standard treatment protocol across the globe in the early months of the pandemic, as well as a lack of a COVID-19 vaccination program being rolled out in many counties, educating communities, sending accurate health messages, and dismantling false beliefs were crucial in the fight against the pandemic. Beyond health campaigns in the mass media, popular opinion leaders or religious leaders could influence the general public in disease transmission prevention.

Discussion

Empowering people to practice preventive behaviours is as essential as enforecement. Behavioural confrmaity whilst they can continue their healthy social life is the basic for sustainable community response to the pandemic. (Figure 1) The eight themes we identified in this study may help guide each community to build up an empowerment strategy to respond to ongoing pandemic (Table 1). In each context, an effective commuty response will require careful considertion of people's habit and commuity developed ideas. Festivals and gathering events would be modified in the new styles to maintain the social distancing in order to prevent clusters of infection.

Designing national policies and interventions to contain pandemics such as COVID-19 should be based on scientific evidence. However, how such policies or interventions are implemented in practice depends on the community responses, which are shaped by cultural and social factors. In this study, key actions to contain the COVID-19 pandemic, leading to a healthy community are discussed, including quarantine measures, lockdowns, health promotion messaging, limitations on social gatherings, and awareness raising about mask wearing and hand washing.

The community response model (Figure 1) implies that different communities have different needs and responses. Each element of the model, therefore, needs to be considered. For instance, health promotion and awareness might be a challenge in rural and remote areas of developing countries. Yet, countries that have invested in community health workers and volunteers have been successful in reaching these remote populations. In addition, in resource-limited settings, costly quarantine and lockdowns might do more damage than benefit to these populations. Creating economic and food security ought to be prioritized before implementing lockdowns. Therefore, governments should consider ways to support these populations, allowing individuals to work in 'safe' environments where masks are provided and social distancing is in place.

Travel restrictions and lockdowns were commonly implemented throughout the world [23]. According to the findings of this study, the degree of the travel restriction depended on the context. Lockdowns and travel restriction were effective in containing the spread of viruses, however, they also had negative consequences. Prior to the pandemic being declared, the so-called "loneliness epidemic" was reported in many countries. This burden of "loneliness" increased as a result of lockdowns, social distancing, self-isolation, and quarantine measures [24]. A study of 583 older adults (above 60 years old) in Hong Kong, found that there were significant increases in loneliness, anxiety, and insomnia, after the onset of the COVID-19

Table 1. Themes for commuity response to COVID-19 pandemic.

No	Themes for commuity response to COVID-19 pandemic	Examples
1	Communication strategy for health literacy and belief	Vietanmese you tube
2	Habit and behaviour of people according to national characteristics	Mask wearing culture
3	Sustained essential social services	Education, health and logistics
4	Economic support	Diverse: cash or food
5	Prevention of clusters as a result of cultural norms and festivals	New year party, prayers
6	Alternative ways to maintain social activities	Digital meeting, Video conference
7	Public experience of pandemics , intermediaries and volunteers	Commuity-developed plans
8	Privacy and human rights	Confidentiality of patients

pandemic [25]. Another study looking at older adults in the USA also found that loneliness increased during the COVID-19 era and that this was associated with worsened depression and anxiety [26]. The direct consequences on mental stress including social isolation and loneliness, have been proven to lead to several long-term conditions [27], namely high blood pressure, heart disease, obesity, Alzheimer's disease, and ultimately, an increased risk of mortality [28]. Whilst lockdowns are important to contain the transmission of viruses, the unintended impacts on mental health can lead to other health issues. Facilitating social connection and maintaining social supports by promoting the use of digital technologies are crucial ways to combat loneliness [24]. Although some resource-limited settings might encounter difficulties in accessing reliable internet networks, promoting such support should be considered as part of policy implementation.

An additional mechanism for the fight against COVID-19 was health message delivering, which involved sending appropriate health messages and dismantling wrong health beliefs. For instance, in India, Myanmar, and even in developed countries, such as U.S.A., some people were doubting the COVID-19 pandemic. Health messaging during the initial wave of the pandemic was haphazard causing confusion and sudden onsets of fear and panic. A successful health message delivery can enable people to practice preventive behaviours based on education and their beliefs [29]. The long-standing health belief model is worth revisiting [30]. A proper health message delivery channel which communicates fast and accurate messages of ways to combat the virus should be crafted in a socially-tailored and cultural-appropriate way that engages with the community [31].

Nowadays, communities are not only geographical clusters but also connected through social media [32]. In Myanmar, a COVID-19 Facebook/social media surveillance team was formed to dismantle rumours and false information related to this pandemic. Vietnam is a prime example of using strong communication tools to convey messages to communities. Health education campaigns were rolled out to raise community awareness of COVID-19 and to promote prevention practices, e.g, mask wearing and hands washing. Community healthworkers also referred individuals with COVID-19 symptoms to visit the nearest health center for testing and treatment. 'Rapid response teams' were also used to coordinate district health centers and local authorities to engage whole communities in disease prevention. In this way, Vietnam was one of the countries that was able to act fast and contain the virus by working across all levels [33].

Lastly, while contact tracing is feasible in some countries, confidentiality should also be considered to ensure protection of human rights and privacy. (Figure 1) Effective contact tracing, isolation and quarantine measures are all important whenever it is possible. However, potential discrimination caused by the disease should also be considered when disclosing people's personal information. Lessons learnt from the HIV epidemic show that panic and fear lead to community discrimination and perceived stigma. Societal discrimination creates isolation and shame for the infected persons, leading to potential trauma and other mental consequences [34]. Victim blaming can also lead to individuals avoiding testing. Beyond the need to reduce stigma, it is also crucial to encourage people who might be exposed to the COVID-19 virus to go for testing. The ethical use of COVID-19 tracking apps depends heavily on voluntary use. As a result, the accuracy of the self-disclosed information may be questionable. For those countries which require all confirmed cases to be tracked in the governmental-run tracking system, personal information should be protected. Moreover, determining the degree of disclosed personal information should be discussed with experts in the field of medical ethics [35].

While culture is an important determinant of behavioral conformity, beliefs act as important basic determinants of health behaviour [16,19,36]. The Health Belief Model (HBM) has been widely used to understand health beliefs and to explain the change and maintenance of health-related behaviors . This model includes several guiding principles: perceived susceptibility; perceived severity, perceived benefit; perceived barriers; and cues to action for self-efficacy [37]. Using the HBM guiding principles, we elucidate how individual behaviour to prevent COVID transmission is linked to health beliefs. In terms of 'cues to action', or strategies to activate one's readiness to act on pandemic prevention, several strategies were widely used, such as mask wearing, social distancing, and hand washing. In Asian countries, the wearing of masks is common and accepted among the general population. However, in countries that are not used to wearing face masks, such as the USA and European countries, mask wearing is difficult to put in place due to people's refusal to comply. Social distancing is another strategy that is highly affected by cultural contexts. A study conducted in this pandemic underlined that cultural determinants play an important role in controlling the infection. For instance, in countries with a higher

'Uncertainty Avoidance Index' (a proxy to capture cultural perception in uncertain contexts), individuals tend to gather less in public places. In more individualistic societies such as the USA, where the culture is more focused on individualism rather than on collectivism, individuals are less likely to follow social distancing guidelines [16].

Furthermore, twenty first century global commuties are no longer confined to national boundries and nativisim [32]. We should think about global cities with immigrants, and underserved population in imcompletely urbanized metropolitans. Commuity response will have a crack if immigrants and undersereved populations are ignored.

Conclusions

A number of lessons can be learned from how the various countries responded during the first wave of the COVID-19 pandemic, although it is difficult to determine which specific intervention was the most effective. In terms of governments' policy responses to the outbreak of COVID-19, several strategies were implemented simulteanously in the hope that one or more would be effective in containing the spread of the pandemic. In practice, the impact of the policies implemented were dependent upon the specific social and cultural determinents as presented in this study model. We conclude that an application of key elements of the model, while considering cultural-sensitivity, special needs, health beliefs and disease prevention behaviors, will serve to successfully shape different countries' responses for containing both present and future pandemics.

Acknowledgements

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