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The authors declare that there is no conflict of interest regarding the publication of this study.

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**Abstract**

**Objective:** To explore the experiences of how Chinese adults cope with multiple chronic conditions in everyday life.

**Background:** Having multiple chronic conditions is stressful, requiring people to make physical and mental adaptations. There is little evidence exploring how people cope with multiple chronic conditions, especially in an Asian context.

**Design:** A qualitative descriptive design was employed. The Consolidated criteria for reporting qualitative research (COREQ) was used to report this study.

**Methods:** This study was conducted in a tertiary referral and teaching hospital in Bengbu, Anhui, China, between August and October 2018. A purposive sample of 14 people with multiple chronic conditions, aged between 32 and 75 years, completed a demographic questionnaire and semi-structured face-to-face interviews. The interviews were digitally recorded and transcribed verbatim. Qualitative content analysis guided data analysis.

**Results:** Four distinctive themes comprising of subthemes were developed from participants' narratives pertaining to coping with multiple chronic conditions: (1) appraising multiple chronic conditions, (2) addressing multiple chronic conditions management, (3) maintaining psychological well-being, and (4) fulfilling a social role. Illustrative quotations were cited to support each theme.

**Conclusions:** This study underscores that people cope with multiple chronic conditions in everyday life by using a compendium of coping strategies. As one of the influencing factors, culture dominates the ways of coping at different levels among people with multiple chronic conditions. These findings expand the current literature on coping based on an Asian perspective and inform further cross-culture research on this topic.

**Relevance to clinical practice:** Healthcare professionals should understand peoples' experiences of coping with multiple chronic conditions to provide more holistic and dynamic healthcare to address their actual needs. Healthcare professionals should be acquainted with how culture impacts individuals' coping and develop culture-tailored supportive programs such as family-based interventions, to promote the health of people with multiple chronic conditions.

Keywords: Coping, multiple chronic conditions, qualitative research

## **What does this paper contribute to the wider global clinical community?**

Further attention should be given to individuals' adaptation to multiple chronic conditions due to the increasing prevalence of multiple chronic conditions and the manifold impacts of multiple chronic conditions on peoples' lives.

Healthcare professionals should learn from peoples' experiences of coping with multiple chronic conditions that may vary across countries. Evidence-based knowledge can serve as a foundation for healthcare and guide the formation of a clinical environment within different cultural contexts.

Healthcare professionals need to move forward in building appropriate coping-based interventions that reduce barriers of day-to-day life and maximize the benefits of the healthcare plan among people with multiple chronic conditions.

### **Introduction**

Multiple chronic conditions (MCCs), also known as multimorbidity, refer to the co-existence of two or more long-term health conditions, which include physical and psychological health conditions (e.g. diabetes), ongoing symptoms (e.g. chronic back pain), sensory loss (e.g. vision loss), and alcohol and substance abuse (National Institute for Health and Care Excellence, 2016). MCCs affect all age groups but tend to increase with age. A past review indicated that the prevalence of MCCs ranged from 20%-30% in the whole population to 55%-98% in the older adults population globally (Marengoni et al., 2011). With improved healthcare and better living conditions, it can be expected that people are generally living longer with MCCs and may spend more time in poor health. MCCs are linked with more healthcare utilization and costs (Wang, Si, Cocker, Palmer, & Sanderson, 2018), resulting in a considerable economic burden for the healthcare system. A systematic review found that

the annual out-of-pocket expenditure (OOPE) on medications associated with 0 to 1, 2, and more than 3 chronic conditions increased by 2.7 times, 5.2 times, and 10.1 times, respectively (Sum et al., 2018). Thus, MCCs represent a significant challenge for present and further healthcare services.

MCCs have a significant impact on people's lives. MCCs are highly associated with physical limitations (Calderon-Larranaga et al., 2018), negative moods (Read, Sharpe, Modini, & Dear, 2017), and poor quality of life (QoL) (Shad et al., 2017). MCCs also pose massive burdens to people's families. Qualitative research depicted that people with MCCs often perceived being "falling apart" due to the burden of MCCs (Mason et al., 2016).

Caring for people with MCCs is challenging. A common issue for healthcare is that pharmacological and non-pharmacological treatments might be burdensome for people with MCCs. People with MCCs are at risk of polypharmacy, inconsistent health suggestions, and adverse drug events (Boyd & Fortin, 2010; Calderón-Larrañaga et al., 2012). Healthcare for MCCs can become uncoordinated and fragmented. This is related to the lack of integration among specialist health services of different health conditions, healthcare delivery at different levels, and by different healthcare professionals (Døssing & Burau, 2015).

Some healthcare models are developed to support people with MCCs. For example, Australia developed a framework for managing MCCs through a patient-centered approach. The framework highlighted the importance of effective communication and coordination in healthcare provision. People with MCCs and healthcare professionals need to work together to negotiate priorities and evaluate the outcomes of healthcare (Harris, Dennis, & Pillay, 2013). In Europe, the multimorbidity care model was designed and developed by a collaborative research project (Joint Action on Chronic Diseases and Promoting Healthy Ageing across the Life Cycle, JA-CHRODIS). This integrative model focuses on five

healthcare domains: healthcare delivery, decision-making and self-management, technology application, and social resources (Palmer et al., 2018).

## **Background**

Management of MCCs requires people to adapt physically and mentally (Wister et al., 2016). Coping, as one of the psychological variables that explain adaptations to disease, is suggested to be a significant tool to look after psychological health (Cox et al., 2017) and physical health (Ito & Matsushima, 2017). Many studies have demonstrated the significant role of coping in buffering the outcomes of stressful scenarios such as living with chronic conditions (Aldwin & Park, 2004; Carlson, 2016; Traa, De Vries, Bodenmann, & Den Oudsten, 2015). According to the transactional model of stress and coping (Lazarus & Folkman, 1984), coping refers to a process where people make conscious and/or unconscious efforts to respond to stressful situations, which exceed their available resources and jeopardize their well-being. The stress and coping theory describes how people evaluate and cope with stressful situations. First people assess the stressor they face. This process is known as “primary appraisal”, which helps people to know the importance of the stressor. Then people perform “secondary appraisal” to see if they have enough resources to manage the stressor. Both of these appraisals affect their “coping efforts”, which determine people’s physical and mental health outcomes. The coping process includes either problem-based or emotion-based coping. Problem-based coping refers to ways of dealing with stressful events while emotion-based coping refers to ways of managing negative emotional responses. Meaning-focused coping was added in Folkman’s later work (Folkman, 2008). This process of coping refers to an individual person’s personal beliefs, values, and existential goals to focus on the positive aspects in order to sustain his or her coping process. There are no “good”

or “bad” coping strategies however some may be more effective than others for different people. Adopting appropriate and effective coping strategies is significant for people with MCCs to maintain a good QoL (Livneh, 2016). Many factors such as demographic characteristics, the trajectory of diseases, health care, and culture may influence the adoption of different coping strategies (Folkman & Nathan, 2011).

There has been an increasing number of studies investigating coping in the context of MCCs. Coventry, Small, Panagioti, Adeyemi, and Bee (2015) systematically reviewed and synthesized qualitative findings regarding the experience of MCCs, and offered three elements for facilitating effective self-management for those suffering from MCCs, management of medicines and moods, and available resources, and self-preservation. Rosbach and Andersen (2017) synthesized qualitative literature on the burden of treatment in people with MCCs. Their findings identified the different components in the burden of treatment and indicated the burden was related to the workload of demands, the capacity, and the context. People with MCCs used strategies such as prioritizing different treatments to routinize their everyday lives. However, there is a paucity of primary studies regarding how Asian people cope with MCCs or that have considered the experience of coping with MCCs cross-culturally (Cheng, Inder, & Chan, 2018). Lazarus and Folkman (1984) considered that coping is a dynamic process impacted by various factors such as culture, external support, and life experiences. Knowledge regarding coping with MCCs can help to understand the ways that people deal with complex stressors resulting from MCCs, and may assist in developing appropriate interventions with adjustments to meet psychological needs and achieve effective self-management. Through a qualitative inquiry, researchers are able to obtain deep insights into people’s perceptions of their MCCs to explore the experience of living with MCCs (Creswell, Hanson, Clark Plano, & Morales, 2007).

China has undergone a health shift from communicable to non-communicable diseases in recent decades. It is expected that the prevalence of chronic diseases is projected to increase by 40% by 2030 in China (World Health Organization, 2015). Meanwhile, China is facing an aging crisis with projection that older adults (over 60 years old) will increase from 12% in 2010 to 28% in 2040 (World Health Organization, 2015). Increasing aging populations and the increase in chronic conditions predict a rise in the number of people with MCCs.

The prevalence of MCCs has been investigated by several population-based studies in China. A cross-sectional study based in northeastern China showed that almost a quarter of adults had MCCs (Wang et al., 2015). Evidence from the China Health and Retirement Longitudinal Study (CHARLS) indicated that nearly half of middle- aged and older participants in the urban area reported having MCCs (Chen, Cheng, Zhuang, & Broad, 2018). Recent research has shown a high prevalence of MCCs in China, indicating that there is a potential increase in problems concerning MCCs, which may impact on people's health (Wang et al., 2014).

Despite the growing number of people suffering from MCCs in China, people with MCCs receive little attention in the current healthcare service provision (Chen et al., 2018). Few studies have assessed the ways in which people describe and perceive everyday experiences of coping with MCCs. There is a paucity of research that has investigated the experiences of people with MCCs in China. This study aimed to explore the experiences of coping with MCCs in China. By utilizing a qualitative approach, the findings of this study will contribute to understanding and theorizing coping of MCCs in Asian contexts and will expand the current knowledge about cultural consequences on coping.

## Methods

### Design

The current study employed a qualitative descriptive design, which is suggested as an appropriate method of choice to obtain “*straight descriptions of phenomena*” and provide “*comprehensive summary of an event in the everyday terms of those events*” (Sandelowski, 2000). This design is appropriate to facilitate an exploration of people’s experiences of coping with MCCs from their own stories. The Consolidated criteria for reporting qualitative research (COREQ) (Tong, Sainsbury, & Craig, 2007) was followed throughout the research process to maximize the rigor of the analyzing process and the trustworthiness of the findings (See Supplementary File 1).

### Sample and setting

This study took place from August to October 2018, in a tertiary referral and teaching hospital in Bengbu, Anhui, China. Recruitment flyers were posted and distributed by clinical nurses at the study venue. Individuals interested in participating in the research approached the first author by phone, mail or in person. This study used a purposive sampling technique to recruit participants. A general practitioner at the study venue helped to confirm the eligibility of people with MCCs. The inclusion criteria were (1) Chinese adults ( $\geq 18$  years old) who had more than one chronic condition, and (2) can communicate in the language of Mandarin. People who were not able to understand the informed consent or had difficulties complying with the research procedures were excluded. In qualitative research, data saturation is often used as a sampling principle (Morse, 2015). This meant recruitment would be stopped when no new information was found. In this study, data saturation was reached at the 14<sup>th</sup> interview.

## Data collection

An interview booklet including a demographic data sheet and a clinical data sheet were developed. The demographic sheet collected information on age, gender, marital status, employment, and educational background. The clinical sheet obtained information regarding MCCs such as type and duration. Semi-structured questions were developed by the first author based on findings from a past review (Cheng et al., 2018). An expert panel including two academic scholars and two clinical nurses helped to refine the interview questions by close reading (Castillo-Montoya, 2016). Through the reading, the first author asked the panel members putting themselves in the place of the potential interviewees. This work helped to identify how interviewees might understand the interview questions. Pilot interviews ( $n = 2$ ) were conducted to test the essentials of the interviews such as procedure, consent, data recording, venue, and timing. In this study, coping was defined as the strategies that Chinese adults used to manage their chronic conditions and the associated impacts.

Before the interviews, potential participants were informed of the study objectives. Written informed consent was obtained. All interviews were conducted in a quiet and comfortable meeting room at the study venue so that the interviewees could share their stories without disruption. The interview schedule was arranged according to the participants' preferences. The participants' demographic and clinical data were obtained before the interview. Each participant spent approximately 5 minutes completing the demographic and clinical sheets.

Participants were asked to answer questions such as, "Please describe the chronic conditions you are experiencing?" and "How did you cope with these conditions or cope with the impact these conditions have on your life?" If the interviewees had difficulty in understanding the interview questions, several approaches were used to improve

understanding and prompt a response: (1) using probing questions. Examples of probing questions were, “How do the chronic conditions impact your life...?”, “How do you manage your chronic conditions?”, “What is the biggest problem you have encountered in trying to cope with your chronic conditions?”, and “What types of information or skills do you think would be most beneficial for you?”; (2) allowing for more time for reflection, and (3) rephrasing questions by using simple words. The duration of the interviews ranged from 30 to 55 minutes. All interviews were digitally recorded. Field notes were taken during the interview.

### **Data analysis**

Demographic and clinical data were summarized by descriptive statistics. Recordings were transcribed verbatim by the first author. Qualitative content analysis with hand coding was used to analyze the data. Qualitative content analysis is a systematic way to describe the phenomenon and could be applied using an inductive or deductive method (Hsieh & Shannon, 2005). Inductive content analysis is used when there is little knowledge available for the current research questions while deductive content analysis is used to examine a past theory or model (Elo & Kyngäs, 2008). As this was the first study exploring the experiences of Chinese people with MCCs, an inductive approach with three analytical phases: preparation, organizing, and reporting was undertaken (Elo & Kyngäs, 2008). The first phase “preparation”, began with selecting the unit of analysis which refers to various objects of the specific research (e.g. a group of individuals) or a research theme. In this study, the unit of analysis was the transcribed interviews of Chinese adults with MCCs. The next step in the preparation phase is to make sense of the obtained data by reading through the data several times to improve understanding and familiarity with the content. The second phase is

“organization” where the researchers conducted initial open coding, developed themes, and abstract descriptions. Open coding involved making notes and headings to describe the data when reading through it. After the open coding, the researchers started to reduce the lists of categories by grouping those similar and dissimilar categories into higher-order categories. The last phase “abstraction” refers to the development of an overall description of the research questions by collapsing the categories. The conflicts in grouping and generating categories were discussed by the researchers until consensus reached. Finally, the researchers examined and reported the findings.

Participants were approached by telephone to clarify unclear statements if necessary. The first author translated themes, subthemes, and quotations from Chinese to English. A bilingual (Chinese/English) author with expertise supervised the whole procedure to assure the validity of the content.

### **Rigor**

To improve trustworthiness, the researchers enhanced credibility by adopting purposive sampling to represent a range of experiences regarding coping with MCCs. A reflective diary was kept throughout the interview process, and memos of preliminary analyses were taken. The interview questions were designed by an international team including experienced qualitative researchers, and the interview questions were refined by consulting a panel of academic and clinical experts. The findings were discussed and reviewed by all the authors (two bilingual speakers) to reach an agreement. Illustrative quotes from the transcripts were used to support the findings. Transferability was improved by providing a thick description of the phenomenon such as research setting, participants’ background, and verbatim statements.

## **Ethics considerations**

This study was approved for implementation by the human research ethics committee of the University (H-2017-0378) and the study venue. Participants were informed that all data would be anonymous and that their names would not be associated with any data reporting or publication. They were informed that the health services where they currently received care would not be influenced by whether they take part in the interview. They could stop the interview or withdraw from the study at any time without reason.

## **Results**

### **Sample characteristics**

All 14 participants (57% Female,  $n = 8$ ) were married. More than half had three chronic conditions ( $n = 8$ , 57%). The most common conditions were hypertension (systolic blood pressure  $\geq 140$  mm Hg and/or diastolic blood pressure  $\geq 90$  mm Hg), type 2 diabetes (fasting plasma glucose  $\geq 7.0$  mmol/), and nonalcoholic fatty liver disease. Sample characteristics are presented in Table 1.

### **An overview of major themes**

Four major themes consisting of subthemes emerged from the participants' statements of coping with MCCs. The participants reported that their experiences of suffering from the consequences of MCCs for day-to-day life were complex as the multifarious nature of MCCs. Those consequences resulted in a series of challenges that influenced many spheres of daily life. To deal with MCCs, the participants developed a range of coping strategies. Quotations

from the transcripts were used to illustrate the theme and the gender, age, and MCCs of each participant were identified.

### **Appraising MCCs**

The first theme is “Appraising MCCs”, which refers to how people made appraisals based on the perceived impacts of MCCs and the associated challenges. This theme covers three subthemes.

*Prioritize conditions* People with MCCs usually evaluated their co-existing chronic conditions and repeatedly expressed concerns about the conditions with the greatest physical impacts. No patient considered two or more conditions as equals. Almost all people were able to elaborate on their experiences concerning a single condition rather than “the whole situation I have”. A patient reported his prioritization of treating three chronic conditions.

*“I do not care about it (hyperlipidemia) because I cannot feel it. I think we should treat my hypertension and diabetes first...”* (Male, 60s, hypertension, diabetes, hyperlipidemia, fatty liver diseases)

*Consequences of MCCs* As identified by most participants, the most common and serious issues were physical limitations associated with their MCCs. The typical descriptions were provided by participants with limited mobility and painful disorders. For example, a patient emphasized “terrible” experiences of Ménière's disease:

*“Having MCCs is physically uncomfortable for me. Lots of symptoms: tiredness, dizziness, out of sorts, drenched in sweat. Drugs can't control them.”* (Female, 70s, Ménière's disease, diabetes, vision impairment, and hypertension)

Another participant remembered the pains when gout came on suddenly.

*“(Gout) hurts, really hurts, it hurts too much to get out of bed...”* (Male, 40s, gout, hyperlipidemia, and fatty liver disease)

*Challenges associated with MCCs* Challenges happen at any phase of coping with MCCs.

From the view of participants, a challenge could mean a hardship, a difficulty, and a dilemma.

Participants viewed healthcare as fragmented. Some expressed a need for better communication between health professionals and themselves. A typical example was that a patient expressed some worries about long-term care after discharge.

*“We did not receive any further support or service. We had to rely upon ourselves. People (patients and their caregivers) do not have any knowledge about care for MCCs. It will be helpful if nurses could provide some self-care training.”* (Female, 60s, stroke and hypertension)

Optimal health outcomes in MCCs hinge on good self-management. Adherence to medications and lifestyle modification might be the greatest challenge in a patient’s daily life.

For example, a patient described struggles with following a prescription.

*“If I could adhere to regular medical check-ups, probably I do not get sick. When I took medications as prescribed, I felt okay, everything was fine, and then I stopped the pills... I took them again when I felt uncomfortable. Sometimes I was too busy to take the medicine. Sometimes, I just forgot to do it. I thought that it was okay as my body could endure it (hypertension)...soon I got used to it (non-adherence)... I have tried three times to quit smoking. I can do nothing about it. I am a taxi driver, sometimes I am tired, and (smoking) is a way to relax for me...”* (Male, 50s, hypertension, heart disease, and stroke)

Some people talked about the difficulties of maintaining a healthy lifestyle.

*“Sometimes I did exercise, but rarely. For example, sometimes I did press-ups at home. On a whim, I tried to control my diet...two days or three days? (Because) I do not have much time to do it.”* (Male, 30s, hypertension and fatty liver disease)

### **Addressing MCCs management**

“Addressing MCCs management” stands for the people’s efforts to manage a source of stressful events. The participants presented a strong desire to keep MCCs under control by employing various strategies to treat their chronic conditions. Those strategies include taking medications, choosing alternative therapies, changing lifestyles, and seeking informational support.

*Taking medications* prescribed by doctors was the most common way of managing chronic conditions. All participants detailed their prescriptions.

*“To treat hypertension, currently, I take Diovan (medicine name) and Shihuida (medicine name), one pill every morning. That is, one Diovan, and one Shihuida. I take the medication like this every day...”* (Male, 60s, diabetes, hypertension, and fatty liver disease)

Apart from medications prescribed by doctors, people reported seeking additional treatments. Traditional Chinese Medicine (TCM) was suggested by TCM physicians as a component of treating MCCs. Some participants reported replacing prescription drugs with TCM or using TCM as a supplement.

*“He (Doctor of TCM) told me that I had a lot of “dampness” (refers to the water retained in the body) inside my body. My body was not able to remove these fluids so they were gathering together increasingly. I had to vomit all the fluids. He prescribed some Chinese*

*herbal medicine for me. After several times of taking herbs, probably after more than half a year, I felt better, I stop to vomit. I think it works.”* (Female, 70s, Ménière's disease, diabetes, vision impairment, and hypertension)

Opinions differed about whether to choose TCM as a therapy with some participants questioning the effect of TCM.

*“I met two patients, one of them said that taking TCM medications have cured his diabetes..., I do not believe it. I said the diabetes is a worldwide health problem. Can it be cured by taking some TCM drugs?”* (Male, 60s, diabetes, hypertension, and fatty liver disease)

Health products as a supplementary treatment were reported by some participants.

*“Health is important. You cannot take care of your body until it becomes weak. You should do something when you know the risks. As I have told you before, we should spend the money on prevention instead of treatment. For example, do fitness and take vitamin supplements. The efforts that we spend on prevention (fitness and vitamin supplements) far outweigh what we spend on treating the diseases. This is a view of what I always say: health supplements are very important. Frankly speaking, it is too late when you spend money on medications and visiting a doctor.”* (Male, 40s, gout, hyperlipidemia, and fatty liver disease)

Participants described trying to exercise and change dietary habits to build a healthy lifestyle. The exercise format included attending an exercise training class, jogging, visiting a local fitness gym.

*“I’ve kept exercising for a long time. I like brisk walking. I usually walk after dinner every day, about 40 minutes, sometimes one hour.”* (Female, 40s, hypertension and diabetes)

Some participants had positive perspectives on lifestyle changes.

*“The most important thing is keeping your health. Doing exercise is a way to keep healthy. Life is meaningless if you lose health.”* (Male, 40s, gout, hyperlipidemia, and fatty liver disease)

Information seeking is a way to know illness better. A distinctive example is that a participant reported seeking information about caring MCCs by using the internet.

*“After the diagnosis of MCCs, in order to relieve my pain (gout) and treat it well, I tried to get more information on the internet, for example, Baidu (a Chinese searching engine)...”* (Male, 40s, gout, hyperlipidemia, and fatty liver disease)

More than half of the participants described “a story of friends” or “someone I knew before”. They described what they can learn from the “stories” and how they perceived the “stories”.

*“For example, one of my friends, he managed his diabetes very well in the beginning. After one or two years, he thought it (diabetes) was unimportant...he didn't take it seriously. After some time, his blood sugar went up again and he felt uncomfortable with his heart, something wrong with his heart. Then he took an examination. Last time I saw him, he said he was rushed to a tertiary hospital for quadruple-bypass surgery due to diabetic complications. From his story, I think most patients will manage diabetes well at the very beginning because they feel fear. After some time, some of them may think they could control it so they let down their guard... Any patient cannot let down the guard.”* (Male, 60s, diabetes, hypertension, and fatty liver disease)

### **Maintaining psychological well-being**

“Maintaining psychological well-being” involves efforts that reduce negative emotional moods regarding stress such as fear, anxiety, depression, and frustration. Most participants reported experiencing negative moods when diagnosed with chronic conditions and

encountered some functional loss, but they tried to maintain their moods by reappraising the stressor in a positive light and comparing with others. This theme includes two subthemes.

*Accepting the reality* means that people adapt themselves to the current situations and the uncontrollable changes. Most participants reported being capable of multiple, simultaneous life changes, resulting in positive representations of health. For example, a patient stated the experiences of enduring what happened.

*“I am mentally very strong. (The reason for having MCCs is that you have done something wrong), you have to admit your faults and have to be realistic. You have to endure what you could. The key point is that you have to manage yourself when you are sick.”* (Male, 50s, hypertension, heart disease, and stroke)

*Positive reframing* represents that people view the life changes regarding MCCs more positively. For example, a patient stated the ways of transforming think. She thought that her body was a good shape because she still kept mobility.

*“There were some stressful feelings, but I am optimistic. (Because)I do not have any physical restrictions. I sleep well and eat well. It is a chronic condition rather than an injury causing physical limitations. If one day I suffer from stroke and I cannot move, that will be a big problem...Now I think I am still young...”* (Female, 30s, cancer and fatty liver disease)

### **Fulfilling a social role**

The theme of “fulfilling a social role” refers to people’s efforts in building responsibility towards others and keeping their autonomy. People expressed their willingness to have a routine life to the most possible extent. Two subthemes were identified.

*Being a family member* Most reported managing MCCs meant a lot to their family. Some participants stressed that they had to manage their conditions well as they were responsible for maintaining their family.

*“I am 50 years old, I am the ‘the cornerstone’ of his family, I have to take care of my parents and my children. I will do it (manage MCCs) for my family rather than for myself.”* (Male, 50s, hypertension, heart disease, and stroke)

*Being a friend* Most participants described interactions with their friends and emphasized what they obtained from those interactions. For example, a patient who was active in some informal groups (e.g. Online diabetes forum), described the experiences with “Tang You” (friends with diabetes). He shared his experiences of living a meaningful life by helping others.

*“...I met some patients with diabetes usually. We called us “Tang You”. Sometimes met other patients with hypertension. I would like to ask about their conditions and share my stories. Everyone is different, so the conditions are different...I thought, sharing my experiences of treatment and management such as lifestyle modification and medications for hypertension will be helpful for someone else.”* (Male, 60s, diabetes, hypertension, and fatty liver disease)

## **Discussion**

The current study used a qualitative interviewing approach to explore experiences of coping for people with MCCs. All participants were Chinese and married, varying in terms of age, education, and employment. The stories of the participants revealed that they were living actively while coping with MCCs, although they cited worries about how MCCs impacted them. For those participants, experiences of coping helped develop an array of strategies to address symptoms of chronic health conditions, psychological well-being, and social roles by dynamic appraisals of life changes resulting from MCCs.

The theme “appraising MCCs” indicates a personal evaluation of what is happening caused by MCCs. Lazarus (2012) suggests that this appraisal is a negotiation between two elemental parts: (1) aspiration of perceiving what is occurring; (2) aspiration of making the best of what is occurring. First, it is not surprising that people develop their own perceptions in response to MCCs. Prior research on illness perceptions considered five domains: identity, timeline, causes, consequences, and controllability (Lau & Hartman, 1983). This study found that people with MCCs mainly focused on three domains including consequences of MCCs, identity (priority in conditions), and controllability (coping), showing that people with MCCs might hold different perceptions compared to people with a single chronic condition, even though both have an incurable lifelong process potentially filled with distressing moments. The overriding concern of people with MCCs was impaired health status. The combined impacts of co-existing chronic conditions modified the perceptions of people with MCCs such as identity, cause, and timeline (Gibbons et al., 2013). Second, narrative accounts of people showed how they prioritized a collection of complex conditions for self-management. Research indicated that people’s prioritization among several chronic conditions with management practices were dynamic and might be supportive for accommodating their MCCs (Morris, Sanders, Kennedy, & Rogers, 2011). In line with a past review (Bratzke et al., 2015), prioritization of MCCs appeared to be a specific day-to-day task experienced by people with MCCs who had to uphold a balance between their chronic conditions. Furthermore, this study found that people predominantly constituted priorities by targeting individual conditions that impact a lot, but the potential effects of the prioritization were not identified. Thus, several questions then arise for further research: How does this prioritization impact self-management of MCCs? What can healthcare professionals learn from this prioritization? How do healthcare professionals set up a collaborative healthcare plan integrated with clinical concerns and statements of the people?

Living with MCCs is a lifelong process that needs long-term treatment. This treatment could be thought of as a burden. However, treatment is a crucial component for illness management and better health status for people with MCCs. One of the biggest issues for people with MCCs was adherence to medications. Medication adherence is associated with many factors such as sociodemographic characteristics, the relationship between people and doctors, disease-related factors, and medication factors (Vlasnik, Aliotta, & DeLor, 2005). Our participants attributed their non-adherence to “I forgot to take it” and “I think I am fine”. These explanations might indicate that people misunderstood their health regarding MCCs and an inability to participate in disease self-management (Pages-Puigdemont et al., 2016). Key reasons for non-adherence to treatments among MCCs population are varied, including differences in clinical variables (Kim, Bennett, Wallace, Fahey, & Cahir, 2018), medication beliefs (Schüz et al., 2011), fragmented care (Green, Hawley, & Rask, 2007), and synergistic effects between chronic conditions (Calderón-Larrañaga et al., 2019). Participants in this study did not report issues of managing multiple prescriptions nor adverse effects. However, they liked to control immediate symptoms and slow the perceived most severe condition. This finding also reiterated that people with MCCs prioritized their chronic conditions.

This study found that coping strategies adopted by people with MCCs interacted with chronic conditions management, psychological preservation, and maintenance of social roles. Despite different labels in categorizing coping, the emerged strategies were congruent with past studies (Cheng et al., 2018; Löffler et al., 2012), which categorized coping strategies in the context of MCCs into three levels: practically, referring to the management of conditions; emotionally, referring to positive reframing; and socially, referring to the preservation of autonomy. In comparison, our participants displayed more particular skills, such as using TCM medications. Complementary and alternative therapies have been little investigated in the area of coping with MCCs. As this study was based in China, using TCM medicine and

visiting a TCM doctor would be easy to obtain in general. Lee, Lin, Wrensch, Adler, and Eisenberg (2000) suggested the reason that Chinese women with breast cancer were more likely to use herbal therapies than white or black peers was the prevalent use of herbal therapies by Chinese. Participants in the present study, reported using TCM because these drugs took effect sometimes. What is more, a review of complementary and alternative medicine (Bishop, Yardley, & Lewith, 2007) showed that the participants in the present study might be trying to control their conditions by means of what they knew before. They considered TCM as a part of self-management where they could be a decision maker.

Paralleled with past research in which the importance of family was noted (Ridgeway et al., 2014), this study found that coping at the family level might play a significant role in promoting health among people with MCCs. Traditional Chinese cultures value the collectivist orientation, which considers that the foundation of Chinese society is the family unit. Individuals make sense of their roles within the family context where individual issues are usually considered as family issues (Mak & Chan, 1995). The family will support an individual to overcome difficulties when it is necessary. Chinese families suggest that it is harmonious and honorable to be gathered as a unit when facing life changes (Mak & Chan, 1995). This was a study based in mainland China and all participants were married thus it is reasonable to apply a family perspective to understand the significance of family in an individual's coping. In the present study, participants expressed "I would like to do it for my family" rather than "I do it for myself". Collectively, this finding provided insights into the role of the family played in the personal coping process and how individuals experience this kind of "engagement", which refers to common stresses and mutual needs between participants and their family members. The present study paid close attention to personal experiences but the indicators of family functions such as family relationships, unity, and

roles were not explored. A future study could investigate how an individual and family cope with MCCs as a joint group.

Coping with MCCs is an adaptive process consisting of professional support and social influence. Those contextual factors might have a direct and/or an indirect impact on people's coping. This study found that most participants described how they were impacted by "a story of one of my friends" when seeking informational support, reflecting the important role of social networks played in influencing people's coping experiences. In the Chinese context, social networks are often conceptualized as forms of relationships by which individuals are able to achieve specific objectives (Duran Bell, 2000). Those relationships can be classified into (1) affective (relationships with family members and significant others); (2) instrumental (relationships with those for a practical aim); and (3) Guanxi or connections (relationships that include both affective and instrumental components) (Bond & Hwang, 1986). This study suggested narratives of "a friend's story" as experiences of making use of Guanxi, in which the people developed a personal trust and a strong relationship with someone in the cases they have the same background. Making of use Guanxi might provide a buffer against adverse life events. For example, people might set "a friend" as an example to improve a coping strategy (e.g following the advice about exercise to lose weight) and validate an understanding about MCCs (e.g. sharing the therapies and feelings by internet forums). What is more, the subtheme of "*being a friend*" indicated that the people valued and wanted to contribute to Guanxi through interactions with ones who had similar chronic conditions. This finding implied the development of Guanxi, in which a patient was not merely acting as a recipient, but exchanged favors to maintain the relationship (Ellis, 2009).

Support from social networks are proved to be helpful for individuals who are at risk of chronic physical and psychological health problem because it can improve one's social identity, offer information and inspiration, and help a person to go through stressful situations

(Shilling et al., 2013). It is no doubt that social network is a significant factor to explain adaptations to stressful life events (Brissette, Scheier, & Carver, 2002) and health behavior-related outcomes (Laranjo et al., 2015). However, social relationships can consist of both positive and negative components, concurrently (Ahn, Kim, & Zhang, 2016). As suggested by a past study (Vassilev, Rogers, Kennedy, & Koetsenruijter, 2014), it is inappropriate to consider that network support develops in a cumulative way (e.g. the more providers, the more support), and engaging in the social network may have a negative influence (Gallant, Spitze, & Grove, 2010). People's stories regarding involvement in social networks might represent their needs for formal social supports. This study did not identify negative examples of social networks. A plausible explanation is that our participants may subjectivize their experiences as they inclined to say an "I have coped well" story. Nevertheless, it is necessary to examine support from multiple sources in the future. Collectively, those findings of social networks supported previous works that culture shapes a person's coping by influencing both the person and the surrounding environment (Chun, Moos, & Cronkite, 2006).

### **Strengthens and limitations**

This is the first published qualitative research on coping with MCCs in mainland China. Using a qualitative design, this study presented a theoretical underpinning to explain experiences of MCCs. Participants varied in demographic and clinical characteristics, allowing for multiple perspectives. A culture-based discussion recognized the important role of the family and the social networks in shaping people's coping experiences.

One of the major limitations was that participants were purposively recruited from a single hospital in East China, thus the findings may not represent other areas of China. Findings might not be representative of people who live alone or in residential aged care. Due to

regional disparities in China, healthcare for MCCs and people's perspectives on health and disease are varied limiting the generalizability of the findings. As coping changes over time, knowledge of changes in coping can be obtained if interviews are undertaken based on the disease trajectory. Participants volunteered, therefore they may be motivated to share their stories more than other people, suggesting better coping than other people with MCCs. Differences in coping between genders nor take into consideration the trajectories of MCCs. Coping strategies that emerged from this study need to be further explored by both qualitative and quantitative research methods.

## **Conclusion**

This qualitative descriptive study illustrates how Chinese adults cope with MCC in day-to-day life. Key findings highlight the ways that people appraise MCCs and adopt ways of coping to make sense of their daily life, and also emphasize the significance of family and social networks in coping for Chinese adults. This work is as a first step in filling the practical knowledge gap about stress and health among Chinese populations with MCC and contributes to the present knowledge on cross-culture coping. Well-designed, comprehensive interventions with consideration of individuals' needs in the context of a particular culture may reduce the suffering of people with MCCs.

## **Relevance to clinical practice**

The current traditional disease-oriented specialization in the healthcare system is inadequate to manage the healthcare concerns of people with MCCs. People with MCCs have different health concerns when compare to people with single one chronic condition. There is a need to redesign the healthcare system in accordance with local resources and demands

focusing on the management of MCCs. Some high-income countries such as the UK and Australia have established clinical guidelines and developed policies to address care of people with MCCs (Chandraratne, Pathirathna, Harrison, & Siriwardena, 2018). China, as a developing country with significant regional inequality, still lacks an effective healthcare model for people with MCCs. Thus, management of MCCs required more attention from health policymakers, healthcare professionals and their educators, and healthcare services researchers. The top priority for healthcare services is to adjust the current healthcare delivery and allocate healthcare resources to support people with MCCs.

A multi-disciplinary, integrated approach focusing on patient empowerment strategies such as self-management during care delivery could help people and their families to cope and manage their MCCs. People with MCCs may have difficulty in accommodating all treatments and management recommendations so that collaborative priority setting in a comprehensive healthcare plan should be considered. People with MCCs should be engaged in organizing priorities of treating MCCs and aspects of self-management. Dynamic assessment and monitoring of patient priorities will help guarantee optimal healthcare in which people can obtain continuous support as MCCs may change over time. With integrated care and good self-management, people with MCCs can live well and continue to have a good quality of life.

Healthcare professionals need an in-depth understanding of the psychological needs of people with MCCs. Healthcare professionals could facilitate psychoeducation programs and patient peer support groups to enhance people's understanding of their health conditions, promote their coping and psychological well-being, as well as peer support among people with MCCs. Healthcare professionals should be aware that people cope differently in different social contexts. A better understanding of coping may be gained from effective communication between healthcare professionals and people with MCCs based on the knowledge of their cultural backgrounds.

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Table 1. Sample characteristics ( $n = 14$ )

<b>Sample characteristics</b>	<b>Frequency (%)</b>
<b>Age (years)</b>	
30~39	3 (21.4)
40~49	3 (21.4)
50~59	3 (21.4)
60~69	3 (21.4)
More than 70	2 (14.3)
<b>Gender</b>	
Male	8 (57.1)
Female	6 (42.9)
<b>Employment</b>	
Full-time	5 (35.7)
Self-employed	4 (28.6)
Retired	5 (35.7)
<b>Educational level</b>	
Primary	3 (21.4)
Secondary	8 (57.2)
Tertiary	3 (21.4)
<b>Duration of MCCs (Years)</b>	
1~4	4 (28.6)
5~9	5 (35.7)
More than 10	5 (35.7)