

A Study on the Transformation of the role of Community Social Organizations Before and After the Novel Coronal Epidemic

Ruiying Ning^{1,*}, Le Luo², Juan Wei³, Xiaoqing Yang⁴

¹ Asset Assessment of Sichuan Agricultural University, Dujiangyan, Chengdu, Sichuan, China

² Accounting of Sichuan Agricultural University, Dujiangyan, Chengdu, Sichuan, China

³ Accounting of Sichuan Agricultural University, Dujiangyan, Chengdu, Sichuan, China

⁴ Asset Assessment of Sichuan Agricultural University, Dujiangyan, Chengdu, Sichuan, China

* Corresponding author: Email: 1790862690@qq.com

ABSTRACT

Community social organizations play an important role in the normalization of prevention and control of novel coronavirus. Taking Pidu District of Chengdu City as an example, this paper uses the PSR model to analyze the 'pressure-state-response' three stages of community response to the impact of the epidemic, refines the influencing factors of community social organizations on the prevention and control of community novel coronavirus, and explores its role in the prevention and control of epidemic and the transformation of the functions of community social organizations under the background of normalization prevention and control.

Keywords: community social organizations, pressure – state – response, community epidemic prevention, function transformation

1. INTRODUCTION

Since the outbreak of the novel coronavirus epidemic, the prevention and control of the epidemic has become a focus of social attention and national key work. Based on the community level, from the perspective of community social organizations, this paper analyzes the role of community social organizations in the prevention and control of community novel coronavirus epidemic. The study helps community social organizations to continuously promote the ability of epidemic prevention in the normalization of epidemic prevention and control.

2. RESEARCH OBJECT

2.1. Introduction Of Research Object

Community social organization refers to the community organizations or individuals within the community alone or jointly organized, community-based activities to meet the different needs of community residents of civil spontaneous organizations. [1] Social organizations, as the 'third sector' independent of government and market, should become an important

subject of social governance by providing public services in certain areas to society. [2] Based on the community level, this paper explores the functions of community social organizations under the normalized epidemic prevention and its transformation from the perspective of prevention and control of novel coronavirus.

This paper takes eight communities in Pidu District, Chengdu City, Sichuan Province where the epidemic outbreak occurred in 2020 as the research object. Among them, epidemics occurred in two communities at the beginning of 2020 and in six communities at the end of 2020 (hereinafter referred to as S1, S2, S3, S4, S5, S6, S7 and S8 respectively).

2.2. Selection Principle

This paper selects Pidu District of Chengdu as the research object, the main reasons are as follows:

First, Pidu District is a large district and county around Chengdu with dense population. Xipu Express Railway Station–Subway Station is a large-scale composite transportation hub with great epidemic prevention pressure. Second, the types of communities in Pidu District are diverse. A few years ago village

resettlement work has led to a result that some communities have both rural and urban dual nature, so that governance is difficult. Third, Pidul District had two outbreaks in early 2020 and late 2020. A complete experience of 'outbreak-prevention and control-recurrence-re-prevention and control' of the whole process, is convenient to compare the role and function transformation of community social organizations in the non-epidemic period, epidemic prevention and control period and normalized prevention and control period.

In conclusion, Pidul District is selected as the research object with certain representativeness and high research value.

3. RESEARCH DESIGN

3.1. Research Basis

3.1.1. Research methods

In this paper, the 'PSR model + entropy method' is used as the core research method to construct the epidemic prevention model of community social organizations from the perspective of novel corona epidemic prevention and control. Finally, the entropy method is used to determine the weight of each index of the evaluation model.

3.1.2. Influence factor recognition

From the perspective of the role of social organizations, based on the thinking logic of the PSR model, this paper divides the process of community epidemic prevention into three stages: 'pressure-state-response'. Then the paper establishes the evaluation index system of community social organization epidemic prevention, and quantitatively compares the prevention and control effect and function transformation of community social organizations at the community level.

Combined with the context of the PSR model, the 'pressure'

'pressure' in the prevention and control of the novel coronavirus indicates the possibility of community infection[3]. From the perspective of community social organizations participating in community epidemic prevention, this paper identifies 'residents' epidemic awareness' as the influencing factor of the stress stage. The higher the index is, the lower the possibility of infection is, the better the pressure phase.

The 'state' means the ability to resist the disturbance within the community and reduce the adverse effects[3]. This paper identifies 'the level of community organization information', 'the proportion of community public managers' and 'the proportion of permanent volunteers' as the influencing factors of state process. The higher these three indicators are, the stronger the resistance is, the better the state phase.

'Response' means the ability of the community to recover from the disturbance of the novel coronavirus to a normal and stable state and learning adaptability[3]. This paper identifies 'resident participation' and 'emergency education and training effectiveness' as the influencing factors of the response process. The higher these two indicators are, the better the community's ability to respond to learning and the better the response phase.

Among the six influencing factors mentioned above, for the subjective variables (residents' awareness of epidemic situation, information level of community organization, residents' participation, and effectiveness of emergency education and training), this paper combines specific indicators with the horizontal comparison of sample communities and vertical comparison of two novel corona outbreaks, and uses the five-point scoring method to measure the level of each sample community.

In summary, this paper constructs the evaluation index system of community social organizations for the prevention and control of community novel coronavirus. Table 1 below:

Table 1 Evaluation index system

Target layer A	First grade index A1	Second index A2
The role of community social organizations for community unit epidemic prevention and control U	Pressure U1	Resident outbreak awareness U11
	State U2	Community organization information level U21
		Proportion of community public managers(persons) U22
		Percentage of resident volunteers (%) U23
	Response U3	Resident Engagement U31
		Emergency education and training effectiveness U32

3.2. Research Analysis

3.2.1. Data collation

After constructing the evaluation index system, this

paper collects the data of each index by questionnaire survey, field investigation and other methods. After data collation, the effective data of early 2020 and late 2020 in 16 groups are obtained, as follows :

Table 2 The role of community social organizations for community epidemic prevention and control (early 2020)

Target layer A	The role of community social organizations for community epidemic prevention and control U					
First grade index A1	U1	U2			U3	
Second index A2	U11	U21	U22	U23	U31	U32
S1	2.3600	3.9643	0.0005	0.0010	4.2100	4.1700
S2	2.6400	1.9643	0.0004	0.0032	3.2000	3.0000
S3	2.8600	2.5357	0.0034	0.0578	3.2300	1.8300
S4	2.7900	2.3214	0.0034	0.0528	3.3300	1.6700
S5	2.8600	2.3214	0.0007	0.0250	4.3700	2.1700
S6	2.6400	2.5357	0.0002	0.0003	2.7300	2.0000
S7	2.7900	2.5357	0.0004	0.0051	3.5800	1.8300
S8	2.6400	2.6429	0.0009	0.0113	3.8300	3.0000

Table 3 The role of community social organizations for community epidemic prevention and control (late 2020)

Target layer A	The role of community social organizations for community epidemic prevention and control U					
First grade index A1	U1	U2			U3	
Second index A2	U11	U21	U22	U23	U31	U32
S1	3.8000	4.0714	0.0005	0.0013	4.1800	4.1700
S2	3.7500	2.3214	0.0004	0.0032	3.1900	3.3300
S3	4.5400	2.6787	0.0034	0.0578	3.3000	2.3300
S4	4.2900	2.3214	0.0034	0.0528	3.4200	2.5000
S5	3.7100	2.3929	0.0007	0.0250	4.2400	3.0000
S6	4.1800	2.8214	0.0003	0.0003	3.2100	2.5000
S7	5.0000	2.6429	0.0004	0.0051	3.6800	2.1700
S8	4.5700	2.6786	0.0009	0.0113	3.7900	3.5000

3.2.2. Data calculation

This paper uses entropy method to determine the weight of each index, the specific process is as follows :

(1) Constructing the original matrix

Construct the matrix of “n (community) * m (index)”. Note that the value of the jth indicator of the ith community as x_{ij} .

(2) Data standardization processing

Because the measurement units of each indicator are not uniform, it is necessary to standardize the indicators before calculating results. The indicators involved in this paper are positive, the specific methods are as follows :

$$x'_{ij} = \frac{x_{ij} - \min\{x_{1i}, \dots, x_{ni}\}}{\max\{x_{1i}, \dots, x_{ni}\} - \min\{x_{1i}, \dots, x_{ni}\}}, \quad (i = 1, 2, \dots, n; j = 1, 2, \dots, m)$$

In order to avoid 0 values affecting subsequent calculations, add 0.0001 to all processed data to get standardized data:

$$x''_{ij} = x'_{ij} + 0.0001, \quad (i = 1, 2, \dots, n; j = 1, 2, \dots, m)$$

(3) Calculation of the proportion “ P_{ij} ” of the i community in indicator j

$$p_{ij} = \frac{x''_{ij}}{\sum_{i=1}^n x''_{ij}}, \quad (i = 1, 2, \dots, n; j = 1, 2, \dots, m)$$

(4) Calculation of the entropy value “ e_j ” for indicator j

$$e_j = -k \sum_{i=0}^n p_{ij} \ln(p_{ij}), \quad (i = 1, 2, \dots, n; j =$$

$$1, 2, \dots, m), k = \frac{1}{\ln(n)}$$

(5) Calculation of coefficient variance “ d_j ”

$$d_j = 1 - e_j, (j = 1, 2, \dots, m)$$

(6) Calculation of weights of indicators

$$W_j = \frac{d_j}{\sum_{j=1}^m d_j}, (j = 1, 2, \dots, m)$$

Specific weight calculation results are as follows:

Table 4 Index Weight Table (early 2020)

First grade index A1	Second index A2	Entropy value	Coefficient variance	Weight	Ranking
U1	U11	0.920930	0.079070	0.062831	6
U2	U21	0.838224	0.161776	0.128552	4
	U22	0.658537	0.341463	0.271335	1
	U23	0.685925	0.314075	0.249571	2
U3	U31	0.885158	0.114842	0.091256	5
	U32	0.752770	0.247230	0.196455	3

Table 5 Index weight table (end 2020)

First grade index A1	Second index A2	Entropy value	Coefficient variance	Weight	Ranking
U1	U11	0.798133	0.201867	0.124971	5
U2	U21	0.676991	0.323009	0.199967	2
	U22	0.630604	0.369396	0.228684	1
	U23	0.688549	0.311451	0.192812	3
U3	U31	0.776832	0.223168	0.138158	4
	U32	0.813578	0.186422	0.115409	6

The greater the weight of each index is, the more influential it shows. All indicators in this paper are positive indicators. The larger the value is, the stronger the effect of this indicator on community epidemic prevention becomes.

3.3. Function Analysis Of Community Social Organization

3.3.1. Basic function of community social organizations

Community social organizations, which are actively devoted themselves to community governance in various forms, as a significant subject to participate in community multi-governance. For instance, they participate in public policy formulation and governance of community public affairs. Besides, Community social organizations reflect the demand of residents for the government such as maintenance and use of community public property[4]. Community social organizations can use quasi-market mechanisms and voluntary mechanisms to provide public services. Especially to meet the needs of some special groups such as the old, the weak, the sick and the disabled on time [5]. In recent years, it has gradually expanded to social and shared multi-level service for all residents. Group organizations with residents ' interests and hobbies as the link and core occupy a large proportion. Diverse cultural and sports activities enrich the spiritual life of the residents, but meanwhile, these activities imperceptibly promote the

community residents consciously abide by civic ethics, enhancing people's dedication and community cohesion[6], jointly accelerating harmonious development of communities.

3.3.2. Epidemic time role of community social organizations

In the early stage of epidemic prevention and control, community social organizations Promptly raise supplies and funds to buffer the shock of the shortage of anti-epidemic supplies and funds for front-line staff and special difficult groups. In the case of a serious shortage of community staff, volunteers have been urgently recruited to actively assist the community in controlling the personnel flow and the investigation of the epidemic during the epidemic, complete the investigation and reporting work, and do a good job of community's “gatekeeper”[7]. Another important position of community social organizations is epidemic prevention propaganda. They make full use of WeChat public number, micro-blog, propaganda column and other propaganda tools to timely release accurate relevant information, summarizing the experience of epidemic prevention, guiding the community to treat the novel coronavirus rationally and scientifically to reduce panic. Community social organizations also carry out special assistance to the original vulnerable groups and groups with new difficulties due to the epidemic, and apply to the higher authorities for grants, epidemic protection

supplies and living material to ensure the elementary needs of the disadvantaged groups.

3.3.3. The combined effect of basic function and the role in epidemic time of community social organizations

When the epidemic broke out, community social organizations actively participated in the prevention and control of the epidemic, which greatly alleviated insufficient manpower in the community. For example, a multitude of people from volunteers to be on duty at the epidemic prevention post in shifts. Community social organizations also assisted manufacturing enterprises in the community to gradually resume reproduction in the early normalization of the epidemic; Community social organization plays an indispensable part in community governance by acting as a channel for residents to submit appeals and feedback to grassroots government departments, and undertaking the function of 'transmitting government policy messages downward and conveying community residents' appeals upward'.

During the period of normalization prevention and control, community social organizations are prepared to cope with the recurrence of the epidemic while performing their duties. When a novel coronavirus epidemic occurs, community social organizations can quickly transform their functions and play their special role in epidemic time. When the epidemic gradually slows down, they return to their daily work, Which is the combination of basic function and the role in epidemic time.

4. CONCLUSIONS

Firstly, it can be seen from the data that the 'residents' awareness of epidemic situation' at the end of 2020 increased significantly compared with the beginning of 2020, and its weight increased nearly twice. It can be seen that the level of residents' awareness of the epidemic has improved significantly after nearly a year of epidemic prevention and publicity, which is an obvious feature of community adaptation to the environment after the impact of the epidemic. 'Community organization informatization level' index rose slightly, and there were few changes in general. The proportion of community public managers (persons) and permanent volunteers (percent) are limited by administrative and community fixed factors, with stable data and weights. 'Resident participation index' is closely related to the actual disturbance period of the community. During a period when the community is disturbed by the epidemic, the residents' participation is higher than that in the period without disturbance. The specific data of the effectiveness index of emergency education and training have been greatly improved in both periods, but the weight shows a downward trend, which indicates that not

only the effectiveness level of emergency education and training has been rapidly improved, but also the gap between communities has been further narrowed.

In summary, it can be concluded that the role of community social organizations is relatively limited in the phase of state while prominent in the phases of stress and response. Especially in emergency education and training, not only has the overall level been rapidly improved, but also the gap between communities narrows.

Second, the functions and roles of community social organizations before and after the outbreak of the novel coronavirus were transformed on time to achieve a "combination of leveling and epidemic". Community social organizations play daily community management and service functions before the outbreak. In the outbreak of the novel coronavirus epidemic, community social organizations quickly transformed into epidemic teams, relying on their original organizational structure into anti-epidemic work. When the epidemic is alleviated and enters normalized prevention and control period, the community social organizations return to their daily work again and play the combined function of "routine + special" combination of epidemic prevention and control.

5. PROBLEMS AND SUGGESTIONS

5.1. Issues

First, staffing constraints. The sample communities generally reflect that there has been a problem of insufficient staff and heavy work tasks, especially in the prevention and control of the 2020 epidemic. Secondly, the operation mechanism of community social organizations is not clear. The function orientation of epidemic prevention of community social organization is not clear, lack of policy pertinence and normative. Some social organizations have the problem of excessive fragmentation and fail to play the advantages of the original organizational structure. The third is the insufficient integration of community resources. It is specifically reflected in the lack of full-time staff[8], the lack of relevant professional training, the dependence of community social organizations on superior guidance, and the lack of horizontal communication between communities. Finally, the application of the information technology level is limited. Communities are usually notified by superiors of epidemic prevention news. So their information technology level is low.

5.2. Countermeasures And Sggestions

(1) 'Key volunteers+Ordinary volunteers' mode

The community usually only retains some key volunteers to assist community staff in epidemic prevention and most volunteers are recruited in the epidemic period, giving backbone volunteers spiritual

honor and allowance. Using the organization of “key volunteers + ordinary volunteers”, key volunteers serve as the core of anti-epidemic service and a bridge for transmitting knowledge and skills of epidemic prevention to ordinary volunteers.

(2) Improving the operational mechanism of community social organizations

The community needs to establish a clear operational mechanism of community social organizations, including daily operation and emergency response. At the same time, according to the main functions, community social organizations are divided into stylistic organizations, voluntary service organizations, public welfare organizations and other types. The community should select appropriate organizations to participate in different epidemic prevention work according to the epidemic characteristics、actual needs and volunteer service mode[9], so these community social organizations can quickly complete the transformation from the function of epidemic prevention to ensure the efficient development of epidemic prevention.

(3) Subsidence of information technology application and embedding community into the epidemic prevention information system

As the grassroots end, the community has a more sensitive sense of touch at the micro-level and can provide more detailed information. Big data, cloud computing, artificial intelligence and other technical tools should be fully used, with neighborhood committees, grid workers and volunteers to explore the details of the community, then embed the grass-roots community in epidemic prevention information system.

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Appendix (Please hide the name of the community when officially published) :

S1 Community - Shuangbai Community, Pidu District, Chengdu City

S2 Community - Wang Cong Community, Pidu District, Chengdu City

S3 Community - Taiping Village, Pidu District, Chengdu City

S4 Community - Yongan Village, Pidu District, Chengdu City

S5 Community - Pineapple Community in Pidu District, Chengdu City

S6 Community - Gaodian Community, Pidu District, Chengdu City

S7 Community - Xichi Community, Pidu District, Chengdu City

S8 Community - Babuqiao Community, Pidu District, Chengdu City

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