Multistakeholder Participation in Disaster Management

Subjects: Public, Environmental & Occupational Health

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The coronavirus disease 2019 (COVID-19) pandemic is affecting society's health, economy, environment and development. COVID-19 has claimed many lives across the globe and severely impacted the livelihood of a considerable section of the world's population. We are still in the process of finding optimal and effective solutions to control the pandemic and minimise its negative impacts. In the process of developing effective strategies to combat COVID-19, different countries have adapted diverse policies, strategies and activities and yet there are no universal or comprehensive solutions to the problem. In this context, this paper brings out a conceptual model of multistakeholder participation governance as an effective model to fight against COVID-19. Accordingly, the current study conducted a scientific review by examining multi-stakeholder disaster response strategies, particularly in relation to COVID-19. The study then presents a conceptual framework for multistakeholder participation governance as one of the effective models to fight against COVID-19.

Keywords: Multistakeholder Participation in Disaster Management ; COVID-19 ; Spatial Decision Support System ; Scientific Review

1. Introduction

The world is facing the coronavirus disease 2019 (COVID-19) pandemic, which is having an unprecedent effect on people's lives and livelihoods, leading to severe and long-term impacts at individual, community and societal levels. The pandemic crisis involves not only health issues but also economic issues [1]. Pandemics are not new to human society; however, their nature, intensity and the way societies respond change over time. In history, we have seen the most devastating pandemic, called the "black death", which shook the world from the years 1347 to 1352 and took the lives of more than 75,000,000 people [2] In the years 1918 to 1920, there was another pandemic called the "Spanish Flu", where more than 100,000,000 people died [3] Pandemics create uncertainty, complexity in understanding and there is need for new knowledge. In order to access new knowledge, it is important that we integrate the best available knowledge and reconcile often conflicting values and viewpoints. There is a need to find solutions to dealing with complicated, wicked problems such as COVID-19 that will involve complex interactions between technological, social, environmental, behavioural, managerial and medical worlds; one such strategy is multi-stakeholder participation [4] and we propose this can be combined with Multi-stakeholder Spatial Decision Support systems (MS-SDSS). The aim is to help the world to be prepared for future problems and challenges that include pandemics [5].

As the impact of the COVID-19 pandemic is multidimensional, affecting all spheres of life and across the global population, no single agency or stakeholder can work alone to control COVID-19 effectively and mitigate its impact. In order to better respond to and manage the COVID-19 situation, we need to deploy appropriate multi-stakeholder management strategies which can improve the effectiveness and efficiency of crisis and humanitarian operations [[6] It is important that competencies are developed at all levels for emergency, crisis prevention and management. COVID-19 is partly a spatial problem, highlighting the importance of quarantine, segregation and isolation in homes, workplaces and cities [7][8]. Controlling and managing these spatial issues requires an integrated, scientific approach that can help in the aggregation of spatial and non-spatial data, quick visualisation of epidemic information, spatial tracking of confirmed cases, estimation of regional transmission, and provide solid spatial information support for decision-making, measures formulation, and effective assessment of COVID-19 prevention and control measures [9][10]

2. Policy Announcement from Selected Countries for COVID-19

National Level COVID-19 Public Health responses included international travel restrictions, improving health facilities, setting strict following quarantine rules, guidance and compliance; tracking and testing, building up advisory systems, creating public awareness, controlling non-essential businesses, strengthening government services, restrictions on mass

gathering, closure of schools and universities and imposing curfews. Some countries implemented good health data management/epidemiological databases, declared a state of emergency, imposed internal travel restrictions, implemented lockdown policies and followed decentralised communication as shown in Table 1.

Table 1. Policy announcements for COVID-19.

Country/Territory	Method/Approach	Crisis Management	Partners/Stakeholders	Source
Taiwan	Networking, proactive testing, border control, transparency	Frequent health check-ups, public education, relief to business, use of information technology	Multi-layer governance, private organisations, insurance companies, citizens	[11][12] [13][14] [15]
South Korea	Timely emergency response, the nationwide framework of networks among stakeholders	Shared interest, priority-based emergency response, rapid response, effective anti-COVID-19 measures, rapid testing, effective isolation strategy, scaling up resources, use of information technology	Govt, community, CSOs (Civil Society Organisation)	[16][17] [18][19] [20][21]
China, Singapore	The collaboration of Science including Social Sciences	Large scale coordination, institutional timely response, community resilience, national level response, effective contact tracing	Govt, industry, banks and financial institutions	[22][23] [24][25] [26]
USA	Networking	Outbreak management, control, ineffective response to the COVID-19	Multi-layer Govts, private, CSOs	[27][28] [29][30]
Malaysia	Movement control order	Produce PPE (personal, protective equipment), fundraising, collaboration with healthcare service providers, inducting additional Labs, effective testing and contact tracing, effective communication and daily briefings	Govt, CSOs, community	[31][32] [33][34]
India	Lockdown	Emergency management, interstate transmission control, laboratory network, ineffective practice of physical distancing, closure of educational institutes	Multi-layer Govts, private, CSOs	[27][35] [36][37] [38]
Italy	Pandemic management, lockdown	Institutional arrangements, undermining the virus, triple “Ts” (testing, tracing and treatment)	Govt, CSOs	[39][40] [41][42] [43][44]
Turkey	Lockdown, proactive policy style	Rapid and strong response, extensive use of institutional resources, factual information campaigns	Presidential system of government, community, religious authorities	[45][46] [47]
Canada	Social distancing, travel restrictions, integration of social sciences	Well-functioning federalism, long term care, rapid testing and tracing, face mask mandates	Multilayer government	[48][49] [50][51]
France	Nationwide lockdown	Closure of non-essential public places and services, internal and international travel restrictions, cancellation of public events, all covid-19 system—care categorization and anticipation strategy	Govt, health department	[26][52] [53][54] [55]
Japan	Emergency (sub-national and local)	Effective implementation of self-discipline, avoiding “Three Cs” (closed spaces with insufficient ventilation, crowded conditions with people, and conversations at a short distance), no lockdown, recommendations regarding closure of schools and work places, public information campaigns	Govt, community	[11][26] [56][57] [58][59]
Sweden	Pandemic management—long term plan	Temporary ban on nonessential travel, recommendations on social distancing and working online, voluntary self-protection, non-closure of gyms, schools, restaurants and shops	Govt, voluntary organizations, community	[26][60] [61][62] [63][64]

Country/Territory	Method/Approach	Crisis Management	Partners/Stakeholders	Source
Germany	**Social lockdown & Economic lockdown**	**Nation–wide social distancing and contact restrictions, personal care business centres were closed (hair dresses, tattoos, massage centres, etc.), different states followed different styles of lockdown e.g., strict lockdown —stay at home order and/or lenient lockdown—not to leave the house without a reason, closure of churches, recommendation on wearing of face masks, good medical preparedness, developed a reliable testing system, stock of testing kits, early testing and tracing**	**Govt (National & Federal state), public and private hospitals, medical professionals, virologists, public health experts, laboratories, community, self-discipline, citizens**	**[65][66] [67][68] [69][70]**
New Zealand	**Lockdown**	**Lockdown measures, closure of schools, non-essential workplaces, travel restrictions, restrictions on social gathering, social distancing, border control, rapid and science-based risk assessment, rapid testing and contact tracing, community transmission control measures, promotion of hand washing hygiene, medical preparedness, arranged more ICU & ventilator facilities, safeguarding healthcare professionals**	**Govt, public and private hospitals, medical professionals, virologists, public health experts, laboratories, community, self-discipline, citizens**	**[71][72] [73][74] [75]**

While others made the community be proactive, coordinated the works with clear role clarity, coordinated different policies, shared responsibilities and implemented effective public health measures. Some connected with their stakeholders by establishing mutual trust and through clinical manifestation to manage COVID-19[76][77][78][79][80][81][82][83][84][85][86][87][88][89][90][91][92][93][94][95][96][97][98][99][100][101][102][103][104][11][12][13][14]

Strategies Followed to Combat COVID-19

Various countries followed different strategies like extensive testing, contract tracing, community mobilisation, crisis precautions, cluster containment strategy, public health surveillance, proactive state leadership, proper planning, knowledge of COVID-19, expect the unexpected, creating awareness, service orientation and supply chain information to fight against COVID-19 (Table 2).

Table 2. Case synthesis of lessons learned from the experience of different countries.

International travel restrictions [105][106]
Improving health facilities [107]
Strict quarantine measures [108][109][110]
Tracking and testing [18][108][111][112][113]
Built new hospitals for the treatment COVID-19 [110]
Building up advisory systems and Creating public awareness [18][114]
Stoppage of Non-essential businesses [108][112]
Strengthening Government services [115][116]
Restriction on mass gathering [108][112][116]
School and university closure [108][109][112][116]
Curfew [109][112][117]
Health data management/ epidemiological data base [18][108][114]
State of emergency [108]
Internal travel restriction [112]
Lockdown policy [111][112][117][118][119]

Decentralised communication [18]
community to be proactive, sharing of responsibility [120][121]
Stakeholders and clinical manifestation of COVID-19 [16][122]

Lessons learned from different countries involve the strengthening of crisis management and response strategies, increasing efforts to recognise cognitive bias and avoid partial solutions. Learning is critical and a readiness to accept the limitations is necessary. Understanding that extensive testing of symptomatic and asymptomatic cases early and proactive tracing of potential positives is very important. A strong emphasis on home diagnosis and care, specific efforts to monitor and protect health care and other essential workers, and collecting and disseminating data are important, as well as the resilience of affected/infected individuals [15]. It is important to address the plight of farmers, labourers and workers towards social protection measures. Health departments should concentrate on the robust collection of health data and epidemiological databases (for health policies and to ensure public health surveillance). The government should recognise the role of local international non-governmental organisations (INGOs) to the pandemic response and encourage timely provision of medical supplies and hygiene kit to individuals. The government should focus on the provision of social support and care to appropriate communities and vulnerable populations, co-ordination of funding activities and volunteers, R&D in life-saving medical innovations and to Test, Test and Test again the people in order to bring COVID-19 under control [76][77][79][80][81][82][99][100][101][102][103][104][11][12][15][16][17][18][19][20][21][22][23][24][25][26][27][28][29][30][31][32][33][34][35].

3. Discussion

The paper has presented different strategies, policies and methods used by different countries to fight against COVID-19. There is no one solution that can solve COVID-19, but through multi-stakeholder participation it is possible to find the most appropriate strategies to fight against COVID-19. Countries need to identify innovative and culturally acceptable measures to combat this crisis. Efforts should be taken to identify easily available, culturally adaptable local technology that is accessible and affordable to everyone. There is a need to address the immediate and long-term impacts of COVID-19 [36]. In pandemic times, there must be promotion of culturally acceptable strategies for physical distancing coupled with social solidarity[37] . There is a need to advocate for the advancement and strengthening of social welfare services as an essential protection against the pandemic [38]. There is a need to develop capabilities at all levels for emergency and pandemic prevention and management where each stakeholder's strength and skills are identified, targeted and harmonised within general response and management systems [39].

There is a need to strengthen inter-organisational coordination, participation, accountability and local responsibility with central coordination to handle the pandemic impact effectively [40]. Societies also need significant resources and dedicated funding to deal with emerging and re-emerging infectious diseases focusing on its future recurring possibilities, prevention and management [41]. There should be incentives given to people for early reporting [42] followed by developing strategies to prevent antimicrobial resistance [43][44].

The health impact of recent outbreaks should be properly studied and there is a need to communicate effectively with public health emergency management including hazard and risk assessment, prevention and mitigation, incident management, resource management, communications, operations and training, exercising evaluation, corrective action and quality improvement [45]. Government should focus on the impact of sudden job losses and depletion of income due to COVID-19 and acute hardships for millions of urban and rural households, especially those working in the informal sector with no contracts, including migrants. Governments should find solutions to the complex challenges of health and nutrition, poverty, hunger and acute undernourishment of several million people, rising domestic conflict, violence and depression. Major economic problems like a reversal in capital follow as global risk, oil market deep-diving into negative, economic stagnation and the plight of labour, require further attention. Governments must also address the risk of health inequalities especially in vulnerable groups [46][47][48].

Importance and Implications of Public Policies

While communicating to people there should be credible communication to the public without politicising the message [49]. Countries should come together, even if digitally/virtually, in order to take bold action since the virus knows no borders [50]. The public sector must lead society with a global approach to mitigate the impact of COVID-19. This involves public health emergency actions, identifying economic impacts, and combating misinformation and disinformation about the disease and its spread (Harvey, M. Whole of Society Approach [51]). Governments should focus on providing authoritative information via multiple sources to ensure accurate data, to slow the spread so that our health systems are not over-

stressed (Kayyem, J. Disruption is the Plan [51]). There is a need to encourage increasing transparency, impose control measures and appropriate restrictions, design suitable prioritisation guidelines regarding the allocation of scarce resources and make use of effective technologies (Saghafian, S. Transparency, Control, Prioritization [51]). Countries should strive to recognise the potential for psychological burnout from long hours of work and potential demoralisation from persistent stress (Howitt, A.; Leonard, H. Energetic Mobilization [51]). Governments need to strike a balance between protecting the health of people and respecting human rights (Sikkink, K. Rights and Responsibilities [51]); to invest in vaccine and therapeutics against COVID-19 (Chandra, A. Vaccine Investment [51]); and to identify new priorities and revisit national spending priorities (Bilmes, L.J. How the Public Sector and Civil Society Can Respond to the Coronavirus Pandemic: New Priorities [51]). The government should address the long-standing challenges of health and nutrition of low-income households [52]. Governments must create synergy between partners and encourage collaboration to identify and engage in strong partnerships.

4. Suggestions for Effective Interventions

Despite the breadth of this study, we are not presenting generalised suggestions for the most effective interventions, as there is so much variation across contexts, cultures and climates, and no single approach is most appropriate in all cases. Instead, we present the multi-stakeholder participation model as one of the appropriate models to be implemented in combating COVID-19. We need to create effective mechanisms through which to enable collaboration between international, national and regional organisations, and we should strive to establish pathways through which multiple actors can work together [53] and create synergy among society, economy and development [54]. An understanding of pandemic risks in all its dimensions, interlinking of disaster management and development planning is required [55]. There is also a need to encourage clinical and community-based research [56] and to strive to enhance healthcare data management for evidence-based research [57][58]. Successful interventions always assess the felt need of the community and then, through active and effective legal enforcement as required, facilitate and enable education to create a context of personal and public accountability and social responsibility. Self-discipline is one of the better interventions through which we can fight against COVID-19 so this can be achieved successfully[76]. The most effective intervention may be a combination of the different suggestions presented according to the needs, wants and situation of each country.

Scope for Future Research

There is a need to better understand the COVID-19 crisis life cycle [59], and more research is required to know the causes and consequences (recovery, mitigation, response and preparation). Further analysis can be done by revisiting datasets, redefining relevant methodologies, facilitating access to online resources and exploring culturally relevant approaches. There is a need to improve access to relevant information sources and compile robust data of active and closed COVID-19 cases and their relatives. We need to evolve a global monitoring framework and find ways to implement the sustainable development goals [60]. Additional work is required to explore COVID-19's impact on social development, human happiness and well-being of professionals, carers, their families and others in the community. Evidence must be synthesised more rapidly and it is needed the provision of large-scale intervention guidelines and longer-term strategies for human happiness, well-being, social and economic recovery. Further work is required to ensure adequate quality of research work and to better communicate the findings with multi-stakeholders, including policy briefs. There is a need to strengthen community-based crisis risk management, replicate best practices and learn from the field of diverse multispectral partnerships [61].

5. Limitations

Although the present study has accomplished some significant and interesting results, there are certain research limitations and challenges that can be improvised for better research in this field. First, due to the lack of available consistent data on global pandemic COVID-19 multi-stakeholder participation in diverse aspects, it took a lot of time to collect and finalise the data sets. Second, significant differences in various technical subjects (e.g., SDSS) led to challenges in identifying the real current situations. Third, due to the lockdown, work restrictions and lack of full physical access to the universities, some library facilities were not available for the data search. This is to be a major limitation and could be better addressed in future research. Finally, during the data collection, some organisations, particularly for government organisations, did not respond within the time frame. However, most of the vital information was obtained during the stipulated data collection period.

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