

How did Wuhan Residents Cope with a 76-day Lockdown?

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Acknowledgements

Yue Qian and Amy Hanser acknowledge funding support from the Canadian Institutes of Health Research through the Operating Grant: Canadian 2019 Novel Coronavirus (COVID-19) Rapid Research Funding Opportunity (Funding #: OV7-170372). The authors would like to thank Siqi Xiao, Xueqing Zhang, Yushu Deng, and Zhijing Shi for their excellent research assistance. The authors also extend their deep appreciation to the participants who generously gave their time and shared their experiences for this research.

Abstract

Wuhan, the original epicenter of the COVID-19 outbreak, was under strict lockdown for 76 days. We conducted 30 in-depth interviews to understand Wuhan residents' lived experiences of lockdown life. We found that despite strong emotions initially, Wuhan residents quickly adapted to life under unprecedented lockdown. We identified three pre-existing structures that facilitated the effective implementation of the massive lockdown: ready-made containment units offered by urban "gated" housing, a comprehensive grassroots governance network coordinated by *shequ* (community residence committees), and the ubiquitous WeChat app in Chinese daily life. We also showed that the pre-existing structures provided space for uncontentious self-organizing, grassroots mobilization, and civic engagement that often dove-tailed with state-mandated measures. This study details the resources Wuhan residents drew upon to get by during the lockdown, and it illustrates that the feasibility of lockdown measures relies heavily on a society's structural and institutional conditions.

Keywords: COVID-19, Pandemic, Lockdown, Urban Governance, China, Sociology of Disasters

Introduction

Wuhan, where the first COVID-19 case was identified, was the epicenter of the subsequent outbreak. COVID-19 cases in Wuhan accounted for 60% of all cases in China (National Health Commission 2020; Wuhan Municipal Health Commission 2020). With a population of over 11 million, Wuhan is the capital of Hubei Province and major transit hub in central China. In response to COVID-19, the municipal government announced, at 2:00 am on January 23, 2020, that beginning at 10:00 am, it would cancel planes and trains leaving Wuhan and suspend public transportation within the city (State Council Information Office 2020). Three days later, vehicle use, including private cars, was further banned.¹ In the following weeks, the lockdown tightened: residents were not allowed to leave their residential compounds without authorization. It was not until April 8 that the 76-day lockdown was lifted. The *New York Times* reported that “the scale of China’s Wuhan shutdown is believed to be without precedent” (Levenson 2020).

During the lockdown, Wuhan residents could not look anywhere else to imagine how things might unfold. In addition to being exposed to a new disease, they were the very first to experience a complete societal lockdown. We draw on in-depth interviews with Wuhan residents to examine their life under lockdown and the ways they fulfilled their needs for daily necessities and social connections. We reveal the importance of pre-existing structural and institutional conditions for both enforcing lockdown measures and strengthening residents’ ability to navigate the lockdown period. While specific to China, and to Wuhan, this case study helps to illuminate some of the conditions that may make strict lockdown measures a feasible public health response to disease outbreaks, and shed light on how affected residents experience such measures.

Our goal in this paper is threefold. Given the unprecedented scale and duration of Wuhan’s lockdown, our primary objective is to detail the key factors that enabled city residents

to weather this period of immobility and uncertainty. We highlight the localized factors that served as both mechanisms through which the state-mandated lockdown was effectively implemented and structures through which resources and information could flow. The key factors we highlight are in many ways very specific to contemporary urban China, which has implications for whether mobility restrictions are feasible public health measures in other societies. Our second objective is to use Wuhan's COVID-19 lockdown as a revealer of social conditions and processes (Klinenberg 1999). Our sociological account of the lockdown shows how government responses to COVID-19 and individuals' coping practices were built upon pre-existing structures. Our study thus underscores the need for sociological perspectives in understanding the responses to, and consequences of, the COVID-19 pandemic. Our third objective is to illuminate the complex relationship between an authoritarian state that could swiftly shut down an entire city and an urban populace with immediate needs for food, healthcare, information, and social connection (Teets 2013). We demonstrate how ordinary citizens actively and creatively coped in extraordinary times. Importantly, we show that pre-existing structures provided space for uncontentious self-organizing, grassroots mobilization, and civic engagement that often dove-tailed with state-mandated measures.

Background

Our theoretical approach is informed by the scholarship on natural disasters and disease outbreaks that seeks to “de-naturalize” these events and experiences (see Arcaya, Raker, and Waters 2020 and Tierney 2007 for reviews). This body of scholarship emphasizes how disasters are socially produced (i.e. shaped by social, political, and economic contexts) and how responses are likewise embedded in local settings structured by institutional, political, and social factors

(Arcaya, Raker, and Waters 2020; Tierney 2007). A classic sociological study of disaster, *Heat Wave*, detailed how unequal exposure to the risk of dying from Chicago's extreme heat in 1995 was produced through specific neighbourhood conditions, welfare state retrenchments, and long-standing racial-ethnic and class inequalities (Klinenberg 2002). By focusing on Chicago (one of the largest American cities), *Heat Wave* also highlighted the importance of the urban setting as the key level of state responses to disaster and the specific environment where city residents experienced exposure and vulnerability to disaster (Klinenberg 2002). The salience of the urban setting also applies to disease outbreaks and pandemics, as cities often serve as the local context in which disease risks are understood and acted upon (Ali and Keil 2018). Pathogens become a problem of urban government and cause disruption to lives of urban inhabitants (Wolf 2016). Wolf (2016) dubs this urban-focused approach to disease "urban epidemiology," a recognition that cities are key locations where biosecurity control measures are implemented. Such measures may work to strengthen and even close territorial boundaries although modern, global cities are by definition open to flows of people, goods, capital...and pathogens.

In Wuhan, immobility was clearly the control strategy that the Chinese state adopted to prevent the spread of COVID-19. In this paper, we show how near-complete immobilization of several million people was achieved. The strategy to impose a form of biosecurity upon the city of Wuhan is found to depend on pre-existing material, institutional, and technological features of urban China. We also consider how local residents continued to meet their basic needs despite the profound disruptions this immobility brought to their lives. Moreover, our findings speak to the literature on state-society relations in China. Prior research has revealed cooperation between various levels of government and non-governmental organizations in China, which is tied both to moments of crisis (e.g. the 2008 Sichuan earthquake) and to the more general decentralization of

social welfare functions to local governments in recent decades (Teets 2009, 2013). We show how ordinary citizens in Wuhan acted as active agents to engage creatively with an unprecedented situation, which in turn fulfilled state-mandated goals and social-welfare provision. As with Teets' (2013) concept of "consultative authoritarianism," we find that an operationally autonomous civil society can exist and develop inside China's authoritarian regime.

Specifically, our analysis identifies three elements of life in urban Wuhan that were central to how residents adapted to and experienced life under strict lockdown: first, the gated physical organization of most urban housing; second, the presence of neighbourhood-level government in the form of community residence committees, or *shequ jumin weiyuanhui* (hereafter *shequ*); and third, the deep integration of the social media platform WeChat into daily life. Each of these elements represents an important part of pre-lockdown social, economic, and political life in urban China that profoundly shaped how local communities and their residents lived through an extended public health lockdown of unprecedented scope. Below, we briefly discuss each of these elements before turning to our findings.

The Gated Quality of Urban Housing

Many scholars have analyzed the "gated" quality of housing complexes in Chinese cities. Scholars have argued that these walled-off estates, surrounded by walls or security fencing and with entrances staffed by security guards, reflect a middle-class desire for both security and exclusivity (Tomba 2010; Zhang 2012; Pow 2009). But Bray (2008) and others contend that gated housing is in fact an almost universal feature of urban housing developments in China (e.g.

Breitung 2012; Qian 2014). Gated communities in urban China accommodate not only wealthy elites but also residents with modest incomes (Tang 2018).

Within gated communities, the design of residential buildings is highly structured (despite variations across communities). Residents often pass through a main gate to enter an enclosed residential compound (*xiaoqu*). Most residential compounds are made up of clusters of multi-storey apartment buildings (*loudong*) surrounded by walls and with gated (though often unstaffed) entrances at ground level, a physical form with origins in work unit-based housing during the socialist era (Bray 2005). In Wuhan, each ground-level building entrance, known as a *danyuan*, leads to a stairwell that gives access to the apartments on each floor, but there is no internal access between stairwells (Bray 2008). Scholars argue that in contemporary China, the development of gated housing estates and the enclosed design of residential housing greatly facilitate grassroots monitoring and mobilizing activities for *shequ* (Bray 2008; Qian 2014).

Shequ as a Key Institutional Form of Urban Governance

As a key institutional form of urban governance in contemporary China, *shequ* are located hierarchically below district- and street-level governments (Tang 2020). Not considered a formal part of the government but rather as self-governing community organizations, *shequ* are nevertheless mandated by law and in practice function as the lowest level of municipal government, directly linking urban residents with the state (Woodman 2016). The roots of today's *shequ* can be found in Mao-era residents' committees, which were largely responsible for overseeing urban residents who did not belong to state or collective work units (*danwei*; Bray 2005; Ngeow 2012). As a form of urban government and management, however, residents' committees have been substantially redesigned since the 1990s (Ngeow 2012). The redesign was

a response to the changes brought about by economic reforms, especially changes in housing and employment that have led to fewer and fewer city residents living and working within the once-dominant socialist *danwei* system (Bray 2008). Re-labeled *community* residence committees (CRCs), these organizations became responsible for many of the social welfare and political functions once shouldered by work units. CRCs provide residents of a designated “community” (*shequ*) with services ranging from registering residents for social welfare benefits to community policing to organizing political education campaigns (Ngeow 2012; Woodman 2016; Tang 2018).

Over the last decade, a new “grid governance” (*wanggehua zhili*) system has been incorporated into *shequ* across China. The grid governance scheme reflects a desire of the state for better penetration of *shequ* work into new, privately-managed housing estates, which have been the sites of increased neighbourhood conflicts, especially between homeowners and property management companies (Fu 2015; Tang 2020). This grid governance system divides *shequ* into discrete units (usually made up of several residential buildings) with dedicated *shequ* staff (i.e. grid coordinators/*wangge yuan*). Grid coordinators recruit resident volunteers as representatives for their buildings and invite representatives from property management companies to jointly serve on management, community decision-making, and dispute resolution bodies (Tang 2020). While the heavy reliance on volunteers in carrying out *shequ*’s responsibilities is not new (Chan 1993), the grid governance system creates a clear model for how *shequ* work is to be organized, delegated, and managed effectively (Tang 2020).

Two features of urban *shequ* are particularly relevant to our study. First, *shequ* are an important means through which the state can respond to citizen needs. Woodman (2016) characterizes residents’ committees as a form of “socialized governance,” an avenue for

government monitoring and control but also a means for ordinary citizens to make demands of the government. Although they are highly localized and variable in practice, *shequ* are nevertheless the key point of contact between ordinary city residents and the Chinese state.

Second, *shequ* are effective at recruiting and mobilizing community volunteers (Chan 1993; Bray 2008; Woodman 2016). The new grid governance system has been designed to contain and defuse disputes between homeowners and property management companies, but a *shequ*'s network of volunteers, especially Communist Party members, can also be mobilized to address a wide range of concerns, including public health (Tang 2020; He, Shi, and Liu 2020). For example, in Bray's (2008) study of two Wuhan CRCs during the 2003 SARS outbreak, he found that the mobilization of the *shequ* corps of neighbourhood volunteers resulted in quick and thorough implementation of a number of public health measures, including monitoring residents for SARS symptoms, enforcing quarantine on residents who had traveled to affected regions, and screening and even limiting all visitors to the various housing estates in the *shequ*. All this was *before* the more systematic grid management practices were developed. Ren's (2020:3) recent piece on China's COVID-19 response argues that "a thick network of territorial institutions and authorities" has been the key to the labor-intensive work of locking down local communities, and that *shequ* and volunteers sent to or mobilized by *shequ* were central to this work.

The Ubiquity of WeChat in Daily Life

The digital communication platform WeChat (known as *Weixin* in China) is also central to Wuhan residents' experiences under lockdown. First introduced in 2011 by Tencent Inc., WeChat's user base has grown rapidly, and it is now China's most widely-used mobile communication app: by the end of 2019, WeChat had over a billion monthly users globally, with

the vast majority in China (Harwit 2017; Tencent 2020). In addition to allowing individual users to share voice/text messages, photos, and short videos with friends and family through its instant messaging or “Moments (*pengyouquan*)” functions, WeChat’s platform hosts “mini apps” or “mini programs” that enable users to use WeChat for many daily needs: order food delivery, book a doctor’s appointment, pay a bill, or read the news (Chan 2015; Harwit 2017; Plantin and de Seta 2019). The platform also supports an electronic payment service, WeChat Pay, that allows users to transfer money between WeChat users and to pay for goods and services simply by scanning a WeChat QR code. Indeed, WeChat is so widely used in both online and offline transactions that it is “a de facto payment standard in China” (Plantin and de Seta 2019:265).

In effect, WeChat has become so integrated into daily life that it has taken on the qualities of infrastructure: “scale, ubiquity, and criticality of use” (Plantin and de Seta 2019:258). In addition to its centrality in payment systems, WeChat is a critical information platform. For example, various levels of government, especially municipal governments, use public accounts (*gongzhonghao*) on WeChat as a key medium for disseminating information (Pan 2019). For both rural and urban users, WeChat plays “an essential role in everyday problem-solving and information seeking” (Yan and Schroeder 2019:1). This also includes health-related information: doctors provide a variety of medical services and engage in various types of mobile communication with patients through WeChat (Huang 2015). In addition, WeChat, like the Internet more generally, has become increasingly central to consumption, as a medium through which consumer trends are communicated and purchases can be made (Meng 2018). This includes the common practice of “group purchase” (*tuangou*), whereby groups of consumers make collective purchases in order to secure better pricing, ensure product authenticity, or benefit from other consumers’ knowledge (Wang, Zhao and Li 2011). WeChat groups, which

can include up to 500 members, provide a convenient platform for organizing group purchases. WeChat has even been incorporated into the new grid governance system: In more modernized *shequ*, reliance on WeChat groups has become central to volunteer and community work (Tang 2020). With its important informational, communicative, and economic functions, WeChat was positioned to act as critical infrastructure during Wuhan's COVID-19 lockdown period.

Methods

To understand in greater detail how Wuhan residents coped with the 76-day lockdown, we draw on qualitative data from in-depth interviews. Between March 27 and April 28 of 2020, the first author and two research assistants conducted semi-structured interviews with 30 people who lived in Wuhan during the lockdown. We recruited potential interviewees through personal connections, flyers posted on WeChat, and snowball sampling. Due to COVID-19-related travel restrictions, all the interviews were conducted online through Zoom. All interviews followed standard consent and confidentiality protocols, as approved by the research ethics board at the authors' institution. When we were conducting this research, challenges occurred because of not only the lack of physical access to the field site but also the explicit discouragement by the state for participation in foreign research on COVID-19. Given the practical constraints, data we collected are particularly valuable in recording human experiences of this unprecedented event.

Interviewees' age ranged from 21 to 61 years (mean age = 34 years). There were 2 men and 28 women. The gender imbalance in the sample is unlikely to bias our understanding of residents' coping strategies because we asked about the experiences of interviewees' co-residing family members (e.g. children, spouse, parents, in-laws, etc.). We interviewed parents of young children, pregnant women, people with chronic conditions, older adults, frontline healthcare

workers, and COVID-19 patients (or their family members). Thus, our interviewees had diverse healthcare needs and caregiving responsibilities. Although our goal is not to treat our sample as representative of the general population, our interviewees nevertheless came from diverse class backgrounds. For example, their education ranged from a junior high school education to doctoral degrees. While most interviewees lived in commodity housing, some lived in *danwei* communities, others lived in university faculty housing or an urban village (*chengzhongcun*), and still others lived in luxury villas. All interviewees are referred to by pseudonyms in this paper.

In the interviews, we asked open-ended questions about participants' experiences, challenges, and coping strategies during the lockdown and what role *shequ* played in their experiences. Interviews lasted from about one hour to two and a half hours (mean = two hours). We audio-recorded and transcribed the interviews. We checked the transcripts for accuracy and familiarized ourselves with the data (Nowell et al. 2017). Assisted by MAXQDA (a qualitative data analysis software), we used thematic analysis in which we looked for repetitions as well as similarities and differences to identify themes (Ryan and Bernard 2003). We coded and developed themes around individuals' and families' experiences and coping strategies relating to the COVID-19 outbreak and Wuhan's lockdown. The analysis was an iterative process and went until the point at which no additional issues were identified (Hennink et al. 2017). We addressed intercoder reliability by revisiting excerpts independently and comparing codes to ensure agreement on data interpretation. Through peer debriefing, we also made sure that our interpretation and translation credibly represented interviewees' views (Nowell et al. 2017).

Our analysis shows that the unprecedented lockdown in Wuhan triggered strong emotions, but Wuhan residents accepted this as reality and quickly adapted to life in lockdown. The effective implementation of the massive lockdown required pre-existing structures for

people to draw on: gated housing, *shequ* governance, and the ubiquitous use of WeChat in urban China.

First Reactions

When asked about their first reaction to Wuhan's lockdown, many interviewees used the word "unexpected." They did not anticipate that a city of Wuhan's size and importance would be entirely locked down. Younger interviewees observed that this was an unprecedented experience, even for their parents' or grandparents' generations. In addition, many people did not realize that COVID-19 was such a serious issue until the city was locked down. They believed that containment measures on such a large scale would be used by the government only as the last resort. For example, Wang Li (female, 35-year-old) who was born and raised in Wuhan shared her complicated feelings about the lockdown and the shock expressed by her parents:

I couldn't believe it at all when I first heard the news of the lockdown...In fact, around 21st and 22nd, I heard some rumours that there might be restrictions on entering and leaving Wuhan. I thought it was impossible. What would it mean if a city with tens of millions of people were locked down out of the blue?...Too many things would be affected. Everyone thought it was impossible...However, contrary to everyone's expectations, our world turned upside down overnight!...I also realized how terrible the current situation must be! If the government had any other alternatives, why would it choose to lock down a provincial capital? They [her parents] were even more shocked because they thought in their lifetime, they had experienced so many things. Being sent-down youth, the Cultural Revolution, SARS...you name it. They said, however, they had never seen anything like this since the founding of the PRC (People's Republic of China). It was so inconceivable that initially they couldn't take it at all.

Accompanying this unprecedented news were strong emotions, including fear, anxiety, and hopelessness. Another interviewee, Gan Lichun (female, 61) felt dazed and did not know what to think after learning of the lockdown:

I felt at loss. How long would it last? What would the situation be like?...I felt anxious too. It was also like a fear of the unknown. I didn't know how things would turn out. You really felt it was like an abyss. The city was locked down so suddenly. What was going on? How would we live through the following days? You didn't know anything. No one would tell you...Had anyone

experienced a citywide lockdown? It was unprecedented. I was completely at sea...I hadn't expected the lockdown. It was like being trapped in a prison...

These powerful emotions were common among our interviewees. The scope of the lockdown, the seriousness such drastic measures implied, and an inability to imagine what the near future would hold filled Wuhan residents with dread, uncertainty, and profound levels of anxiety. Interviewees described many effects of those emotions, including sleeplessness, loss of appetite, uncontrollable crying, obsessive reading of news and social media, and even arranging for the future care of their dependents should they themselves not survive the lockdown.

Gated Housing

Although most interviewees felt shocked and struggled to believe the news, the lockdown was implemented with great compliance from Wuhan residents. Our interviews show that the quick enforcement of containment measures was facilitated by the gated layout of urban housing. The gated quality of urban housing is particularly evident in newly-developed commodity-housing communities, a type of *xiaoqu* where most of our interviewees lived. Interviewees described very similar lockdown procedures, regardless of whether they lived in common (*putong*), high-end, or even luxury villa communities. Although each commodity-housing community had multiple gates leading into its residential compound, only one gate was open and strictly guarded by security staff and/or volunteers. Initially, *xiaoqu* were not entirely locked down, but later strict containment measures were enforced to guard against spread of COVID-19. For example, as described by Gan Lichun (female, 61) who lived in a commodity-housing community:

At first, xiaoqu were not that strictly locked down. I still went out to buy groceries once. On February 17th or 15th, our xiaoqu was strictly locked down. It originally had three gates, two of which were blocked, and we could only go out from the remaining one. Also, you were not allowed to go out, as the gate was strictly guarded. At the gate, there were volunteers and security guards...Because of this strict lockdown, I did not go out any more. People like doctors,

nurses, and police officers who needed to work had passes...You could go out only if you obtained a pass from Wuhan City Novel Coronavirus Prevention and Control Command Center.

Gated housing, along with the mass mobilization of volunteers, made population movement control possible, so that only *xiaoqu* residents who were also essential workers (as proved by official permits) were allowed to move into and out of the residential compounds. The importance of physically gated communities was also apparent in old residential neighborhoods, which often lacked security guards prior to the outbreak. Zhang Xiulan (female, 57) lived in a work-unit housing community, an old *xiaoqu* where many neighbors were her former colleagues and others were renters, mostly migrants. Because of the COVID-19 outbreak, entrances to her *xiaoqu* were all blocked and staffed to ensure that no one could go out.

There wasn't any security guard before. We had free access to the xiaoqu...Because of this outbreak, all the entrances to our xiaoqu were blocked to stop you from going out...Who were those security guards?...I am not sure. Anyway, there were security guards at the entrances to stop you from going out. At first, only the city was locked down. It was not until mid-February that our xiaoqu was locked down and residents were not allowed to leave.

Several other interviewees who lived in old residential communities also noted that normally their communities were not particularly gated, but that checkpoints were quickly established at every gate/entrance to enforce restrictions on movement.

Within gated communities, there are usually more than one high-rise apartment block, and residents often have to pass through a secondary gate leading into their building or *danyuan* (Bray 2008). These structures made it easy to further lock down the actual building or *danyuan* where suspected/confirmed COVID-19 cases were living. Wu Xing (female, 31) was informed that there was a new confirmed case in her *xiaoqu*. Homeowners (*yezhu*) in her commodity-housing community insisted that they wanted to know in which *danyuan* the patient lived. When asked whether any measure was taken to contain residents in that *danyuan*, she said that those residents were not allowed to leave their *danyuan* for 14 days:

That danyuan was managed more strictly than others. Residents in that danyuan were not allowed to go out. They were given some time to quickly buy all the groceries. After that, they were not allowed to leave the danyuan for 14 days. We could go to the property management company office to pick up groceries but residents in that danyuan were not permitted to do so.

Therefore, after identifying suspected or confirmed COVID-19 cases, the specific *danyuan* or building was often locked down to guard against further spread of the virus. In many communities, *shequ* or property management companies put a notice on the wall near the ground-level entrance to make it transparent whether that was a “confirmed case” (*quezhen bingli*) or “free of COVID-19” (*wu yiqing*) *danyuan*. According to our interviews, locking down the entire *danyuan* or building with confirmed or suspected cases was a common practice, which was undoubtedly facilitated by the physical structure of urban housing.

More importantly, these physical structures offered units around which both formal and informal organizing could be structured. Based on the physical housing structure, networks of volunteers were formed within *xiaoqu* to engage in community services. Yang Yi (female, 35), who lived in faculty housing on campus, volunteered to be a “building leader” (*loudong zhang*):

In order to reduce the number of people going out, a volunteer was needed to coordinate group purchases and compile information. I applied to be our building leader, and I did some work—distributing supplies, coordinating group purchases, and the like.

Such organizing based on the physical structure of housing communities appeared to be especially important in large *xiaoqu*. Wu Hui (female, 35) lived in a densely-populated commodity-housing community with over 3,000 households. Based on her first-hand volunteer experiences, she explained why a structured network was established in her *xiaoqu*.

Because our xiaoqu is very large, people in our WeChat group for volunteers said: “Residents in the same danyuan set up a WeChat group first, and then one representative from each danyuan forms a WeChat group organized around buildings.” Because a WeChat group can only host 500 people, it’s impossible to include so many people in one group, and even if it were possible, there would be no way to send announcements. We tried to organize something, but there was no way...I set up our WeChat group by sending the QR code to each WeChat group for group purchasing and then inviting everyone to the WeChat group for our danyuan.

Wu Hui further explained how this physically-structured network of volunteers worked

with their *shequ* to facilitate group purchasing.

For example, shequ organized group purchases, and they wanted to hand over the rest of the work to us. For instance, in each building, the person who set up the WeChat group became the contact person. Let's say after shequ have finished group purchasing, the number of groceries is 10 for this building and 8 for the next; shequ would hand over the work of grocery distribution to us. In this way, shequ's workload gets smaller.

When asked how volunteer work was organized, several interviewees described it as “layered docking” (*cengceng duijie*), with information and supplies typically flowing from *shequ* to property management companies, and then to building and *danyuan* leaders, and finally to residents within each building or *danyuan*, or reversely in a bottom-up way. As we will further illustrate in the next section, the physical structure of housing communities intersected with the organizational structure of local governance to organize activities during the lockdown.

Although informal and formal organizing was highly structured by physical (gated housing), governmental (*shequ*), and technological (WeChat) forces, residents often perceived themselves taking action as “self-governance” (*zizhi*) or “self-help” (*ziji*). In sharing this experience of life under lockdown, many interviewees became much closer with their neighbors through joining together to make group purchases, doing reciprocal favors to one another, and chatting in WeChat groups formed amongst residents living in the same *xiaoqu* or *danyuan*. Tang Jing (female, 36) even felt emotional closeness to her neighbors because of the gated quality of her commodity-housing community, despite the lack of in-person, physical contact.

Everyone was in the same environment. Although we were in different buildings, we were bounded in the same xiaoqu, which means that we all experienced, and were aware of, the things that happened in our xiaoqu. Within this small bounded area, I felt that we were closer and tended to have the same feelings.

Tang Jing mentioned in the interview that the emotional closeness and chatting with her neighbors online in WeChat groups were important in reducing her feelings of loneliness and anxiety associated with life under lockdown. Thus, in a sense, the physical structure of gated

communities not only facilitated the enforcement of drastic containment measures but also provided a basis for residents to form structured networks of volunteers and establish social contacts that helped them practically and emotionally cope with the unprecedented lockdown.

***Shequ* Governance and Grid Management**

As illustrated above, gated housing greatly facilitated the implementation of the lockdown.

Another key element was the city's highly localized, territorial form of urban government, *shequ* and grid governance (Ren 2020). While Wuhan City Novel Coronavirus Prevention and Control Command Center announced the overarching goals at different stages of the outbreak, *shequ* were responsible for mobilizing resources and services to work toward these goals (Qian 2020). *Shequ* were required to conduct comprehensive temperature screening, classify suspected cases, arrange vehicles to transfer patients to designated hospitals for diagnostic tests and treatment, and provide services to residents undergoing home isolation.² Relatedly, *shequ* were responsible for using the taxis assigned to them to accommodate residents' transportation needs during the lockdown.³ With rigorous access control enforced in all residential communities, *shequ* staff played a critical role in managing the purchase, delivery, and distribution of daily necessities. In commodity-housing communities, property management companies typically cooperate with or even follow *shequ*'s lead to provide services to homeowners and residents (Tang 2020). This was also the case during Wuhan's lockdown period. Interviewees living in commodity-housing communities described how their property management companies helped with security, information dissemination, sanitation, group purchases, supply distribution, and other tasks.

Interestingly, many interviewees mentioned that before the COVID-19 outbreak, they did

not know the functions of *shequ* well. As Wu Hui said (female, 35), “before this outbreak, lots of people didn’t even know there was a thing called *shequ*.” This was consistent with prior research showing that *shequ* usually assisted with social welfare and thus services provided by *shequ* were distant from the needs of middle-class residents in commodity-housing communities (Tang 2018; Woodman 2016). Chen Hong (female, 25) lived in a high-end commodity-housing community. As a pregnant woman, she had to interact with *shequ* during the lockdown. She pointed it out:

To be honest, I didn’t even feel my shequ existed before the outbreak. Maybe just when you needed some documents, you would go to the shequ. I think it was because of the directions given by the government that shequ were asked to play an important role during the COVID-19 outbreak...I have only just come to know about this organization...

Salient themes relating to *shequ* services emerged from our interviews. During the COVID-19 outbreak, *shequ* took on administrative duties (e.g. collecting first-hand statistical data, granting official passes), provided community services (e.g. transportation services, updates on COVID-19 cases in *xiaoqu*, group purchases), and addressed vulnerable populations’ needs (e.g. people undergoing home isolation, the elderly, pregnant women). More importantly, suspected and confirmed COVID-19 patients had to go through *shequ* to get diagnostic tests and to be transferred to hospitals for treatment. Li Na (female, 29) said that she did not understand why anyone would not tell their *shequ* if that person had COVID-19 symptoms.

In Wuhan, you needed to go through shequ to arrange a hospital bed, to be admitted to field hospitals (fangcang), to get quarantined in designated sites, and to get treated. In other words, you couldn’t ask for treatments in your own name. Everything had to go through shequ. Thus, if anything went wrong or any symptom appeared, people would immediately report to the shequ. Then the shequ would coordinate to help you arrange diagnostic testing or other treatments. Although medical resources were scarce and nothing was guaranteed, people should at least try by notifying their symptoms to their shequ.

Shequ served a coordinating function given that all hospitals designated as COVID-19 treatment facilities only accepted patients that were arranged by *shequ*. One interviewee metaphorically described *shequ* as a bridge that connected COVID-19 patients and hospitals. We

also interviewed Shen Yan (female, 34) who lived in a commodity-housing community with her one-year old child, her husband, and her parents, all of whom, except her child, were confirmed COVID-19 patients. She described a wide range of duties *shequ* managed for her family, including her husband's CT examination, COVID-19 testing, and hospital admission, her child's COVID-19 testing and transfer to the paternal grandparents after testing negative, her parents' hospital admission, and finally her own access to a hospital bed.

Shen Yan was lucky as she and her family all got hospital beds and survived COVID-19. Some other patients or family members of patients we interviewed were disappointed with their *shequ* because *shequ* did not assist in addressing their (or their family's) COVID-19-related medical needs. However, *shequ* could only coordinate available resources. When medical resources and hospital beds were scarce (especially at the initial stage of the outbreak), *shequ* had a limited ability to accommodate all COVID-19 patients' medical needs. Li Na (female, 29) told us that in the WeChat group for homeowners (*yezhu qun*), some people in her commodity-housing community blamed their building leader for doing nothing, and the building leader replied, "*I can't do much. We just follow the higher authorities.*"

In addition to medical care, *shequ* played a critical role in supporting COVID patients once they were released from hospital. As mentioned by Shen Yan, her family had to be quarantined at home for 14 days after coming back from the hospital. They did not know how to participate in group purchasing, because they spent their days in hospital when the group purchasing practice became the dominant way to get food. After they returned home, daily necessities were provided by *shequ*, which was very helpful: "*They provide basic necessities, so when discharged, we were able to self-isolate at home for 14 days without worry.*" In addition to Shen Yan, several other suspected/confirmed patients we interviewed also mentioned grocery

delivery services provided by *shequ* when they went through home isolation.

In addition to coordinating COVID-19-related medical care and home support services, *shequ* were responsible for screening residents who were suspected of having COVID-19 and reporting community grid-based updates on COVID-19 cases to both higher-level governments and residents under their jurisdiction (State Council Information Office 2020). This community-based strategy for epidemic control meant that people with COVID-19 symptoms were required to report to their *shequ*. In addition, *shequ* staff monitored residents' temperature through WeChat or even visited households door-to-door to collect and verify this information.

At the same time, *shequ* served as a critical source of highly localized information for residents. Almost every interviewee knew whether their *xiaoqu* had suspected or confirmed COVID-19 cases and if yes, how many there were and which building/*danyuan* or even floor they lived in. As interviewees mentioned below, *shequ* were required to provide residents with updated information on suspected and confirmed COVID-19 cases within their *xiaoqu*. Grid coordinators typically took on this responsibility. Our interviewees generally appreciated the transparency of the highly localized information, which gave them a greater sense of control because, if needed, they could take extra precautions to avoid getting sick.

At first, there were about a dozen of suspected and confirmed cases in our xiaoqu. The grid coordinator from shequ announced this information in the WeChat group every day. -- Hu Shuang (female, 32) living in a luxury villa community

The government later issued a new order that the daily update on COVID-19 must be announced in xiaoqu and the grid coordinator from our shequ was in charge of it. -- Wang Juan (female, 31) living in a commodity-housing community

COVID-19 related information must be announced in every xiaoqu. Shequ are obliged to notify homeowners about confirmed and suspected cases in our xiaoqu...The information usually included in which danyuan COVID-19 cases lived, how many cases there were, and their current situations. Where were they? At home? In designated quarantine sites or in hospital? Information like this was all announced. -- Li Na (female, 29) living in a commodity-housing community

As residents were not allowed to leave their residential compound, group purchasing

became the dominant way for them to get food. Soon after Wuhan's lockdown, supermarkets were no longer open to individuals; they grouped groceries into packages and sold them through large-quantity orders only. Almost all of our interviewees mentioned "group purchase" (*tuangou*), and it was typically organized by *shequ* (or grid coordinators), property management companies, and residents/volunteers themselves. Li Na (female, 29) described how group purchasing was set up in her commodity-housing community and her anxiety before this service was in place.

After xiaoqu's lockdown, there was a transition period when we were unable to buy groceries... We just had a WeChat group with our property management company but the company did not mention anything in that group about helping us buy groceries. I panicked at that time. I called shequ and was told not to worry because they were coordinating. That afternoon or the following day, someone set up a WeChat group for group purchases. It's for our shequ... You joined this WeChat group if you wanted to buy groceries from here. Then links were posted for us to place orders one by one (jielong). That's how we've bought groceries since then.

Our interviews reveal that *shequ*, property management companies in commodity-housing communities, residents, and volunteers often worked together to organize group purchases, deliver food, and distribute supplies. As many Wuhan residents were concerned that food was too expensive, the government later provided charitable (*aixin*) food (e.g. vegetables, meat, fish) to each *shequ*. Charitable food was either at a lower price or free, but the amount was limited. The responsibility for charitable food distribution also fell on *shequ*'s shoulders. Tang Jing (female, 36) described her experience as a volunteer in *shequ*, which also illustrated the value of *shequ*'s physical assets (e.g. community center) in service provisions.

Around March, our company called for party members diving into (xiachen) shequ. In early March, I volunteered once in our shequ to help unload the groceries. They used trucks to carry charitable vegetables (aixin cai), so they needed to first unload the vegetables. The Shequ has a community center, so the vegetables could be put there. After unloading the vegetables, we packed them up according to the number of households in the xiaoqu under the jurisdiction of the shequ. The groceries would then be delivered to each household.

Providing social-welfare assistance to community residents has been considered *shequ*'s most important duty (Tang 2018). This duty was also salient during the lockdown. For example,

several interviewees mentioned that given the limited amount of charitable food available, *shequ* tended to prioritize those who were most in need (e.g. families with the elderly, the disabled, ill individuals, or pregnant women) and allocate the resources to them first. Additionally, attending to the needs of older residents was frequently mentioned by our interviewees, considering older people's limited technological capability and special healthcare needs. Liu Min (female, 50) lived in a luxury villa community where many older residents knew nothing about online group purchasing. She commented that *shequ* staff and volunteers "indeed did a lot of work" as she saw them helping older residents in terms of buying medicine and basic necessities of life.

Zhang Xiulan (female, 57) was divorced and lived by herself in an old *xiaoqu* without a property management company. She had only a high school education and was not good at using technology. When asked how she managed group purchases on the phone, she said:

I really didn't know how to do it. I asked people from the shequ for help... You went to the shequ and they noted down what you ordered. Once arrived, they would call you to pick up your groceries. I live not far from the shequ, pretty close, so I directly went there to tell the staff.

During the outbreak, families with suspected or confirmed COVID-19 patients had to deal with extraordinary stress related to medical needs. For the vast majority of healthy people who were not allowed to leave their housing community, however, their first priority was to get enough food. Zhang Xiulan had no infected family member and she thought that the lockdown caused greater inconvenience to her life and led to a significant rise in the cost of food. When asked whether her *shequ* provided any service relating to the COVID-19 outbreak, Zhang Xiulan immediately mentioned that volunteers helped residents buy food or medicine and she further explained: "*Otherwise, you couldn't even buy basic necessities as you were not allowed to leave xiaoqu. Thus, you indeed needed help from someone.*" For her, the only helpful thing during the outbreak was that *shequ* helped her arrange food purchases.

What was useful for me during the outbreak?...Shequ helped me buy groceries, which saved my life. That's it. Nothing else was useful to me.

In addition to older residents, pregnant women we interviewed all mentioned their interactions with *shequ*. Xia Shanshan (female, 31) had a prenatal check-up right before Wuhan's lockdown. Given the severity of the COVID-19 outbreak and recommendations from doctors through WeChat, she decided not to attend her January and February prenatal check-ups. But in March, she had to go to the hospital for an important check-up. The first thing she did was to contact the *shequ* in charge of her commodity-housing community to get approval for going out. She also used the transportation service provided by *shequ* as her family had no private car.

I contacted the shequ just one day or two before the 24th week of my pregnancy. My request was handled smoothly...Each family had a designated person from the shequ as service provider. We had her WeChat contact and phone number, so I called her, saying that I needed to have a prenatal check-up. She asked to see my prenatal check-up document. Because we had already scheduled an appointment for 4D prenatal ultrasound, we showed her the document via WeChat. She quickly arranged everything for us. Moreover, the day before my appointment, the driver who was responsible for picking us up called to confirm with me, so everything was pretty good.

Fang Xixi (female, 33), another pregnant woman, also mentioned the transportation service offered by *shequ*. Fang Xixi, along with several other interviewees, pointed out that cars used by residents were not shared with cars used to transfer COVID-19 patients, but each *shequ* only had a limited number of cars, and sometimes it was not easy to get the service as needed.

There were taxis in shequ...You just needed to contact shequ...At first, we were worried that the taxi might have been used to transfer COVID-19 patients, but the shequ staff explained to us that it was for residents use only. However, it was difficult to book it because this shequ had only one taxi and so many people needed to use it. I was lucky to be arranged for a round-trip taxi service.

During the outbreak, *shequ* indeed took on a wide range of administrative and community duties. Every *shequ*, however, had only a limited number of staff. Thus, another key task of *shequ* was to mobilize a large number of volunteers. The examples above, such as Yang Yi (female, 35) and Wu Hui (female, 35) who assisted *shequ* in group purchases, were a case in point. In addition, during the lockdown, government officials, state employees, and Communist

Party members were asked to dive into (*xiachen*) their communities, and those “volunteers” were often managed by *shequ* (Ren 2020; State Council Information Office 2020). We mentioned above that as a Communist Party member, Tang Jing (female, 36) volunteered in *shequ* to help with unloading and distributing charitable food. Party members and state-sector employees were also mobilized by *shequ* to serve as volunteers in old residential neighborhoods without property management companies. For example, Wu Xing’s husband was an employee of a state-owned enterprise. During Wuhan’s lockdown, he worked in *shequ* to serve as a security guard and enforce lockdown measures in old residential neighborhoods.

He worked in shequ, because some old shequ in Wuhan had no property management company or security guard. Work units like his were asked to dive into (xiachen) communities. He was sent to be a security guard at the entrance, taking the temperature of people entering or leaving xiaoqu and preventing people from going out except for emergencies as xiaoqu were locked down.

While most interviewees received at least some services from *shequ*, many interviewees also expressed frustrations toward their *shequ* and blamed *shequ* for doing little or nothing. A number of interviewees pointed out that *shequ* staffing was very limited, compared with the large number of residents they had to manage. Wu Hui (female, 35) helped to coordinate group purchases in her densely-populated commodity-housing community. She volunteered because she did not believe that residents could realistically rely on their *shequ*, given the limited number of *shequ* staff and the many other routine and urgent work tasks assigned to *shequ*.

I think there were just ten staff members from a property management company and a few staff members from a shequ but tens of thousands of people needed to eat. How could you count on them for everything?...Also, except for grocery supply, they had many other more important things to do. They not only had their routine work but also needed to help transfer patients with fever to hospital. How would they have extra time to provide daily groceries for you?

Other interviewees also mentioned that this was the first time that *shequ* were given such important responsibilities. Thus, it was understandable that there was room for improvement. As Zhang Xiulan (female, 57) said:

Let me be honest, it was the first time that shequ encountered a situation like this. Perhaps they did not have any experience...Had shequ helped you buy groceries before? It had never happened.

Overall, *shequ* provided a wide range of services during the outbreak. Organizationally, *shequ* played a key role in managing residents' movements, arranging access to medical services, and distributing food and other necessities. Accomplishing these tasks required mobilizing existing *shequ* staff and volunteers as well as recruiting new volunteers and coordinating with property management companies and homeowners. Finally, the physical assets of *shequ*—community facilities, staff offices, and the like—were also important. These pre-existing resources—organizational, human, and physical—all had to be quickly adapted to an unprecedented and fluid situation. Given the small number of *shequ* staff and the large amount of work, there was considerable variation across *shequ* in services provided to residents.

The Ubiquitous WeChat App

During Wuhan's lockdown, actual day-to-day operations were facilitated by the multipurpose mobile app WeChat. The use of WeChat to organize group purchases, gain information, and fulfill practical, emotional, and medical needs was pervasive among our interviewees.

One important way that WeChat facilitated a variety of activities is by giving users the ability to establish WeChat groups (*qun*). Each WeChat group can host up to 500 people, enabling users to form small groups with their family or friends, and also big groups with their neighbors, *xiaoqu* property management staff, and designated *shequ* coordinators. Meanwhile, WeChat groups formed based on certain identities are common in China (Tu 2016), such as “Mama” groups, pregnant women groups (*yunfu qun*), and patient groups (*bingyou qun*). Interviewees with young children told us that their children's online learning, assignment

submission, and communications with teachers were also performed through WeChat groups (e.g. *banji qun*). In short, WeChat groups fulfilled a variety of functions during the lockdown.

Almost all interviewees mentioned “*qun*” in their interviews. In commodity-housing communities, one of the most commonly mentioned WeChat groups was homeowner groups (*yezhu qun*). While Bray (2008) observed that during the 2003 SARS outbreak, information was provided primarily on notice boards in each residential compound, information was distributed mainly through WeChat during the COVID-19 outbreak in 2020. Indeed, homeowner groups fulfilled the function of information dissemination: staff from *shequ* or property management companies forwarded important policy documents, made announcements, responded to residents’ requests, and informed residents of updates on confirmed/suspected COVID-19 cases within *xiaoqu*. Residents also asked questions, requested services, expressed concerns, or exchanged opinions in these WeChat groups. Community services such as group purchases or temperature monitoring were sometimes accomplished in these groups as well. For example, while *shequ* were required to conduct comprehensive temperature screening, this service was not necessarily performed in person due to a shortage of staff, time constraints, and also some residents’ preferences to avoid contact with people outside of their households. Thus, residents reported their temperature to *shequ* staff in WeChat groups. While sometimes also a forum for exchange of opinion (even argument) among residents, these WeChat groups were important mechanisms for communicating information between the state and residents, and in both directions.

As illustrated earlier, group purchase was the dominant way for people to get food during the lockdown. In fact, group purchase, from ordering products and processing payment to delivering and distributing items, was organized on WeChat. Although the WeChat groups could

be organized by different people, such as *shequ* staff, property management companies, residents themselves, business owners, or volunteers, the process of group purchase described by our interviewees was remarkably similar. In WeChat groups, residents who lived geographically close (e.g. within a *xiaoqu* or building) could place orders one by one, usually through WeChat group-purchasing mini-programs. Many of our interviewees used the word “*jielong*” to describe it. After the groceries arrived, people would be called to pick up the groceries based on the sequential number they got when placing their order. In this way, it would not be too crowded and social distancing was maintained. In fact, the practice of group purchasing was already prevalent prior to the outbreak (Wang, Zhao and Li 2011), so it was not difficult for Wuhan residents to quickly adopt group purchasing during the lockdown. Some interviewees nevertheless complained that after placing orders, they had to always keep an eye on the WeChat group notifications; individuals did not have much freedom in terms of when to pick up their orders, but instead, they had to immediately go downstairs when their numbers were called.

At the early stage of Wuhan’s lockdown, because food and other supplies were scarce, most residents had to buy whatever was offered in group-purchase arrangements, but later, a diverse selection of items became available. Yang Yi (female, 35) said, “*There were so many WeChat groups. For example, if you wanted to collectively buy fish, there would be a fish-related WeChat group. People self-organized group purchases of various items. It was through WeChat groups, which was very easy.*” Similarly, Liu Xinyi (female, 31) described how she ended up joining numerous WeChat groups for group purchasing: “*I first joined a homeowner WeChat group, through which I joined many smaller WeChat groups. One group was for collectively buying meat, one for fruits, one for cakes and bread, and you even had one for dried tofu...So many WeChat groups that I almost lost count.*” While the existence of various WeChat groups

fulfilled residents' diversified needs, it also took up enormous time and cognitive labor that people had to put into group purchasing, and such labor was disproportionately borne by women.

WeChat was also a primary source of information for our interviewees. They gained information on WeChat through three main channels: public accounts, information sharing in WeChat groups, and posts on Moments. The popularity of public accounts on WeChat reflects a general trend toward the decline of printed newspapers and the rise of online media. Our interviewees subscribed to public accounts run by local newspapers (e.g. Wuhan *Wanbao*) and state media (e.g. The People's Daily). People also spread and exchanged information in WeChat groups (e.g. homeowner groups as described above). In fact, Dr. Wenliang Li, the COVID-19 whistleblower, sent warnings about the emergence of a SARS-like infectious disease in an alumni WeChat group (*tongxue qun*). Many of our interviewees also heard about the outbreak and potentially Wuhan's lockdown before official announcements in various WeChat groups.

At the initial stage of Wuhan's lockdown, as hospital beds and diagnostic tests were in short supply, many people with COVID-19 symptoms could not get treated. Potential patients posted help-seeking messages on their WeChat Moments. Fan Rui (male, 37), a healthcare worker doing laboratory testing for COVID-19, was called back to work on a continuous basis on Chinese New Year's Eve. Meanwhile, he began seeing posts about growing needs for medical care on WeChat Moments: "*Soon, I gained some information from Moments and WeChat. For example, many people might need to be hospitalized, but there were no hospital beds or not enough hospitals, and hospitals ran out of space.*" In addition to help-seeking posts, Moments feed also informed interviewees about local and national news. Zheng Xuan (male, 34) said that:

On WeChat, there were daily updates on COVID-19. Also, people reposted stuff on their Moments. Basically, I didn't need to purposely search for any news. I mostly obtained information from Moments.

Zheng Xuan added: “*Normally, even if you didn’t actively search for it, COVID-19-related information would pour in.*” The overwhelming feeling of information overload was common among our interviewees. Others also mentioned that it was not easy to distinguish rumor from truth, especially when it came to the information shared in WeChat groups. Constantly following updates invoked anxiety in our interviewees. Many of them stopped following news or only selectively read posts on their social media, to protect their mental health.

As an instant messaging app, another important function of WeChat was to facilitate communication. When asked whether they maintained contact with people outside of their households, many interviewees affirmed doing so through WeChat, especially WeChat groups. As Yang Yi (female, 35) whose parents and in-laws lived outside of Hubei province said, “*Since we all have WeChat groups now, we communicate very frequently.*” Many interviewees said that they used WeChat more often than making phone calls because of the high frequencies of contact. Li Na (female, 29) lived with her new-born daughter, husband, and in-laws, whereas her own parents and her grandfather lived elsewhere in Wuhan. When asked whether she called them frequently during the lockdown, she replied, “*I just contacted them via WeChat. It was still mainly WeChat. I contacted them very frequently, so I didn’t call them.*” Shen Yan (female, 34), her husband, and her parents were hospitalized for COVID-19 treatment in different hospitals. She maintained contact with her parents mainly through WeChat, “*We all use WeChat now. Although my parents are older, they still know how to use WeChat...It was through either video chatting or WeChat messages.*” Wu Xing (female, 31), who was a frontline healthcare worker, did not talk to her family for 14 days after one of her colleagues was confirmed to have COVID-19. She would send WeChat messages to her husband that she got off work and would come

back home soon, so that her family would stay in a room until she came home and isolated herself in a designated separate room. She said, *“I didn’t talk to them at all during those 14 days. I just directly texted my husband through WeChat if anything came up.”* In Lin Mengqi’s (female, 34) family, her father showed COVID-19 symptoms and went through home isolation following the *shequ* clinic doctor’s advice. During her father’s home isolation in a separate room, her family, including herself, her husband, and her parents, communicated in a WeChat group rather than through the door: *“We communicated on the phone. We had a WeChat group...I would also forward the government’s guidelines and recommendations. All of us would read them on our phone.”* She commented that it was very convenient to communicate via WeChat.

During the outbreak, people had no (or very limited) direct interactions with others outside of their households, and some groups, such as COVID-19 patients and pregnant women, were going through very challenging and uncertain times. Communication through WeChat groups became a source (and sometimes the only source) of emotional support. After Wuhan’s lockdown was announced, some interviewees received heart-warming WeChat messages from friends outside of Wuhan, asking about their situations and whether they needed any help or protective supplies (e.g. masks). Tang Jing (female, 36) said that during the lockdown, she chatted with her friends and colleagues almost every day, to share information they came across, their feelings, and cooking tips and recipes. She said, *“If we didn’t chat in WeChat groups, how could we communicate with each other? We were not allowed to go out and we were also afraid to go outside...Between me and my friends in my xiaoqu, before the outbreak we used to visit each other’s home and chat in person, but it became chatting online.”* Hu Shuang (female, 32) and her other friends provided emotional support via WeChat to their friend whose whole family was confirmed to have COVID-19. *“When hospitalized, he was very low-spirited. We frequently*

encouraged him on WeChat...That was the only way to show our support. The outbreak was so bad that hospitals did not even allow family members to visit patients...We had a WeChat group. The only thing we could do was to tell him to focus on his health for now and not worry about anything else.” Bai He (female, 21) was a confirmed patient. During her mandatory quarantine, her cousins set up a WeChat group to inquire about her health and wellness every day. Similarly, Xia Shanshan (female, 31), a pregnant woman, told us that a colleague of hers was going to give birth in late February, but at that time, *shequ* were all under strict lockdown (as Wuhan hit its COVID-19 peak in mid- to late February; Qian 2020). Her colleague was very worried and shared her feelings in a WeChat group dedicated to pregnant women. Xia Shangshan said, *“We tried to comfort her. To be honest, that was the only thing we could do. There was no other way to help because we were not allowed to go out.”* Several pregnant women found that communicating with other pregnant women in WeChat groups helped alleviate their anxiety, because others shared useful information and patiently addressed their concerns.

In addition, during the outbreak, WeChat played a crucial role in fulfilling residents’ practical needs. At first, many hospitals in Wuhan were short of medical supplies. Nurses and doctors posted help-seeking messages on their Moments. Many volunteers mobilized resources and transported the supplies to hospitals – most of the volunteer work was coordinated through WeChat. Zhao Ping (female, 28), a frontline healthcare worker, joined a WeChat group where volunteers provided free rides to doctors and nurses after Wuhan’s lockdown. Some mothers of young children we interviewed told us that they were left unprepared when Wuhan’s lockdown was suddenly implemented. He Qian (female, 33), a mother of a newborn child, said that getting formula was her biggest headache during the outbreak. She joined various WeChat groups, in particular Mama groups. Mothers would ask for help in these WeChat groups when they were

out of formula for their children, and others would provide information on potential channels to get formula or voluntarily give their extra formula to those in need. Luo Ziyou (female, 29), another mother of a newborn, did not prepare enough diapers, so she asked in Mama groups who had extra diapers and asked her husband to pick it up from other mothers (before *xiaoqu* were locked down, mobility within Wuhan was allowed). Similar reciprocal favors were also seen in WeChat groups formed among neighbors: several interviewees described that they shared, borrowed, and lent tools, necessities, or ingredients through their WeChat neighbor groups (*linju qun*). In pregnant women groups, women would share their experiences after they went to get prenatal check-ups, for example, which hospital they went to, what the procedure was like, and what should be kept in mind, so that other women would save time in figuring these things out.

An especially noteworthy function of WeChat was to fulfill medical needs. During the outbreak, this was important for several reasons: the vast majority of medical resources were devoted to treating COVID-19 and thus, many hospitals did not open to other patients or only had limited time windows for services; due to the infectious nature of COVID-19, many people were reluctant to go to hospitals; and it was very inconvenient to visit a hospital during the lockdown. Some respondents used WeChat mini-programs to refill their prescriptions, and others used WeChat groups set up by pharmacies to have their medications delivered. A private IVF clinic addressed pregnant women's questions, concerns, and other needs in WeChat groups, and public hospitals, such as Wuhan Maternity and Child Healthcare Hospital, offered free online services through WeChat. Some WeChat groups for pregnant women also included obstetricians who gave medical advice and addressed women's questions in the chat groups. During the outbreak, it also seemed to be a common practice for patients and doctors to add each other as WeChat contacts. Most pregnant women we interviewed added their doctor to their WeChat

contacts. They immediately consulted their doctor through WeChat when they experienced uncommon symptoms (e.g. bleeding) or had questions about postponing prenatal check-ups. This practice was also mentioned by COVID-19 patients. When Shen Yan (female, 34) was in hospital for COVID-19 treatment, she added her doctor to her WeChat's contact list, so that she could contact the doctor if she had questions, and the doctor could provide instructions or prescribe medications from a distance. Li Chun (female, 33), a low-income woman living on the urban fringe, felt extremely grateful for a doctor who added her as a WeChat contact and kept her updated on her infected mother's condition. Online support groups were also reported to be helpful: after hospital discharge, Bai He (female, 21) received useful home remedies for her chest pain from a help-group on WeChat for COVID-19 patients. Lastly, WeChat assisted *shequ* in screening, classifying, and managing suspected COVID-19 cases. As her father had a cough and fever in February, Lin Mengqi (female, 34) who lived in a commodity-housing community described how residents with COVID-19 symptoms reported to *shequ* and how *shequ* contacted residents for next steps. A key technology involved was a WeChat mini-program.

There was a WeChat mini-program called Wuhan Mini-Neighbourhood, through which you could directly report your symptoms and residential building to shequ. Then shequ staff would call you to further ask about your conditions and advise you on next steps. For example, if you were directed to the shequ clinic, based on the blood test results, doctors would give suggestions about whether or not you should go to a fever clinic in the hospital.

Overall, WeChat, as a multipurpose smartphone app, was deeply integrated into people's life under lockdown. As an instant messaging and social media app, WeChat was a mainstream communication tool and a primary source of informal and official (e.g. state-sponsored) information. WeChat not only helped the state collect community grid-based information but also facilitated residents' online reporting of their symptoms and other needs to *shequ* and the state. Through chat groups and mini-programs, WeChat played a crucial role in helping fulfill Wuhan residents' practical, emotional, and medical needs when the city was under lockdown.

Conclusion

In response to the COVID-19 outbreak, Wuhan was placed under an unprecedented lockdown for 76 days. As the very first community exposed to a still-mysterious disease, and faced with public health measures that were unlike anything they had ever imagined, residents of Wuhan confronted an extended period of uncertainty, fear, and disruption. Yet our interviews reveal that the lockdown was also an event that people actively lived through. They adapted, adjusted, and came up with new ways of doing things despite no clear roadmap for how to do so. It is therefore invaluable to record and understand Wuhan residents' lived experiences of lockdown life.

How people actually navigated life in lockdown was indelibly shaped by the structural conditions in which they were located, conditions that were very specific to contemporary urban China. We have shown how the physical structure of gated communities intersected with the very localized form of city government (the *shequ*) to facilitate the quick implementation and strict enforcement of Wuhan's lockdown. The highly-structured design of housing estates and the comprehensive grid governance network also fostered grassroots organizing that enabled people to cope with both the lockdown and COVID-19. Prior research suggested that the physical layout of neighborhoods and housing complexes could influence social capital and disaster resilience at the community level (Aldrich and Meyer 2015). Indeed, we find that walled residential compounds, and the buildings within them, not only provided ready-made units for confinement and monitoring but also defined geographic boundaries that allowed networks of volunteers and linkages among neighbors to form. Social contacts that were established based on the physical structure of urban housing and the organizational structure of the *shequ* became a source of instrumental and emotional support during the lockdown.

It is also important that *shequ* functioned well to assist with the welfare of people in need by providing necessities and key services to vulnerable residents during the lockdown. Access to social welfare and hence social citizenship is, however, tied to territory (Woodman 2016). Given the importance of *shequ* as risk buffers during the lockdown and the nature of *shequ* as territorial institutions, people living outside of the *shequ* governance structure, migrants for example, were likely left adrift (Qian and Fan 2020; Ren 2020; Woodman 2016). Our ability to speak to this issue is limited as our interviewees were primarily middle-class residents living in housing communities under *shequ*'s jurisdiction. We encourage future research to further explore the lived experiences of urban underclass, low-income communities during the lockdown as well as variations in *shequ* capacity for service provision across types of urban neighborhoods.

A number of interviewees perceived themselves taking action through volunteer work as self-help and viewed community building as self-governance. Such perceptions coincided with the state's recent governance strategies that have placed emphasis on endorsing and encouraging autonomous governance in middle-class neighborhoods (Tang 2020). Prior to the COVID-19 outbreak, mobilizing resident volunteers was already a key practice aiming to promote bottom-up participation in neighborhood affairs, a central feature of autonomous grid governance (Tang 2020). Grid governance was originally designed to contain and resolve neighborhood conflicts (Tang 2020). Nevertheless, in times of crisis, the institutional logic of autonomous governance behind the grid management system encouraged residents to actively engage in collective action and respond to neighborhood needs, with little or no direct state intervention. The collaborative quality of interaction between the local state and private citizens resonates with Teets' (2013) observation that civil society organizing in China is often intertwined with state governance measures and functions in ways that support, as opposed to contest, state authority.

Both the top-down implementation of the lockdown measures and grassroots organizing efforts relied heavily on the technological infrastructure of WeChat. WeChat provided the means to meet diversified needs for information reporting and acquisition, service provisions and requests, collective grocery purchases, and social connections. All this was done through one mobile app used by almost everyone in urban China. While some prior research has argued that WeChat “contributes to social and political fragmentation” (Harwit 2017:313), we find that WeChat groups (*qun*) provided people with very effective means to establish social networks that distributed information, material aid, and emotional support. WeChat allowed for instant, practically-oriented, or emotionally-bonded interactions among people who shared personal ties, social identities, geographical closeness, or immediate needs. Social connectedness was thus maintained despite physical isolation in lockdown. The social connectedness is a new form of social capital, termed “virus-combat social capital,” that emerged in China in response to the COVID-19 outbreak (Bian et al. 2020). Social capital can be actualized into various resources like information, access to medical advice, and groceries or other daily necessities (Aldrich and Meyer 2015). For people who sought and accessed the resources, WeChat thus provided an invaluable means to help cope with uncertainty, fear, and pressing needs.

While our objective is not to evaluate the effectiveness of Wuhan’s lockdown as a public health measure—we leave this debate to public health experts—it is appropriate to reflect on what our study tells us about the use of strict lockdown measures to stem the spread of COVID-19 and what lessons our research subjects’ experiences may hold for people elsewhere. Our study reveals that lockdown measures brought psychological costs to the residents of Wuhan, but ordinary people actively drew upon the resources at hand to help themselves and others through self-organizing teams. Whereas socially isolated people have been found to be especially

vulnerable in times of crisis (e.g. the 1995 Chicago heat wave; Klinenberg 1999), our study reveals the importance of social connectedness (see also Bian et al. 2020). In the prolonged time of physical isolation, social solidarity that manifested through the interdependence between individuals and across groups may have become more critical to facilitating effective coping. Admittedly, the informal and formal organizing among Wuhan residents was highly structured by physical, governmental, and technological forces (e.g. gated housing, *shequ*, and WeChat). The idea of resident autonomous governance has been actively endorsed and encouraged by the state in recent years through the penetration of the grid management system into urban neighborhoods (Tang 2020). Nevertheless, residents were engaged in real grassroots efforts and community building during the lockdown. Solidarity was built, for example, among neighbors who had never interacted with one another before, volunteers and those in need, mothers who may not know each other personally but were at a similar parenting stage, and pregnant women who had shared experiences of anxiety, uncertainty, and medical needs during the challenging time. Our interviewees commonly expressed their deep gratitude for various acts of kindness that they experienced or they saw people doing toward each other. They described the 76 days of lockdown as a period when they fought together and survived life and death situations together. Thus, the solidarity that was quickly formed among Wuhan residents helped build “a spirit of unity” (Liu 2020: e796) and community resilience to disasters (Aldrich and Meyer 2015).

It is clear that the effective implementation of lockdown measures—imposing strict quarantine on households, limiting transportation, and closely monitoring individuals’ health, while still providing access to medical care and daily necessities—was profoundly dependent upon pre-existing physical housing structures and the very localized form of governance in urban China. The lockdown measures were extremely labor-intensive (Ren 2020), and for both political

and historical reasons, Chinese authorities were able to mobilize many people quickly and in a mostly coordinated way (He, Shi, and Liu 2020). For many reasons, these measures could not be easily reproduced in other societies. As the ongoing pandemic takes place in regions with very different sociocultural and institutional structures, recognizing the significance of local contexts is vitally important for understanding the responses to, and consequences of, the pandemic.

Notes

1. Wuhan City Novel Coronavirus Prevention and Control Command Center Announcement (No. 9), accessed on August 30, 2020 at http://www.gov.cn/xinwen/2020-01/25/content_5472165.htm
2. Wuhan City Novel Coronavirus Prevention and Control Command Center Announcement (No. 7), accessed on August 30, 2020 at http://www.gov.cn/xinwen/2020-01/24/content_5472017.htm
3. Wuhan City Novel Coronavirus Prevention and Control Command Center Announcement (No. 8), accessed on August 30, 2020 at http://www.gov.cn/xinwen/2020-01/24/content_5472045.htm

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