Review Research

COMMUNITY ENGAGEMENT IN DISASTER PREPAREDNESS DURING THE COVID–19 PANDEMIC : A SYSTEMATIC REVIEW

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ABSTRACT

Introduction: Preparedness in emergency and disaster management is crucial. In the last decades, community engagement and participation have been playing a key role in disaster preparedness, and during the ongoing COVID-19 pandemic, this strategy has been encouraged. This systematic review aims at assessing the role of community engagement in disaster preparedness during the COVID-19 pandemic. **Methods:** A systematic review of English articles was performed on PubMed and Embase, according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist and guidelines. Studies were included if reporting on the community engagement and participation in disaster preparedness during the COVID-19 pandemic. Exclusion criteria included titles with not available full text, not in English, or not related to humans. **Results:** Eleven papers were examined. All studies were conducted in three continents (Asia, Africa, and North America). In 63.6% of studies, the objective of the emergency preparedness plans for fighting against COVID-19 pandemic included implementing prevention measures against the spread of the pandemic. Only in 36.3% of the studies, specific vulnerable groups were the final target of the preparedness plan. The implementation of the community engagement was reached through the use of social media (45.4%), face-to-face talks (36.3%), and electronic surveys and questionnaires (27.2%).**Conclusion:** This systematic review wants to emphasize that the involvement of the communities and their leaders in the decision making processes and in the promotion of prevention of health could help the population in building its resilience and afford the humans and economic losses caused by the COVID-19 pandemic.

Keywords: community engagement, COVID-19, emergency preparedness, pandemic

Introduction:

Preparedness and planning represent crucial milestones in disaster management. Together with climate change, migration and massive urbanization, the planet has been facing a progressive increase of events related to public health emergencies and natural disasters (Iyer et al., 2021). As consequence of that, the populations could be affected by a significant impact in terms of humans' lives and economic loss, and the outcome aimed by public health is to prevent as much as possible such losses. In order to achieve this, a resilient and robust emergency response is always required. In order to be efficient, any emergency response needs to be delivered timely and to target the most urgent needs of the affected population.

In the last two years, the global population has been facing the COVID-19 pandemic caused by the SARS-Cov-2 virus (Zhou et al., 2020). This exceptional event has been considered as a major challenge in all the aspects of humans lives. The scientific community had to face this new disease from different angles, including from the global public health perspective. The efficiency of an emergency response always depends on two major factors, which are represented by the quality of the job and efforts during the implementation phase, and the preparedness that should be provided before the emergency starts (Qari et al., 2019). Indeed, a good and comprehensive preparedness takes in consideration risk assessment, mitigation measures, and prevention strategies for the population at risk. It also considers historical and anecdotal events in the past, as example to outline the most likely scenarios for the development of the public health emergencies. Finally, it addresses funds that need to be ready to be mobilized as soon as the emergency triggers, pools of crucial experienced staff, supply stock, and specific trainings. Through the preparedness, the response could ensure efficacy and efficiency.

A comprehensive and systematic emergency preparedness is crucial in order to mitigate the hazards, implement preventive measures, develop resilience in the population, and promptly activate and deploy an efficient emergency response (Khan et al., 2018). Over the last decade, community engagement has become a central tenet in public health emergency preparedness. Nowadays, the involvement of the exposed population to specific hazards can contribute to disaster preparedness and strengthen community resilience. This strategy has been recognized as a crucial step in the emergency preparedness, and has been enhanced even more during the recent experience of the COVID-19 pandemic.

Indeed, community engagement could explore deeper the specific needs of a population exposed to a risk, according to its specific composition in terms of demography and vulnerabilities. Furthermore, community engagement allows also to understand the perception of a particular community about a specific hazard and the coping mechanisms. Finally, it allows to explore the capacity of affording stressful times and the resilience of the population at risk (Jewett et al., 2021). These findings when added and considered in the risk analysis and assessment could offer additional elements to use during the emergency preparedness phase.

Finally, community engagement and the insights that it can offer are considered as milestones in order to obtain a robust and comprehensive emergency preparedness plan. Nevertheless, despite community participation in the public health emergency planning has been well established as a crucial step to increase community resilience and raise the ownership of the preparedness and response (Ramsbottom et al., 2018), nowadays there is not a recent and comprehensive systematic review on the impact of community engagement in disaster preparedness during the COVID-19 pandemic within the scientific literature.

The aim of the current study is to offer a systematic overview and the current state of the art about the impact of community engagement and participation within the public health emergency preparedness and planning during the COVID-19 pandemic.

Methods:

This study has been conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist and guidelines (Liberati et al., 2009).

The research have been conducted on two electronic databases, represented by PubMed, and Embase. Moreover, other sources of grey literature have been explored, such as Google, the websites of the World Health Organization (WHO), the United States Federal Emergency Management Agency (FEMA), and the Center for Disease Control and Prevention (CDC). Finally, websites and internal documents made available by international medical organizations such as Médecins Sans Frontières (MSF), and International Committee of the Red Cross (ICRC) have also been screened for inclusion. Finally, to ensure a scientific literature saturation, additional references have been screened through a manual search among the cited references from the articles retrieved in the first round of search and in the included studies.

This current systematic review includes only studies written in English since the beginning of the COVID-19 pandemic up to the present. Furthermore, the author included any qualitative and quantitative study related to humans, regardless of aim, and design that reports on the community engagement and participation in disaster preparedness during the COVID-19 pandemic.

Articles for which the full text was not available, was not in English, or was not related to humans represent the exclusion criteria of this study. Three groups of keywords have been identified, and all the possible combinations of the keywords from all the groups have been used for the search [Table 1]. The author screened all the titles and the abstracts of the identified literature findings and removed the duplicates. Literature not complying with the inclusion criteria has been excluded [Figure 1]. The core data elements analyzed in this review included geographic location, main objectives of the preparedness plan, specific vulnerabilities and characteristics of the community, role of the community in the preparedness, and ways for implementing the community engagement strategies.
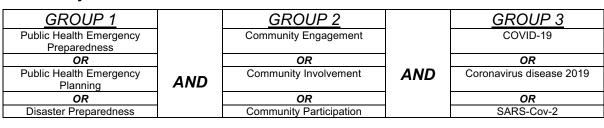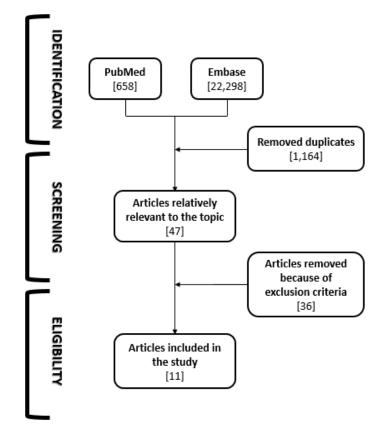
Table 1 : Keywords used for conduct the research

GROUP 1		GROUP 2		GROUP 3
Public Health Emergency Preparedness		Community Engagement		COVID-19
OR		*OR*		*OR*
Public Health Emergency Planning	*AND*	Community Involvement	*AND*	Coronavirus disease 2019
OR		*OR*		*OR*
Disaster Preparedness		Community Participation		SARS-Cov-2

Figure 1: Selection process for articles included in the study, according to PRISMA guidelines

Results:

The search strategy yielded a total of 22,956 references. After exclusion of duplicates, 47 titles were identified for further screening. After applying exclusion criteria, 36 articles were removed. Finally, a total of 11 references underwent data extraction [Figure 1, Table 2].

The reviewed articles represented researches from institutions in 3 different continents. Among them, 8 studies were conducted in Asia and Middle East (2 in China, 2 in Singapore, 1 in Vietnam, 1 in Bangladesh, 1 in Oman, and 1 in Israel). Furthermore, 4 studies were conducted in Africa (1 in Ethiopia, 1 in Democratic Republic of Congo, 1 in South Africa, and 1 in Kenya), while 1 study occurred in North America, in particular in the United States [Figure 2].
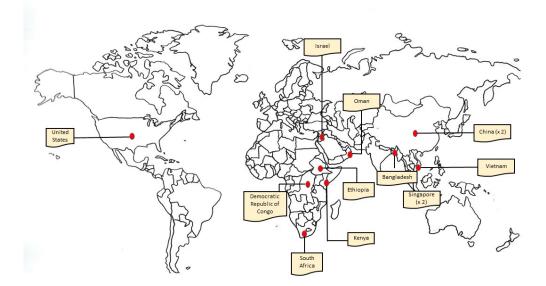
Figure 2: Global distribution of the studies included in the review

Table 2: Summary of data extraction for the selected articles

Article	Country	Main objectives of the preparedness	Specific characteristics of the community	Role of the community in the preparedness	Implementation of community engagement
Brewer et al., 2020	United States	To implement COVID-19 prevention	African American groups linked to catholic churches	Religious leaders promote preventive measures and raise awareness	Communication through religious leaders, written manuals, and social media
Zikargae et al., 2020	Ethiopia	To implement COVID-19 prevention	Specific vulnerable groups represented by pregnant women and people affected by mental health illness	Community volunteers and representatives mobilize the communities to increase level of prevention from COVID-19 transmission	Knowledge attitude and practice (KAP) survey
Hope Corbin et al., 2021	Singapore – Kenya – South Africa	To implement COVID-19 prevention, promote behavior change, and disseminate information about how to use face masks	General population in Kenya and South Africa and specific vulnerable group represented by migrant workers in Singapore	Community health workers and volunteers spread information within the target groups and provide trainings	Training and communication with specific Smartphone App in Singapore, and face to face communication in Kenya
Ha Wong et al., 2020	China	To implement COVID-19 prevention and to promote lockdown measures	General population	Volunteers raise knowledge on COVID-19 transmission, and raise awareness on prevention, specifically on lockdown measures	Volunteers implemented survey via telephone and on online platform
Ngoundoung Anoko et al., 2020	Democratic Republic of Congo	To establish surveillance system for new cases and health promotion on COVID-19	General population	Community leaders are involved in early case detection and contact tracing, following lessons learnt from recent Ebola virus outbreak	Communication through social media, and face to face talks
Alam et al., 2022	Bangladesh	To support population with face masks distribution and other goods during lockdown	General population	Share perceptions from the community for central Government to provide distribution of masks and other goods for the population in lockdown	Volunteers implemented through electronic questionnaire and surveys
Cohen et al., 2020	Israel	To assess community resilience in ethnic minorities	Arab minorities within Israel	Enhance the community resilience within vulnerable groups	Volunteers implemented through electronic questionnaire and surveys
Al Siyabi et al., 2021	Oman	To implement COVID-19 prevention, and to raise awareness on COVID-19	General population	Community health workers raise knowledge on COVID-19 transmission and prevention measures	Communication through social media, and face to face talks
Yip et al., 2021	Singapore	To implement COVID-19 prevention, and to raise awareness on COVID-19	General population	Enhance community resilience through decision making in planning promote wellness and community networking	Communication with public statements by MOH and social media
Xuan Tran et al., 2020	Vietnam	To implement COVID-19 prevention, and to raise awareness on COVID-20	General population	Develop adaptability for preventive measures, in particular lockdown	Communication with public statements by MOH and social media
Guo et al., 2022	China	To implement COVID-19 prevention, and to raise awareness on COVID-19	General population	Community volunteers are involved in enhancing risk perception and behavior change in the community	Communication through implementation of online survey

In the studies included in the review, the most represented objective of the emergency preparedness plans for fighting against COVID-19 pandemic included implementing the prevention measures against the spread of the pandemic (63.6% of the studies). In 36.3% of the studies, the objective was represented by raising general awareness about COVID-19 disease, transmission, signs and symptoms, and behavior changes to prevent the infection. Other specific objectives were represented by promoting lockdown measures and behavior changes, providing trainings on the correct use of face

masks, establishing surveillance and contact tracing systems within the community, and assessing the community resilience. In 72.7% of the studies, the preparedness plan and the involvement of the community were addressed to the general population, as no specific vulnerable groups were specified as target of the emergency plan. Only in 4 studies (36.3%), the efforts in terms of community engagement and the implementation of the emergency preparedness plan were addressed to specific groups, represented by religious minorities, ethnic minorities, and vulnerable groups from either economic or health reasons.

The role of the communities in implementing the preparedness plans was represented by health promotion and awareness rise about COVID-19 in 72.7% of the included studies. In the other studies, the role of the community was related to setup a community-based surveillance system, to increase community resilience, and to provide trainings on the correct use of face masks.

Finally, the implementation of the community engagement was reached through the use of social media (45.4%), face-to-face talks (36.3%), and electronic surveys and questionnaires (27.2%). In one case, a "knowledge - attitude – practice" (KAP) survey was implemented.

Discussion:

Community involvement and its participation in public health emergency preparedness represent a fundamental step for reaching a comprehensive and efficient preparedness plan. Several examples in the past showed the benefits of empowering the communities, through the direct involvement of their leaders and representatives in the decision process and in the dissemination of information within the population. Such strategy could become crucial in particular in natural disasters and outbreaks, where the population needs clear guidance and leadership, and the effects of the emergency are detrimental. These could significantly help in promoting health and preventing additional casualties or infections in case of communicable diseases [Ludin et al., 2019; Hugelius et al., 2019].

The COVID-19 pandemic also considered since the beginning communication, dissemination of information and community participation as crucial, in order to prevent the spread of the disease and to build community resilience. The WHO also defined community engagement as one of the pillars of the public health interventions to manage COVID-19. It is important to remember that COVID-19 has been happening when the speed and the quantity of the information are incredibly high, and few control could be made in terms of quality (Moscadelli et al., 2020). Therefore, in times when the people are confused and disoriented and the information can't be always reliable, the support of a strong community through its leaders is the key to build trust and resilience among the population, and protect the most vulnerable groups within it.

Around the world, the perception of community and the setup of its hierarchies and unwritten rules are dependent on the historical and cultural background. Therefore, it is not surprising that among all the studies included in the current review, only one have been developed in the Western world. In the

current Western world, the sense of community and public participation have been reducing significantly over time. The societies in these countries are more and more victims of huge urbanization, which leads inevitably to individualism and social isolation. In Asia, Middle East, and Africa (Nyirenda et al., 2020), the participation of the individuals within the community is still very active. Also the healthcare system in these continents have a strong community component represented by the presence of social healthcare workers. Most of the times these figures are represented by volunteers and they are able to promote health and implement prevention measures. This setup might represent a key of success in fighting against the COVID-19 pandemic, and the studies included in this review are supporting this.

Since the beginning of the pandemic, some clear vulnerabilities related to previous conditions have been well established. Furthermore, the strict preventive measures like the lockdown have reduced the economic growth, leading to a significant reduction of people's movements and more direct or indirect poverty. The protection of specific health, social and economic vulnerabilities should be considered as one of the duties of a resilient community. Nevertheless, only few studies included in the review could focus on health, social or economic minorities in the emergency preparedness planning, and in 63.7% of the cases, all the efforts were addressed for the whole population. This choice might be explained by the fact that COVID-19 has been an event that encompasses all the individuals on the planet and makes the whole humanity so vulnerable, regardless the pre-existing health, social, and economic conditions. In the last decades, the humanity didn't face such a global burden, that has been causing significant humans and economic losses, and finally all the human beings are vulnerable in front of COVID-19. In this sense, a strong community participation in the emergency preparedness could definitely target the entire population, as COVID-19 has been creating vulnerabilities and weaknesses among the entire global population.

Among the implementing models for community engagement, the most used one within the selected studies was represented by social media. Indeed, in the last two decades, social media have been entering in the daily life all around the world. Nowadays social media represent the fastest way to spread information around the world, including about health (O'Reilly et al., 2019). Nevertheless, social media could spread a significant quantity of information and not always reliable and true. Therefore, the presence of community volunteers who could manage the flow of information through the social media and streamline them towards their community is an asset for building community trust among the population.

Conclusion:

 In conclusion, community engagement and its involvement in the emergency preparedness represent a cornerstone in disaster management discipline. In the last decades, this new approach has been representing an additional crucial element in public health strategies development. Indeed, together with the concept of person-cantered care, community engagement represents the new revolutionary way to interpret medicine.

The modern social and economic world has been progressively getting the direction of the globalization. The old concept of regional public health has been challenged in the last decades, and progressively new concepts of "global public health" and "one health" have been raised. However, despite the diseases, including COVID-19, have become globally relevant for the humans' health, public health has been able to keep a significant regional and territorial footprint. The progressive importance get by community engagement around the world supports this.

The recent COVID-19 pandemic could be considered as one of the most important global public health emergencies in the history of the humanity. Indeed, a gradual recent increase of natural disasters caused by the climate change, biodiversity loss and massive urbanization have been impacting the planet. Several communities, in particular within the Western world, were completely unprepared to afford such crisis that rapidly affected humans' health and the economic and social life of the people. It is important to remember that within these populations, the communities don't actively participate to emergency preparedness. In facts, no studies have been produced in the last two years in this topic during the COVID-19 pandemic. This lack in the social and public health system could have get an additional impact in the effects of COVID-19 on these populations.

Therefore, despite the WHO recommendations to engage at community level in order to implement preparedness and response to the COVID-19 pandemic, few studies have been published around the world, and even fewer within the Western world. This systematic review wants to call for a more efficient implementation of community engagement and participation in the emergency preparedness for the future eventual waves of COVID-19 and for the future natural and manmade disasters in the coming years.

Conflicts of Interest

The author declares no conflicts of interest.

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