Study on Community Mobilization Mechanism in Joint Prevention and Control of Major Infectious Disease Epidemics

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Abstract—**Community mobilization has played a great role in the far-reaching joint prevention and control campaign of the COVID-19 outbreak. Designing soft and hard mechanisms of community mobilization in joint prevention and control of major infectious diseases with institution as the core foundation, location and resources as prerequisites, social culture as a catalyst for collective action, and technical capacity as a booster for sustained action can combine both community participation and community execution to achieve broad public recognition and participation in the community.**

Index Terms—**major infectious diseases, joint prevention and control, community mobilization**

I. INTRODUCTION

The outbreak of the COVID-19 in early 2020 is a sudden major infectious disease, and the outbreak is a sudden major public health event. Outbreaks of major infectious diseases are infectious diseases that occur within a short period of time and pose a major threat to life and health and have a serious impact on social order, which not only threaten individual lives and cause panic among the public, but also disrupt the overall rhythm of society and cause significant loss of life and property. Therefore, joint prevention and control during the epidemic is crucial.

Since the outbreak of novel coronavirus pneumonia epidemic, localities have quickly launched a level 1 response to major public health emergencies, and joint prevention and control mechanisms have been innovated. In the face of the serious situation of epidemic prevention and control, Xi Jinping has repeatedly given important instructions, emphasizing that the safety of people's lives and health should be put first, and proposing that "the community is the first line of joint prevention and control of the epidemic". Through community mobilization, all regions have achieved the task of prevention and control by cutting off the source of infection and interrupting the path of transmission. Under the leadership of the Communist Party of China, the people of China have united to overcome the difficulties and achieved significant strategic results in the epidemic prevention and control battle.

Community governance is a fundamental project in the national governance system, and community mobilization is an important element of community governance. Through a field survey of several communities in Ebola outbreak sites, Frith et al. (2016) found that in addition to technological innovations including the establishment of real-time community information systems, the tolerance of differences in treatment of cultural backgrounds plays a more important role in community outbreak control [1]. Wei Zhihui (2016) analyzed the mobilization mechanism of collectivist communities: the effectiveness of state mobilization as a powerful engine, resource allocation as a material basis, land policy as a realistic root, and community grassroots organizations as an organizational foundation [2]. Zhao Xin (2019) proposed a trio of macro, meso and micro influencing factors for community mobilization, where macro influencing factors mainly include structural level factors such as political, economic and cultural, meso influencing factors refer to community organization building and other resources, and micro influencing factors refer to specific frameworks for mobilization promotion [3]. From the perspective of frame construction theory, Qu Dong (2020) proposed that community mobilization has three main processes: finding public issues, constructing mobilization discourse, and stimulating participation motivation [4]. Sun et al. (2020) proposed that social mobilization in public crisis management has a certain boundary effect, and a reasonable scale can be grasped to maximize the mobilization effectiveness [5]. Based on the above background, this study proposes a set of perfect community mobilization operation mechanism, with a view to providing important reference significance for the in-depth study of community mobilization in emergency management and management innovation of normalized epidemic prevention and control.

II. DEFINITION AND INFLUENCING FACTORS OF COMMUNITY MOBILIZATION

A. Definition of Community Mobilization

The concept of community mobilization has its origins in social mobilization. Deutsch K, an American social and political scientist, introduced the concept of "social mobilization" in 1961, which is the evolution of the way people behave in the process of political development [6]. Huntington (2008) sees social mobilization as a series of processes by which people develop new social behaviors from old outdated social tenets through psychological, behavioral, and value orientations shifts [7]. Community mobilization itself is a catalytic process between community macro-structure and common action, a bridge between macro and micro [3]. Mobilization can be said to be a cohesion of a sense of community, a connecting link from static to dynamic, from macro to micro. Community mobilization is a social activity based on the logic of collective action in which community members participate together to achieve certain goals. Good community mobilization is not based on administrative control, but comes from the inner needs of each member of the community, using the power of self-government to promote social governance and stimulate social construction.

Community mobilization mainly consists of four structural elements: mobilization subject, mobilization object, mobilization method and mobilization means. The mobilization subject is usually the community organization structure led by the neighborhood committee, and the mobilization object is all community residents. However, with the perfect development of community mobilization, there is not necessarily a strong opposition between the subject and the object, and the mobilization subject is gradually shifting from single to multiple. In addition to the administrative leadership of neighborhood committees, the participation of various social forces can stimulate mobilization, and residents as the object of mobilization can also act as the subject to achieve autonomy. Administrative mobilization is mainly based on the two-tier system of "street-neighborhood committee" and "neighborhood committee - building group leader", which has strong administrative dominance, while emotional mobilization has stronger service motivation. The mobilization of emotion is more motivated by service, "reasoning and emotion", emphasizing the collective consciousness and cultural resonance of the masses with emotion, and the compulsion is weak. Mobilization means are administrative command and incentives, etc. Diversified mobilization means can improve the participation of the masses.

B. Influencing Factors of Community Mobilization

In this paper, we analyze the influencing factors of community mobilization from four perspectives: location and resource, system, social culture and technical capacity.

(1) Location and resource - prerequisites

Location is the structure of the position occupied by the community at the macro level, which mainly contains geographical factors, but also has the influence of political factors. Based on different regional characteristics and the degree of human mobility, the severity of the epidemic varies greatly from region to region, and the task of epidemic prevention differs from region to region. The implementation of management programs needs to be tailored to local conditions, and different treatment intensities are adopted for different regions, so as to carry out efficient community mobilization. Resource allocation is an important material condition for community mobilization, including human, material and financial resources. Location and resource are the prerequisites for precise community mobilization and its orderly implementation.

(2) Institution - the core foundation

Institution is the core foundation to guarantee the smooth implementation of mobilization process among subjects, which reflects the relationship between the state and society, and influences community mobilization as a macro-level leading and penetration. In epidemic prevention and control, reasonable institutional strength can promote the joint participation of organizations inside and outside the community, provide accurate and timely mobilization direction, regulate mobilization behavior, and circumvent structural obstruction in the process of community mobilization. In addition to the overall policy design, the specific work implementation rules of the mobilization subjects themselves, such as community committees, also play an important role in influencing the mobilization effectiveness [8]. Institution is influenced by the political perspective, reflect positive social governance value orientation, and profoundly influence people's daily life, which is the core foundation for the development of community mobilization mechanism.

(3) Social culture - a "catalyst" for collective action

Social culture plays an important role in community mobilization in the dimension of affective cognition. Communities are the cradle of social culture cultivation and an important medium for social culture transmission, and community mobilization is also rooted in social culture soil. A good social value culture can permeate all aspects of residents' daily life, and the flourishing of social culture can strengthen the emotional ties among residents and residents to the community, and promote the formation of residents' collective sense of identity, belonging and participation. As the community is a port of call for every resident, community governance from a cultural perspective can help to subconsciously carry out spontaneous community mobilization during an epidemic and promote residents' proactive participation in collective action. The social and cultural climate is a catalyst for active community mobilization and collective action.

(4) Technical capacity - a "booster" for continuous action

Social culture belongs to the soft dimension that influences community mobilization, while technological capability is the hard criterion that determines whether

community mobilization can be sustained and smoothly carried out. With the rapid development of smart cities and digital government, community governance has also started to be supported by a more technical environment, and digital networked services make public governance more efficient and convenient. Technology not only includes hardware equipment in a narrow sense, but also includes knowledge resources for problem solving in a broad sense, which means that the construction of technical platforms and human resources for community mobilization in the prevention and control of major infectious diseases belong to the scope of technical capacity. With resource support and institutional foundation, technical capacity building will promote community mobilization in the form of "boosters" for sustained action.

III. COMPOSITION OF COMMUNITY MOBILIZATION MECHANISM IN JOINT PREVENTION AND CONTROL OF MAJOR INFECTIOUS DISEASE EPIDEMICS

Based on the analysis of the influencing factors of community mobilization, the dual mechanism path of community mobilization in joint prevention and control of major infectious diseases is proposed from two dimensions: soft mechanism and hard mechanism. The specific community mobilization mechanism is shown in Fig. 1.

Location and resources are the prerequisites for the two mechanisms; the institution is the core foundation for the implementation of soft and hard mechanisms; the social culture mainly influences the soft mechanism and is the catalyst for collective action; the technical capacity mainly influences the hard mechanism and is the booster for sustained action. The mobilization subject is a multi-level mobilization system, including community committees, other social organizations and community residents, etc. The mobilization object refers to all community residents. Under the role of all factors, the mobilization subject acts on the mobilization object through the dual mobilization process of soft and hard mechanisms to achieve the recognition and participation of all community members, and the mobilization effect will in turn influence the action of the mobilization subject, forming a set of closed-loop community mobilization mechanism through feedback.
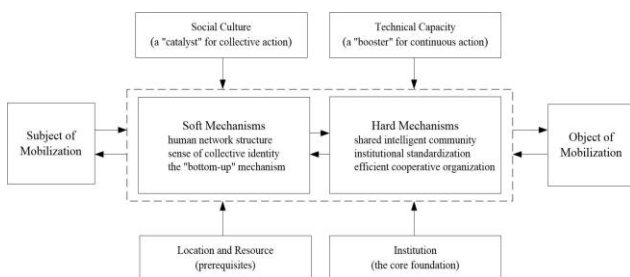

Figure 1. community mobilization mechanism

A. Soft Mechanisms for Community Mobilization

(1) Neighborhood structure de-atomization, forming a human network structure

The rapid development of modernization has accelerated the pace of people's lives, weakened the interaction between neighbors in the community, and the importance of neighborhood relations has gradually decreased, forming atomized structures that are independent of each other. However, the atomized neighborhood structure leads to weaker collective action and execution, which is not conducive to community mobilization, so the human network structure is a basic condition for community mobilization. The establishment of a human network should not be a simple transformation of residents, but should be created with community culture as a carrier to strengthen the ties between people, cultivate trust, form good and harmonious community interpersonal relationships, and shape a community-wide sense of community. The transformation of the human network is the reconstruction of the emotional connection between people, which requires community culture as a driving factor and strengthens the relevance of community culture to residents' daily lives and increases the stock of neighborhood capital.

(2) Expanding the perspective of residents' interests and shaping the sense of collective identity

After a human network is formed between residents and residents, all residents and the community should form a systematic whole. From the perspective of community building, the rise of residents' self-consciousness to collective identity consciousness requires cultivating a shared culture, carrying out community-based daily activities, and enhancing the positive interaction between residents and the community. From the perspective of individual needs, individual needs are integrated with community development, and individual interests are combined with the public interests of the community to establish a benefit-sharing mechanism and change the perspective of interests. Only by combining the cultivation of public rationality in community mobilization with emotional dependence and increasing the stickiness of residents to the community can we do a good job of joint prevention and control in major infectious disease outbreaks.

(3) Reverse the governance structure and open up the "bottom-up" mechanism

Community mobilization organizations are mainly neighborhood committees, which are the nerve endings of community governance. During the period of fighting SARS, most of the efforts were made by top-down administrative force, which was not very effective. In the end, there was no effective communication between community organizations and residents, thus creating barriers and not forming a closed loop of community network. Neighborhood committees should not be confined to administrative attributes, but should be guided and supported by the government, with spontaneous and orderly actions by the community, eliminating institutional barriers brought about by traditional controls, and forming a bottom-up network mechanism of linked community responses. An effective governance structure is not a single obedience to orders,

but mobilization of subjects and objects should tend to interact from antagonism, encourage the active development of social organizations, and form an autonomous order. Soft mechanisms are important because collective consciousness and collective action do not emerge immediately after the government provides resources to solve problems, but slowly as the whole society works together to solve problems. The importance of soft mechanisms for community mobilization is to open up the "bottom-up" governance structure and to realize interactive mobilization mechanisms in joint prevention and control of epidemics.

B. Hard Mechanisms for Community Mobilization

(1) Digitalization of the platform to create a shared intelligent community

Information communication is an important part of community safety governance, and the immediacy of information is even more important under the risk of a major infectious disease outbreak. The inefficiency of information transmission in traditional community construction is not conducive to the development of community mobilization in an unexpected epidemic, and thus the construction of a digital emergency management platform is needed. First of all, the community digital emergency management platform is a key service system of smart community construction. The integration of blockchain technology can upgrade the traditional information management mode to grid-based accurate management, realize efficient communication and sharing of community members' information, ensure the timeliness and authenticity of information, avoid information delays caused by traditional information registration, provide complete epidemic monitoring and analysis, and provide accurate and efficient epidemic prevention and control. The digital platform can also provide innovative technical means for epidemic prevention and control. Secondly, the digital platform can also provide epidemic prevention knowledge propaganda and psychological assistance functions to effectively protect the life and health safety and psychological safety of community residents. In addition, intelligent emergency management can help build a tightly connected community grid and reduce "free-rider" behavior in community mobilization for collective action.

(2) Institutional standardization to provide reasonable rule schemes

Government decentralization and community mobilization in joint epidemic prevention and control requires the power of institutionalization. First of all, develop community rules and regulations during sudden major infectious disease epidemics, such as strengthening the control of community personnel and vehicle access during epidemics, establishing a personal health reporting system in combination with digital platforms, strengthening the security of emergency supplies for epidemic prevention, doing a good job of unified management and distribution of supplies, and doing a good job of sanitation and disinfection of community public places, and strengthening the livelihood of the elderly, the weak, the young and other groups in the community. Secondly, establish a proper and timely evaluation and feedback mechanism, which mainly includes quantitative indicators such as team building and emergency supplies provision, set reference standards, and form a closed-loop mobilization mechanism through feedback to make the community mobilization system in infectious disease epidemic prevention and control more perfect.

(3) Specialization of personnel to form an efficient cooperative organization

Specialized team building can enhance community mobilization capacity, which is an important force in the prevention and control of major infectious disease outbreaks. Some studies have shown that social organizations are beginning to emerge as the main emerging force for mobilization due to government empowerment and residents' trust. Community neighborhood committees, volunteers, and other social organizations work together to form specialized cooperative organizations, which can change the traditional one-way communication model of "neighborhood committee - residents" and realize cooperative mobilization, and can make greater use of mobilization effectiveness. Firstly, we should provide systematic and professional training for community mobilizers and encourage people with professional knowledge in the community to join the volunteer team, so as to improve the professional level of mobilization subjects; secondly, we should establish a multi-level mobilization system, extend the mobilization subjects outside the community, realize joint prevention and control between the community and schools, integrate resources, and cooperate with enterprises, which is not only the embodiment of corporate social responsibility, but also the formation of an efficient cooperative organization. cooperation organization to help the development of community mobilization.

IV. CONCLUSION

Community mobilization is a reconfiguration of community rationality and community participation. This paper analyzes four factors that influence community mobilization in the joint prevention and control of major infectious disease outbreaks: location and resources, institutions, social culture, and technical capacity, and designs soft and hard mechanisms for mobilization from the perspectives of community participation and community implementation, respectively. The soft mechanism focuses on the formation of a human network structure and the cultivation of a sense of collective community identity, thus promoting a "bottom-up" governance structure based on residents' autonomy, while the hard mechanism focuses on the construction of a digital smart community and the establishment of standardized rules, while promoting the formation of a professional mobilization cooperation organization with multi-level subjects. The combination of these two mechanisms not only avoids the "government failure" caused by single-command administrative mobilization, but also ensures the effectiveness of mobilization in joint

prevention and control of epidemics and promotes refined prevention and control management. The practical process of community mobilization for epidemic prevention and control requires mutual coordination and promotion among mobilization subjects, and under the joint influence of the four factors, it acts on mobilization objects, ultimately realizing the widespread recognition and participation of community residents, promoting collective and sustained action, and giving full play to the strong vitality of communities in joint prevention and control of major infectious diseases.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Guoyuan Han analyzed the research idea and framework. Guoyuan Han and Wanning Li conducted the research. Wanning Li wrote the paper; all authors had approved the final version.

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