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COMMUNITY MOBILIZATION BASED ON NEW MEDIA IN THE CONTEXT OF EPIDEMIC CONTROL

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Abstract

The community is the basic unit of social governance and the first line of defense for epidemic prevention and control. Focusing on the application of new media mobile clients in community mobilization in the context of normalization of epidemic prevention and control, this paper takes K community residents' WeChat group as an example and analyzes the characteristics of elements from the structural framework of community mobilization: exploring the mobilization subject through the centrality of social relationship network; analyzing the mobilization object based on the degree of group modularity;. The new media-based optimization path is proposed for community mobilization, and mobilization strategies are proposed in terms of building a new media-based mobilization model, improving mobilization effectiveness under community sense mediation, and unblocking mobilization barriers under the "spectator" effect. The optimization path of community mobilization based on new media is proposed, and the mobilization strategies are proposed for the government and public welfare organizations in terms of building a mobilization model based on new media, improving the mobilization effect under the mediation of community awareness, and unblocking the mobilization barriers.

Keywords: Epidemic prevention and control; community mobilization; new media; WeChat group

1. Introduction

The sudden COVID-19 epidemic is the most serious infectious disease pandemic to occur worldwide in a century, and the prevention and control of the new crown pneumonia epidemic has become a focused test of the national governance system and governance capacity. The community is the basic unit of social governance and the first line of defense for epidemic prevention and control. In the practice of grassroots epidemic fighting, the relative separation of geographical space under the reality of home prevention and control has prompted the use of new media mobile clients in cyberspace more widely and deeply. In organizing epidemic prevention and control, local communities have widely used new media mobile clients such as WeChat to conduct community mobilization such as epidemic prevention and hygiene knowledge propaganda, registration of returning population, mass nucleic acid testing screening, and volunteer recruitment, which have made outstanding contributions in enhancing the efficiency of community action and gathering consensus on epidemic prevention. Exploring the new media-based community mobilization model provides a brand new path for the way of community governance in response to major public crisis events.

The research paper is structured along the following lines. It begins with a problem statement. Then the research question is described, followed by the main purpose of the study; the research methodology is described. Section 6 includes a discussion of the overall research findings. Finally, the paper is summarized and some suggestions are made for the further development of community mobilization for COVID-19 outbreak prevention and control.

2. Problem Statement

In traditional research, community mobilization is considered to be closely related to social mobilization and thus often studied under the paradigm of social movement theory, which has gradually developed research paradigms such as resource mobilization theory (McCarthy & Zald, 1977), political process theory (McAdam, 1982), and social construction theory (Schneider & Sidney, 2009). Since Chinese communities are born out of the traditional unitary system and urban-rural dualistic environment, urban community participation is manifested as a top-down institutional arrangement required by state governance, and community participation has a strong traditional imprint of state mobilization and mass participation formed during the revolutionary period (Cai, 2015). Community building in China itself is a process that "can promote community development through social mobilization, as well as a process that can promote community development movements, mobilize and educate community residents to actively participate in community construction, and comprehensively carry out community reconstruction or community revitalization movements" (Nisha, 2012, p. 51), and community mobilization as an important way to achieve community governance and promote community development, has been extensively studied in the fields of sociology and public administration. Compared with the previous organizational, participatory, and campaign mobilization, community mobilization by neighborhood councils is mainly a local authoritative mobilization, which uses both the administrative authority granted by the government and the local interactive network created by itself to mobilize residents to participate in community affairs and community activities (Kurniasih et al., 2018).In some studies in the field of community communication,

in order to clarify the mechanism of community mobilization, it is defined in terms of the structural elements of community mobilization, which can be expressed as follows: community mobilization refers to the process of mobilizing subjects to participate in community affairs by using specific mobilization methods in the event of sudden community public events or in the face of public affairs involving community development.

In the Web 2.0 era, the community communication mechanism under new media empowerment is reshaping the community mobilization ecology of the modern community governance model. "From a functionalist view of information dissemination, the role of new media is to improve the efficiency and expand the channels of the established social communication system, and to propose the response ideas of crisis communication and the focus of public opinion analysis from the rapidity and ubiquity of new media technology. The new media technology is fast and ubiquitous, and the focus of public opinion analysis is on crisis communication. But from a cultural standpoint, the connectedness, embeddedness, and participation of new media have a more profound and long-term significance for the generation, sharing, and cohesion of the collective meaning of grassroots society." The new media mobile client assumes an important media function in carrying and transmitting information in the community communication system, and builds a virtual community activity platform for the formation of community "identity". In the actual application scenario of community mobilization, WeChat, as a representative of new media mobile clients, is often adopted by grassroots communities as a community instant communication tool because of its ease of use, wide coverage, and multiform three-dimensional information dissemination, usually formed by full-time community workers, and the group members are usually community residents, based on the real community, to realize the combination of online and offline interaction. When virtual communities overlap with real communities, online communities help increase social capital and can facilitate online and offline mobilization, ultimately leading to collective action (Boehm, 2003).

Most of the previous empirical studies on community mobilization in new media are of two types: the first one is the construction of protest discourse system and protest action organization of "bottom politics" under the new media communication empowerment, exploring the catalytic mechanism of new media in protest community mobilization; the second one is the collaborative governance based on new media in daily life, highlighting the "new media" as a means to expand communication channels. The second one is the collaborative governance based on new media in daily life, highlighting the "government +" governance model of broadening communication channels. In this paper, we explore community mobilization based on new media in the context of epidemic prevention and control, which is different from the above two community communication models. The major public health event to which the new crown pneumonia epidemic belongs has independent characteristics such as suddenness, crisis, and universality, and is significantly different from other community mobilization models in terms of community mobilization goals and mobilization environment. Relying on the theoretical framework of structural elements of community mobilization (Klandermans, 1984), this paper develops a study related to new media-based community mobilization in the context of epidemic prevention and control from four dimensions of mobilization subject, mobilization object, mobilization target, and mobilization mode to explore the characteristics of this new model.

3. Research Questions

The main questions of the study were:

- Which nodes play an important role in the community communication based on WeChat groups in the context of the prevention and control of the new crown pneumonia epidemic?
- What characteristics do the social networks formed by community mobilization present? These answers will help to promote the capacity of community prevention and control of the New Coronary Pneumonia epidemic.

4. Purpose of the Study

This study focuses on the use and effectiveness of new media mobile clients in community communication in the context of the normalization of epidemic prevention and control, taking Beijing K community as an example. It explores the important role played by the new media mobile client, which is characterized by digitalization and interactivity, in community communication in the context of normalized epidemic prevention and control, and analyzes how the new media mobile client has built an efficient information dissemination mechanism in the community emergency management system.

5. Research Methods

This paper selects Beijing K community WeChat group as the research object mainly based on the following considerations: K community has achieved certain results in the prevention and control of the COVID-19 pandemic, and has formed a long-term volunteer team to serve community residents, which is representative of community governance and community mobilization cases in the context of the normalization of epidemic prevention and control. The K community WeChat group was established in January 2020 by the staff of the community committee, and the initial goal of the group was to inform residents about the time of nucleic acid testing and the requirements of community epidemic prevention and control. The main topics of this group have been focused on epidemic prevention and control. In this paper, the online participant observation method was mainly used. After joining the K community WeChat group in June 2020, the author observed and recorded the content of the group online from June 21 to November 30, 2020, without participating in the exchange of information and interaction within the group, and recorded 3756 chat records within the 297-member K community WeChat group, which provided a highly restored and complete ecological sample for the study. We recorded 3756 chat records in the 297-member WeChat group, providing a highly restored and complete ecological sample. This paper analyzes the interaction relationships within the WeChat group, uses Gephi complex network analysis software to analyze the community communication network in the context of normalization of epidemic prevention and control, explores indicators such as centrality and modularity, and explores the structural characteristics of the community communication network based on relational orientation.

6.   Findings

6.1. Overview of community communication network

Gephi software was run to present a visual image of the community communication network and the community communication network was analyzed by the statistical function for graph density, weighted average degree and other indicators. As shown in Table 1, a community communication network of a certain scale is formed in the Kangju community, which has a facilitating effect on organizing epidemic prevention and control and gathering community consensus, but there are still problems such as relatively low network integrity, relatively loose distance between nodes, some isolated nodes are far from the center of communication, and the community communication participation is low. This reflects the irreplaceable special advantages of new media mobile clients as a communication resource in the normalized communication context of epidemic prevention and control with the main performance of reducing interpersonal contact, but its different embedding method from traditional community media affects the media contact and media use degree of new media mobile clients for grassroots community audiences, and new media mobile clients in localized social relations and social structure The new media mobile client has yet to be widely and deeply applied in the localized social relations and social structure.Regression analysis are the following (Table 1):

Table 1.   Overview indicators of community communication networks within K communities

Indicators	Value	Column Heading	Column Heading
Graph Density	0.006		
Average Degree	1.078		
Average Weighted Degree	1.914		
Average Path length	3.2068729463307775		

6.2. Centrality analysis

In the study of interpersonal interaction network of WeChat group, "node" and "platform" are the two key words to grasp the relationship network, the former is the subject of action in the cyberspace, and the latter is the existence and interaction space of the former (Tichy, 1979). While the release of regular chat messages is communicated to all nodes in the group in the public discourse space, the analysis of node relations in the WeChat group mainly shows whether WeChat users use the @ function in their communication to spread information to certain nodes. In order to present the interaction relationship within the K community WeChat group more clearly, the author recorded the nodes using the @ function and the specific objects prompted by the @ function to receive messages during the observation process, constructed a co-occurrence matrix between nodes based on the node relationship in the WeChat group, and used Gephi complex network analysis software to analyze the community communication network in the context of the normalization of epidemic prevention and control, and explored the centrality indicators of each node in the K community communication network and explored the structural features of the community communication network based on the relationship orientation through visual images (Figure 1) to explore the important nodes that undertake the task of the main community mobilization.

"Centrality" is one of the key points of social network analysis and is often used to analyze the degree of centrality of individuals or organizations in the social network. The study of "centrality" is very important for how information is disseminated throughout the network and how well it is disseminated. In this paper, the statistical function of Gephi software is used to calculate the Betweenness Centrality, Eigenvector Centrality, and Closeness Centrality of each node in the community communication network in K communities, and the Eigenvector Centrality is selected for specific analysis. This metric is selected for specific analysis.

Eigenvector Centrality is a metric to measure the importance of nodes based on their connections. By setting the number of iterations to 100, the centrality of nodes in the K-community communication network was analyzed and ranked according to the eigenvector centrality (Table 2). The results show that, in addition to the community committee workers (nodes 48 and 27), who represent the "infiltration" of state power, show a high degree of network media power (Aalbers et al., 2019), the community residents, represented by community resident volunteers (node 25), also show a high degree of participation in the community resident communication mechanism under the new media empowerment as community mobilization subjects. In the context of epidemic prevention and control, community issues related to residents' public interests are not solved only by community committee workers; community residents also spontaneously take on important communication node tasks in the new media mobile client and openly discuss matters related to community public interests in the community public sphere constructed by community communication, reflecting the interactive and participatory community media change from passive information receivers to active information receivers and information It has become an important way of residents' self-governance and community governance(Coleman, 1988). To a certain extent, it has broken the administrativeization of neighborhood committees and cultivated residents' civic awareness and ability to participate in construction in the context of the normalization of epidemic prevention and control.
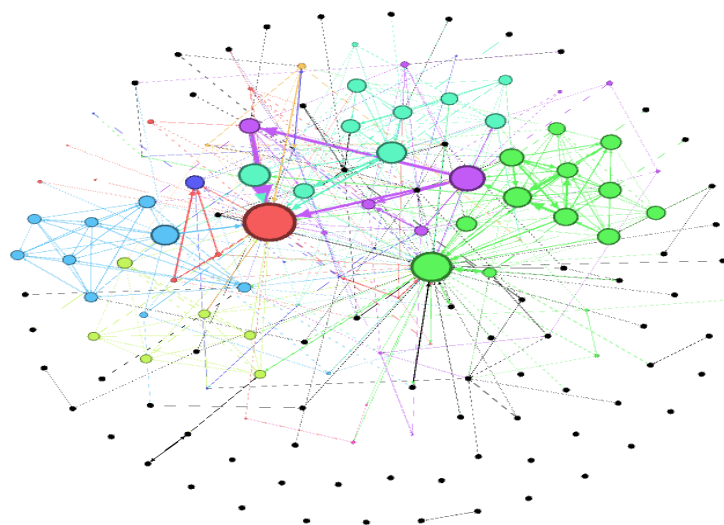

Figure 1. Structure of community communication network within K in the context of normalization of epidemic prevention and control

Table 2. List of subjects with above-average feature vector centrality (excerpt)

Number	Community Identity	Closeness Centrality	Betweenness Centrality	Eigenvector Centrality
48	Community Workers	0.530612	7877.747763	1
11	Residents	0.323988	1238.214645	0.664069
5	Residents	0.396947	704.031661	0.307484
25	Volunteers	0.305882	302.369268	0.306143
57	Residents	0.378182	766.037531	0.299977
34	Residents	0.376812	442.837469	0.280068
41	Residents	0.359862	79.16939	0.268913
20	Residents	0.389513	839.739486	0.268826
27	Community Workers	0.382353	352.740142	0.235815
93	Residents	0.38806	358.691507	0.231519

6.3. Cluster analysisis

The target of community mobilization is the target of the community mobilization action, i.e., "to whom to mobilize". Although there are specific communication contexts in which targeted communication is narrowed down to specific targets and open mobilization is directed to groups outside the administrative division of the community, the majority of community mobilization contexts are directed to the entire population of the community. In the geo-cultural groups formed by community residents, there are complex social networks of relatives, neighbours and colleagues that may exist in some "post-unit" communities, and the interaction between nodes in K community WeChat groups can be further explored by using Gephi software for cluster analysis, embeddedness and modularity trends.

Cluster analysis, also known as cohesive subgroup analysis, refers to a subset of nodes that satisfy the following conditions, i.e., the nodes in this set have relatively strong, direct, close, frequent, or positive relationships with each other. Group discovery refers to finding how many clusters exist in a network as a whole, analyzing how many clusters exist in the network, how each cluster is related to each other, how the members of a cluster are related to each other, how the members of one cluster are related to the members of another cluster, etc. The clustering coefficient is used to demonstrate the so-called "small world" effect; it shows how nodes are embedded in their neighbourhood. The average clustering coefficient gives an overall indication of the clustering or grouping of a node (Bartsch & Viehoff, 2010).

The average clustering coefficient of the K community communication network was 0.444 by running Gephi's cluster analysis. 1.0 was set as the standard resolution, and 26 modular communities were detected by applying the community detection algorithm, with a modular resolution of 0.518. It can be seen that community communication in K communities has a tendency to be modular, with different sizes of "small. The maximum number of people is 44 and the minimum number is 2 (Figure 2), with the majority of small groups. The filtered central network was obtained by running the "Filter" function and setting the Modularity Class range (Figure 3), which showed that the K community mobilized a high degree of grouping, forming many modularity groups to discuss and exchange information around the epidemic prevention and control-related topics. The results show that K communities have a high degree of group mobilization, forming many modular groups that discuss and exchange information around epidemic

prevention and control-related topics. By comparing the overlap between the key nodes of each modular group and the nodes with higher centrality values in the centrality data of each node in K community above, it can be assumed that the community elites in the overlapping nodes are most likely to take up the task of mediated mobilization nodes in the process of community mobilization.

In the practice of community mobilization, the number of residents in communities of different sizes varies, and it is difficult for grassroots organizations to mobilize a large number of residents directly by their own strength alone. Community elites have a strong influence in their respective modular groups and a high centrality in the social network of community communication, and they act as mediators in mediated community mobilization, i.e., intermediate nodes of multi-level communication. The intermediate nodes have the dual identity of community mobilization subject and community mobilization object, and realize the transformation of identity in the community communication cycle. They become mobilization objects in the first-level communication hierarchy and then become mobilization subjects in the second-level communication hierarchy. Community residents form socialties through spontaneous or community worker-formed organizations, which not only enhance trust among residents, and residents' trust in the community, but also reduce the cost of transferring administrative information to the community, and the cost of community mobilization (Hordofa & Hailu, 2019).

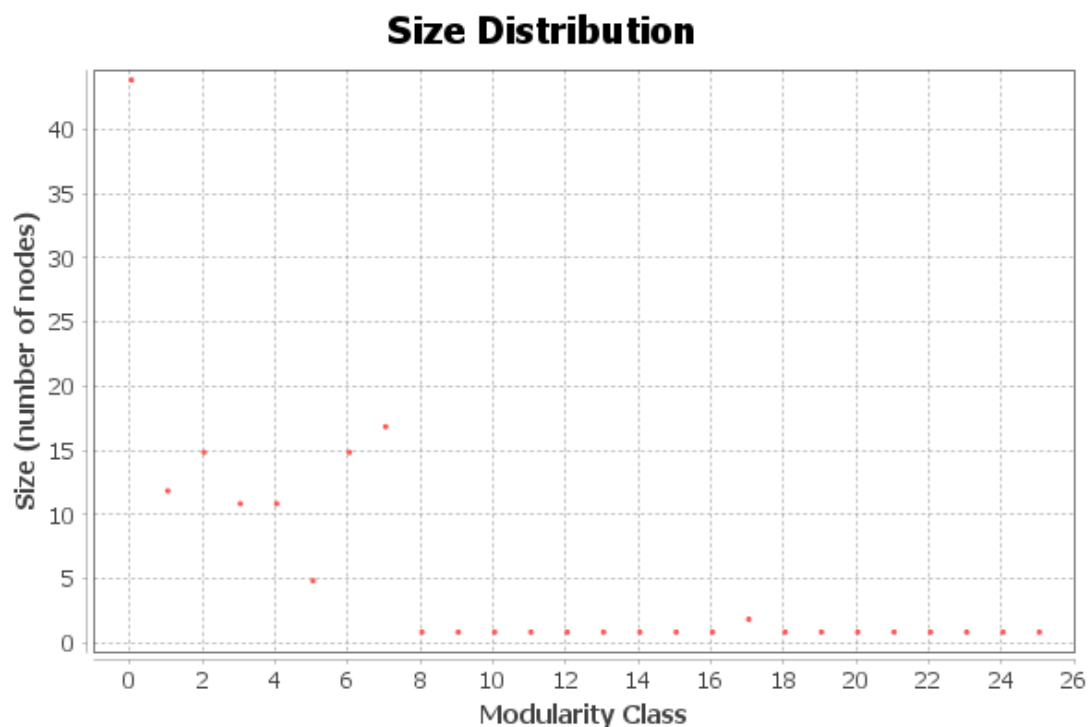Regression analysis are the following (table 2):

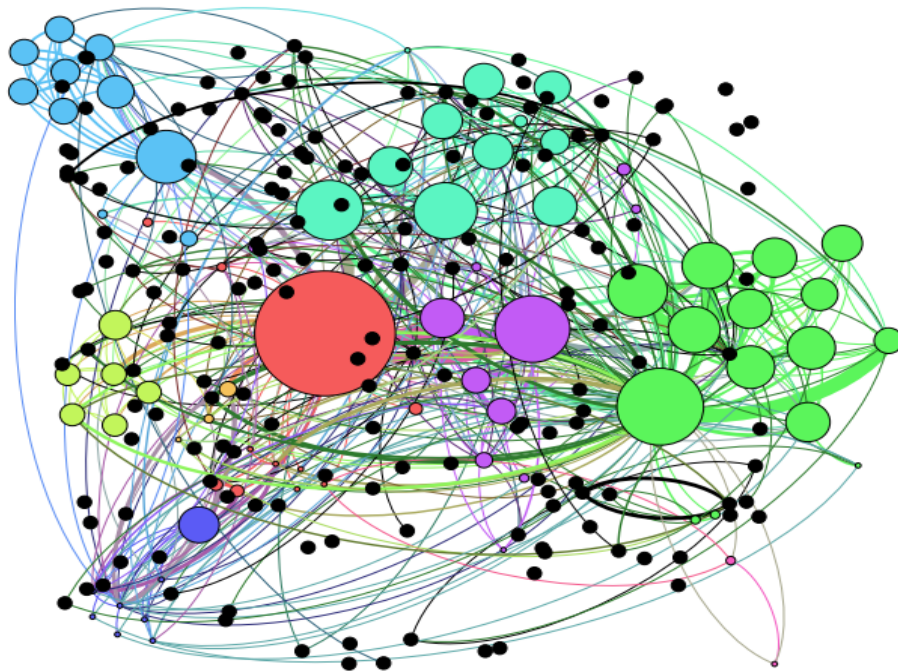**Figure 2.** Distribution of community communication modular groups

Figure 3. Modular community dissemination network after filtering process

7.   Conclusion

Community mobilization translates the social goal of meeting the needs of community residents in community governance into a process of community action with broad participation of community members (Klandermans, 1984). As an incremental element in the community governance field, media such as WeChat groups are a form of horizontal social connection, which will facilitate the formation of trust, reciprocity, and cooperation mechanisms among residents, enhance community capital accumulation (O'Brien et al., 2005), and create a great synergy between grassroots administrative organizations and community residents in cooperative governance. Community mobilization in the context of the normalization of epidemic prevention and control reflects the level of emergency management of grassroots communities in major public health events and is a test of the modernization of community governance capacity. The elements of community mobilization in which make adaptations and transformations to fit the communication context for the mobilization goals. In her "communication infrastructure theory", American scholar Sandra Borokic defines community communication as a neighbourhood narrative network in the context of communication infrastructure and emphasizes the differences in community communication networks (Ball-Rokeach, 2001). This suggests that in the process of effective community mobilization by means of new media, community governance should develop communication strategies that take into account the specific conditions of the community and adapt to the pace of grassroots social transformation in terms of media embedding and community mobilization paths.

Acknowledgments

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