Migration and Perception of Health Status: a Qualitative Study in Kazakh Chinese

by

Yinan Zhang

Duke Global Health Institute
Duke University

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Approved:

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Bei Wu, Supervisor

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Kearsley Stewart

_______________________
William Pan

Thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Science in the Duke Global Health Institute
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ABSTRACT

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Abstract

This qualitative study explored the rural to urban migration’s effect and its related factors on later life health status and health perception among Kazakh Chinese. The participants were same sex sibling pairs, of which one moved from rural to urban areas in early life and the other stayed in rural areas. Rural participants tend to have more selected chronic diseases conditions and other self-reported conditions than urban participants but less physical limitations in older age. There is no clear difference on the health perceptions between rural and urban participants. Health care access and environmental factors are the major differences that may affect health in later life for rural participants.
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1. Introduction

1.1 Migration as a life-course event

Migration is a major life event that has a huge impact on both physical and psychological health status (Ebrahim et al., 2010; Goldman et al., 2014; Virupaksha, Kumar, & Nirmala, 2014). “Healthy migrant” is a phenomenon to describe migrants often has better health indicator than the origin. This is often due to the high selectivity of migration and “Salmon bias”, which refers to less healthy people return to their home (Yao Lu & Qin, 2014). Although the initial health advance often diminished as time pass by, migration has been shown to have a long-term influence on health status over a lifetime (Colon-Lopez, Haan, Aiello, & Ghosh, 2009; de Oca, Garcia, Saenz, & Guillen, 2011).

In China, migration from rural areas to urban areas is one of the most important components of urbanization. In the last 30 years, China has rapidly urbanized. The population in urban areas increased from 20% in 1978 to 54.4% in 2014 and continues to increase (World Bank, 2016). Rural-urban migration accounts for half of the urban population increase (Chan, 2013). Although more young adults are migrating from rural to urban areas, the early generation of rural-urban migrants is now entering old age.

Migration and the social and physical environment that migrants are both factors that may influence health status in later life. Migration may also affect social support, particularly within the first few years after migration, thus affecting health status (Dong
& Lee, 2014). Rural-urban migrants have been shown to have higher prevalence of sexually transmitted diseases (Zou et al., 2014). Migration comes with high amounts of work pressure (Y. Lu, Hu, & Treiman, 2012) that affects the migrant’s mental health status (Li et al., 2007). At the same time, study shows in China, the high selectivity and “Salmon bias” also act as an important factor in determining individual’s health (Yao Lu & Qin, 2014). However, these studies focuses on more temporary rural worker. For those who settled down, the cumulative effect of social and natural environmental influence of rural and urban areas becomes more important in determining health status as individual’s aging process.

Living in urban areas has its disadvantages. Elderly people living in urban areas are more likely to be anxious than those living in rural areas in China according to a study in 2007. This may result from more sources of stress (Leung, Chen, Lue, & Hsu, 2007). Urban elders are more likely to have chronic diseases compared with their rural counterparts (Wu et al., 2008). Living in urban areas also has other disadvantages, such as urban climate change (Hondula, Georgescu, & Balling, 2014), and urban life style issues associated with diseases (Cheema, Adeloye, Sidhu, Sridhar, & Chan, 2014; He et al., 1996).

Despite the aforementioned harmful effects, migration from rural to urban areas has many advantages, such as improvement of socioeconomic status, good access to health care facilities, and better health education (Colon-Lopez et al., 2009). When health
care is needed, urban elders are more likely to seek health services than are elders living in rural areas (Liu, Zhang, Lu, Kwon, & Quan, 2007). Environmental hazard are different for rural and urban residents. For example, the higher fine particles (PM2.5) and ozone in urban area elevated the risk of lung cancer (Y. Guo et al., 2016) and urbanized human activities create water pollution (Huang, Chen, Liu, Sun, & Wang, 2014). Rural areas has higher frequency contact with pesticide, which may be an environmental hazard that different from urban residents. In addition, urban residents in China often have better mental health condition (Norstrand & Xu, 2012). Though studies have shown the difference in health status and related factors between rural and urban areas, the difference in health status and related factors between rural-urban migrants and rural non-migrants among Chinese elders is not clear.

In summary, previously published studies in China compare health status between rural and urban residents (Cheng et al., 2013; Wang et al., 2015) focusing on temporary migrants’ health outcomes [i.e., migrant workers] (Mou, Griffiths, Fong, & Dawes, 2013). However, the accumulative effect of current residence after migration could be crucial in determining people’s health in the long-term. No study, as of yet, has shown rural-urban migration in the early life may create difference in later life health and factors that may create differences in China.
1.2 Kazakh Chinese

Figure 1: The geographical location of Xinjiang (Web source\(^1\))

Kazakh is one of the 56 officially recognized ethnic groups in China, with 1,463,000 people (National Bureau of Statistics of China, 2012). The majority of Kazakh Chinese live in the Xinjiang Uighur Autonomous Region. Kazakhs were historically a nomadic people and have their own language and culture. Kazakhs changed from a nomadic pastoral lifestyle to settling down during the last century. The migration from rural to urban areas also occurred among this population. The literature regarding ethnic Kazakhs’ health is limited, both in Kazakhstan and in China. In China, there are a few literature comparing a variety of disease prevalence in Kazakh, Uighur and Han Chinese, such as cardiovascular diseases (S. Guo et al., 2015) and infertility (Zhao, Wang, Gao, Cai, & La, 2015). Studies about metabolic syndrome are relatively highly focus in

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\(^1\) Xinjiang Uyghur Autonomous Region  https://ibbeijinger.wordpress.com/2013/05/23/xinjiang-uyghur-autonomous-region/
Kazakh population because the prevalence of metabolic syndromes is higher in Kazakh population than in the 8 selected cities and province in China and it is suspected to related to genetic and behavioral risk factors (Hu et al., 2015). There is no existing literature that focused on Kazakh elders’ health and no literature try to explore the risk factors from a qualitative perspective.

1.3 Aim of this study

The aim of this study is to explore how the Kazakh Chinese early-life migration from rural to urban areas and long-term living in different conditions have had an effect on health perception in later life and to explore factors that may create differences in health status in later life. The knowledge of health perceptions, need of health stayed unknown in this particular population. This study identifies the needs of elders and provide information on how to improve elders’ health in both rural and urban areas.
2. Methods

This is a qualitative study. Semi-structure interview is used for qualitative study. The qualitative questions focused on their health behavior and perception. The behavior questions mostly centered on diet and physical activity. Personal perceptions of physical and social environment is also asked. A small questionnaire, was used as a guide to collect demographic data and disease history.

2.1 Setting

Xinjiang Uighur Autonomous Region (Xinjiang) is the largest provincial district in China, containing 46 out of the 56 ethnic groups that are officially recognized in China. The capital city of Xinjiang is Urumqi; it is the largest city with a diverse culture environment. Altay Kazakh Autonomous Prefecture is in the northwest of Xinjiang, and the majority population is Kazakh people. The capital of this prefecture is Altay City. Fuyun is a county in Altay Prefecture. At the city and county level, the culture is a mix of different ethnicities, whereas in rural areas, the community is often composed of one ethnic group. The official languages in this region are Mandarin, Kazakh, and Uighur.

China started the China Western Development from 2000, which quickly increased development in urban and rural areas. Rural areas in Xinjiang Uighur Autonomous Region where the Kazakh ethnic people live have changed relatively little in terms of lifestyle in environment compared with the fast development the urban areas have experienced.
Many aspects of life are different between rural and urban areas. It is a common phenomenon that people born before the 1960s have many siblings, when the number of children was not controlled and the fertility rate was greater than five (World Bank, 2016). It is also common that at least one of siblings migrated to an urban area, whereas at least one son stayed to inherit land in the rural area. These phenomenon enables us the find sibling pairs of which one stays in rural areas and the other migrated from rural to urban areas as urban areas grow.

Three urban areas were selected to recruit urban participants: Urumqi, Altay and Fuyun County. The three urban areas represented three levels of urban development. Urumqi, the capital of Xinjiang Province, is the economic and politic center and represents biggest and the most developed urban area in Xinjiang Province. It also has the highest level of education and healthcare in Xinjiang. Altay city represented a middle-sized city, which is a center of Prefecture and has the highest level of healthcare. Fuyun County represented the small urban area.

2.2 Participants

The participants were sampled from Kazakh ethnic people living in this area. The participants were adults ages 55 and older who migrated to and live in the Fuyun, Altay or Urumqi and that have at least one same gender sibling in the rural areas. The urban areas were defined by their hukou (household registration) status. One of the siblings had to migrate from a rural area to an urban area at age 16 or older. Eligible participants also
had to have lived in the current rural or urban area for at least 20 years. Participants must have had the ability to recall their migration experiences (mainly time and reason) and be able to generally describe their health status, disease history, and family structure. Full inclusion and exclusion criteria are included in Appendix 1.

The urban siblings were recruited through a convenience sample and a snowball sample. The Kazakh community was connected relatively strongly so prospective participants were reached through from personal connections. We targeted urban siblings for the study; urban siblings were reached through a phone call. Then, urban siblings would call their rural sibling and ask whether he or she would like to participate.

2.3 Procedures

The participants were reached via phone first and initially gave oral consent to participate in the study. The informed consent forms were collected and signed before the interview. The ethical review boards at Duke University and Wuhan University approved all study procedures.

A brief questionnaire was used to structurally collect demographic information and disease history. It also included a screen measure of mental health condition (Kessler 10 scale) (Zhou et al., 2008), physical function assessing, and disease history. The questionnaire is in Appendix A.
Interview data were collected by a team of two students from Duke University and Wuhan University. The master’s student from Wuhan University who was fluent in both Kazakh and Mandarin directly performed the interview and probing. The interviews were conducted at participants’ homes. One of the interviews was conducted at the participant’s workplace. The interview questions included their lives in rural and urban areas, living environments, work history, and dietary and health beliefs. The interview guide is listed in Appendix B. If information was missed in the initial interview, follow-up telephone interviews were used to complete the data gathering.

All participants were compensated with 150 yuan in a red envelope in gratitude for their time. The amount was given based on the suggestion of the researcher who worked with this population.

2.4 Analysis

The mental health screening and disease history were the indicators used for individual health status.

The translator transcribed and translated the interviews from Kazakh to Mandarin. The Mandarin transcript was coded directly by two independent researchers whose native language is Mandarin. The translation was done after all codes and themes were identified to ensure that no loss of information occurred during the translation.

Line-to-line coding was conducted, and themes and codes were identified during this process. NVIVO was used to code all the transcripts. The unit of analysis was the
sibling pairs. Comparisons were made at different levels: within the sibling pairs (rural-urban), between rural and urban subgroups, and between different levels of urbanization (of three cities). Quotes were selected from coding of similar themes. The most representative quote was selected.

The codes and themes were compared between the two people. If the codes and themes were poorly matched, a third researcher from advisor’s research team became involved in analyzing the interviews. All codes were matched after the discussion between two researchers.
3. Results

3.1 Participant demographic

Twelve pairs were included in the study. Four urban participants were living in Urumqi, the capital city of Xinjiang Uighur Autonomous Region. Their siblings were scattered in Xinjiang. Another four urban participants were living in Altay. Their rural siblings were found around Altay city. The rest of the urban participants were from Fuyun County. Their siblings were found around Fuyun County. The age range for all participants were 55 to 78. The average age of rural and urban participants is both 67.9.

Figure 2: Geographic locations of participants (Red – urban areas, blue – rural areas, each dot may represent multiple participants)
For urban residents, the average length of residence in current location after migration is 46.3 years. Eleven of 12 rural participants located in rural areas where they were born. One rural participant who moved from birth place (rural area) was relocated to another rural area. Five pairs were male and 7 pairs were female. The average year of education was 10.3 years for urban residents and 4.9 years for rural residents. The average monthly income in local currency is 2050 yuan for urban residents and 567 yuan for rural residents. Six of 24 participants are widowed. The rest are all married. Nine of 12 urban residents have professional jobs. Only one of urban residents was not ever employed by any working unit. In contrast, two of 12 rural residents belonged to working unit and all other are self-employed and work in agriculture and animal husbandry.

The reasons of migration for rural to urban migrants were work after higher education in the city, work and marriage (for women). For rural residents, all of them had never lived in urban areas and still in rural areas for their whole life. Though not specifically asked why they stayed in current residences, a few of them mentioned about marriage and love working in animal husbandry. None of them mentioned they could not migrate because of health condition.

Table 1: Participants demographic

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Urban residents</th>
<th>Rural residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), M (SD)</td>
<td>67.9 (6.6)</td>
<td>67.9 (6.9)</td>
<td>67.9 (6.3)</td>
</tr>
<tr>
<td>Gender Female</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Male</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>18</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Widowed</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Education (years), M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.7 (4.3)</td>
<td>10.3 (3.9)</td>
<td>4.9 (2.7)</td>
</tr>
<tr>
<td>Monthly income (yuan), M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1313 (1111)</td>
<td>2050 (1143)</td>
<td>567 (243)</td>
</tr>
<tr>
<td>Resident length (years), M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>46.3 (6.5)</td>
<td>NA</td>
</tr>
</tbody>
</table>

### 3.2 Health condition

The most common disease and mental health screen results are listed in table 2 and 3 below. Other health conditions mentioned in the interviews includes cholecystitis, joint pain, eye pain, and gastroenteritis.

**Table 2: Mental health screen**(Risk of mental illness,)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Urban residents</th>
<th>Rural residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium risk</td>
<td>10</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>High risk</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>If worse than before</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 3: Disease history in selecting chronic diseases**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Urban residents</th>
<th>Rural residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>17</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Stroke</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
### 3.2.1 Difference in selected self-reported disease history within pairs

<table>
<thead>
<tr>
<th>Disease</th>
<th>Urban</th>
<th>Rural</th>
<th>Siblings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cancer</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Fracture</td>
<td>8</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Asthma</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Chronic bronchitis</td>
<td>6</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Arthritis</td>
<td>21</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Hyperthyroidism</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Mental health condition: two rural participants showed high risk in mental health condition, and their siblings were at medium risk. The other 4 urban participants and 4 rural participants’ siblings were all in the low risk category.

Hypertension: Six pairs had hypertension. Among those six pairs, four rural participants had been diagnosed younger than their siblings had. Two urban participants and three rural participants had hypertension and their siblings did not have it.

Myocardial infarction: One pair had myocardial infarction. Two rural participants had reported such condition but were not diagnosed by a doctor.

Fracture: Three pairs had fracture and two rural participants had without their siblings having.

Asthma: One pair had asthma, and three rural participants had without their siblings having.

Chronic bronchitis: Two pairs had chronic bronchitis and two rural participants had without their siblings having.
Arthritis: Nine pairs had arthritis. Two rural and one urban participant had arthritis without their siblings having them.

3.2.2 Physical limitations:

Six urban participants had more physical limitations than their rural siblings did. Four urban participants had less physical limitation than their rural siblings did. Two pairs had the same amount of limitation. Using a linear regression of age and physical limitations, it seems that as age increases, the rural participants had less physical limitation than the urban participants did.

Figure 3: Regression of physical limitations of rural and urban participants.
3.3 Interview findings – Perceptions on factors affecting health

Participants discussed the multiple factors that might influence their health.

Participants who were more educated or had a worse disease history would discuss in greater detail the mechanism of those factors influencing their health status.

3.3.1 Nutrition factor

Dietary factors were considered to be important to health among both rural and urban residents. The traditional diet of Kazakh people primarily consists of meat and milk products, which is unique compared with other ethnic groups in the local area.

3.3.1.1 Dietary habits and changes

The participants reported that they traditionally eat a great deal of meat and dairy products. Wheat products, such as nang bread and noodles, had actually entered their diets only a few decades earlier and had become part of the traditional diet.

Participants explained their unique diet as a component of their nomadic culture:

“We Kazakhs were nomadic people in history. We changed residences (grassland) all year long. We lived in the place with a high temperature difference from dawn to evening. Therefore, we had higher requirements for people’s physical fitness and physical abilities. That’s why we are used to meat and milk; these are more nutritious types of food.”

Although most of them agreed that they eat more meat compared with other ethnic groups in the local areas, the Kazakhs reported that “too much meat in the diet”
was not in fact true. They thought the amount of meat consumption was limited by several factors, such as availability and financial limitations. Specifically, three participants mentioned that in the past, meat was consumed usually in the autumn and winter; other times of the year, people consumed more dairy products; the overconsumption of meat started when people became wealthy enough to buy meat. Few participants stated that “too much meat in the diet” was incorrect, because the price of meat is expensive for urban participants, too. They would not consume much meat because of price. Some urban residents considered themselves, as they consciously reduced their meat consumption to follow their health care provider’s suggestion.

Milk tea, nang bread, and other snacks are traditionally served a few times a day. Rural residents reported that they had milk tea and nang for most of their meals except the last meal of the day. Urban residents usually had tea and nang at breakfast and for a daytime snack and ate three meals a day. Adding salt, which was the traditional way to serve milk tea, was considered unhealthy by almost all participants, as they were told by others (primarily health care professionals), but some of them, both rural and urban areas, reported that they could not change this long-time habit. One urban resident said, “I cannot change my dietary habits. Though my children told me not to drink too much milk tea, not to add salt into milk tea, and not to eat too much meat. But I cannot live without milk tea. And I cannot drink milk tea without adding salt.” (Urban, 55) Whereas
his brother reported, “We follow our doctor’s suggestion—trying to eat less meat and add less salt” (Rural, 57).

Other milk products, such as yogurt, horse milk, camel milk, and goat’s milk were also part of the diet. Unlike milk tea, which was essential for them, these milk products were considered food with a special function. Yogurt is believed to help digest meat and animal fat. Some mentioned that milk products should be paired with meat or animal fat consumption to avoid the harms associated with eating meat or animal fat.

3.3.1.2 View on traditional diet

All participants from both rural and urban areas reported they had heard the dietary suggestions from their health care providers or children. However, they still held different opinions on it. Some participants believed that their diet was not healthy and needed to change:

“... (our diet) lacks “light food” (vegetable, fruit, etc.) and is the reason for heart disease and hyperlipidemia” (Urban, 76).

Other participants believed that they should eat a traditional diet because their bodies were used to this kind of diet and eating more vegetables or other “light food” made them feel “cold.”

More participants held the opinion that traditional food (meat, milk products, and wild fruit) was healthy but that the traditional diet structure could be improved. Of these people, the excessive use of animal fat was the item most considered to be an
unhealthy part of traditional diet, whereas milk and milk products were considered to be a healthy part of traditional diet. The majority of participants thought the traditional diet only became possibly problematic in the modern world after people had changed their life styles from nomadic to settled, which reduced their energy consumption.

There was no clear difference between rural residents and urban residents in these opinions. Within sibling pairs, they often shared similar opinions with each other. For example, they would attribute the negative part of the traditional diet to a similar reason (i.e., excessive animal fat, food safety, or excessive meat and fat intake but little energy consumption because of the lifestyle change).

Participants with a higher level of education would rationalize their opinion more. One better educated urban participant said:

I think eating a great deal of meat is related to our genes. We Kazakhs—and also Mongolians—our ancestors were nomadic people. In the old times, there was only meat, milk, and milk products from domestic animals. They (our ancestors) grew up eating meat generation after generation. There must be some difference in our genes so that we can consume such a large amount of meat. And we must have such an amount. (Urban, 55)

3.3.1.3 Food safety

Nearly all participants mentioned food safety as a concern. Chemical fertilizers, pesticides, domestic animal vaccines, packaged food, and food additives were
responsible for these food safety concerns. Almost all food on the market was considered questionable. No one mentioned how he or she had received the information about food safety, but it seemed to be a common sense that food on the market was unsafe. Some participants held the view that hypertension, high blood lipids, and heart disease had nothing to do with their dietary habits but were due to recent food quality issues. Nearly all the participants reported that the food from the market was something that could damage their health. The “unnatural” food was viewed negatively. For example, three participants mentioned that domestic animals are required to get vaccinations, which affected meat quality.

One rural participant said “. . . one thing that might be important is food contamination. For example, domestic animals are required to get several shots a year. The milk and meat we are eating are from this kind of animal. I think it may influence our health.” His urban brother also said, “. . . our animals are required to have vaccination shots four times a year. I observed how meat changes in the part that received the shot, and it is hard to imagine this kind of meat is our main meat source.”

The food safety issue served as the barrier to many participants’ changing their diet after being directed to do so by their health care providers. One urban participant said, “We middle-aged and older people are changing our diets . . . . But at the same time that we are making these changes, we have our concerns. Now food safety is a strong barrier. The quality and safety of vegetables, fruit, and even lamb and beef are
questioned. On the other hand, our traditional food is commonly considered to be healthy, and the source is safe. That is one of the reasons our diet changed so slowly.”

His brother also pointed out, “Now the food safety issue, any veggies, meat, rice, flour, and light oil (vegetable oil) from the supermarket—I think they all have food safety problems and affect our health.”

Most participants considered the food safety issue one of the biggest advantages of living in the rural areas. Both rural and urban residents reported that they felt more comfortable eating the food that they had produced on their own.

3.3.1.4 Diversity of food

All four urban residents in Urumqi and three-fourth of the Altay residents reported that they had increased their vegetable consumption in recent years. The reasons for this change were that they were “influenced by local Han people” and to “follow the doctor’s advice.” Most rural residents did not report how they actually increase their food diversity but commented positively on increasing food diversity as part of a better life.” I think our traditional diet is good . . . . Now our lives have become better, and we can have flour, rice, and vegetables. I think food diversity is good, too.” (Rural, 73)

As one participant stated, food accessibility, work, and life style all determined the dietary model. When it is possible to have different kinds of food, they “should consider the diversity of food—not only eat rice, wheat, vegetables or only eating meat
and milk, we should balance our diet” (Rural, 63). In contrast, her urban sister did not particularly point out the diversity, only mentioned, “Doctors suggested that we eat more fruits. But we didn’t change our habits.”

The food safety concern is the main barrier to food diversity. Many participants mentioned that though adding vegetables or fruits into their diets to complete nutrition balancing goal, the food safety issue might reduce the benefit of a balanced diet,

“Now we learned to have veggies in our diet like Han people. It is because of promoting balanced nutrition, but now we can only eat vegetables grown using chemical fertilizers. I think there is not much benefit to this but it only destroys our previous habit.”

3.3.1.5 Regular meal times

Participants reported that traditionally they were more likely to have irregular meal times and to eat a big dinner right before bed. The irregular time was commonly considered a negative part of the traditional diet. Comparing rural and urban meal times, it was found that more urban participants were able to control the time and portion of each meal. The irregular meal times and irregular portions primarily affected the rural participants:

“Our diet has one feature, which is irregular. We eat too little at this meal and too much at another meal. We skipped lunch because of the heavy farm work or to have dinner right before bed. It happens a lot. The irregular meal times make people feel
incredibly hungry and eat a great deal—especially when cooking meat for dinner. It can be done right before bed, and we eat a lot and go to bed with a full stomach. I think the irregular diet is bad for our health.” (Rural, 63)

3.3.2 Physical activity

Physical activity was mentioned a great deal in “how to maintain health,” “what do you think may cause disease,” and “what is the difference between rural and urban?” Most participants agreed that physical activity was important to health. Physical activity was thought to have been reduced because of lifestyle changes, and it negatively influenced body strength.

“We used to move all year around, riding horses or camels and taking care of animals. Now people do not need to do this, and their bodies are weaker. When I was young, I had better physical strength than the young do now” (Rural, 73).

Physical activity’s effect on health was also strongly related to diet. A few participants (both from rural and urban) reported that there was more obesity in recent years in the Kazakh community. Many mentioned that the cause of certain non-communicable diseases was related to obesity and could be explained by both diet and lack of physical activity,

“Later we had better living conditions … and can relax more. The habit of eating a great deal when working hard did not change after the workload had largely dropped, especially the amount of meat consumption. People used to eat a lot meat and have a
great deal of physical output. And it (meat consumption) was seasonal. Now we eat much meat, but little consumption. Therefore, we have more and more obesity, hypertension, and hyperlipidemia” (Rural, 70).

The habit of exercising was different between rural and urban residents. Most urban residents viewed exercise as important to staying healthy. Most urban residents exercise regularly, and many could report the distance and time they walk or exercise. A few reported that they do not exercise, but taking care of their grandchild and doing housework could be considered physical activity. The major barrier to urban residents engaging in regular exercise was usually a physical reason, such as leg pain.

In contrast, fewer rural residents reported engaging in exercise than urban residents did. The reasons for less exercise were “the elders do not do much work,” “the agriculture machine relieves their work,” “do not have time,” and “lack of awareness compared to other ethnic groups.” Even without a regular physical exercise plan, rural residents thought they could be engaging in more physical activities than urban residents did. One rural participant also reported that they had more work, that they do not have time, and that they do not need to do exercise. He stated, “It is not a proper question (Do you exercise regularly?) for us rural residents. We spend all day doing chores. Those are not hard or tiring, but trivial. We don’t have time for exercise particularly, but what we do could be considered a type of exercise” (Rural, 57).
Rural residents may have greater physical ability due to participating in greater amounts of daily work. Two rural residents reported similar statements, such as “still can ride a horse,” whereas their brothers could not do much physical work. Two urban residents said their sisters living in rural areas had better physical ability than they did because they actually have more physical work to perform,

“When I visited my younger sister, I helped with moving the bucket full of milk when milking. Moving the same distance, I need to rest five times, whereas my sister, only 2 years younger than me, could move without needing to rest. Thus, I think people living in urban areas have less physical strength and less physical fitness than rural people do . . . I think rural people are stronger. They have more space around the residence and more daily physical activity. Even going to the restroom is stretching (outdoor restroom”) (Urban, 72).

3.3.3 Receiving health information

The majority of participants reported that they had learned some health information. The age and health condition changes were the reasons cited for caring about health information. One participant also said that she cared about health information because she wanted to live longer for her grandchild,

“I pay much attention to it (health information). I want to live longer and watch my grandson grow up. I listen to doctors’ advice and consultations. I watch TV programs at home” (Rural, 78).
Participants reported multiple ways of receiving health information, including television, radio, consultations from health professionals, from books, and from the community center. The most common way of receiving health information was consulting with health professionals for both rural and urban residents. More urban participants reported receiving more health information from the community health center. They also indicated that they discussed health information and sought out health information more than did the rural residents. More rural residents in better health reported that they did not particularly care about health information and did not receive or seek out such information.

3.3.4 Health care quality and access

Distance, transportation convenience, and trust in health care providers all formed the health care seeking behavior. Seventeen of 24 participants reported that they used more local hospitals or clinics. All Urumqi urban residents seek care in Urumqi hospitals, which were considered the highest quality in the Xinjiang area. They all reported being satisfied with the health care service in the local hospitals. They also mentioned that it might be harder for people who were not Urumqi residents to seek care in Urumqi hospitals. Three Altay urban residents preferred Altay district hospitals, which can “fulfill my needs.” One went to an Urumqi hospital because of the familiar health care provider there. Half of Fuyun participants used local hospitals for
“convenience” and to “fulfill my needs,” and half often went directly to hospitals in Altay or Urumqi because “county hospitals lack experienced doctors.”

Rural residents reported receiving care in the local clinic and the nearest county hospitals. They all commented that local clinics were a “convenience but only for minor illnesses.” Some rural residents with better transportation methods (direct bus to city, owning a car) would prefer going to county or city hospitals directly. Insurance was one determinant of choosing a place of care, as some of them choose a local hospital because of a higher reimbursement rate. Cash flow and transportation are the barriers for rural residents to get timely health care. They reported using self-diagnoses and self-treatment when they could not go to a health care provider.

3.3.5 Working at an early age

All rural participants work in agriculture and animal husbandry. Most rural participants reported that they had to engage in hard work at early age. They reported that they had experienced of “heavy workload” and “long periods working in cold weather.” Many of them believed the hard work, especially in bad weather in their early years, had bad consequences in their later life, especially as it might have caused arthritis and joint pain.

More urban participants had a professional job such as teacher, journalist, or veterinarian. A few of them reported that in their younger years, their job had required much outreach work and had also come across bad working condition such as “walking
in a freezing cold river." Some reported that the heavy stress of work might influence their health. Fewer urban residents reported their work might have lead to bad consequences in later life.

3.3.6 Environment

Many urban residents, especially in Urumqi and Fuyun, said the environmental pollution and environmental degradation was one reason for their bad health.

The urban residents’ comments on their residence’s environment depended on the cities. Urumqi residents said the air was highly polluted by industry pollution and motor vehicle exhaust stemming from the city’s growth. They mentioned that the bad air quality made them feel sick. However, three of them said that air quality had become better in recent years because the city had switched from using coal to natural gas as a main heating source. The smaller living space was mentioned due to more people now living in Urumqi. Two participants reported that they were “feeling bad” or “depressed” by the “shrinking space available for living.” The water quality was not a concern, as most of them trusted the quality of the tap water. Altay residents said their environment was good enough overall, but the fact that more people were now living in the city might lead to greater amounts of pollution. Fuyun residents said that their environment had become degraded in recent years because more trees were being cut and more waste was being produced. The water quality was a concern for Fuyun residents. Some of them had heard that the nearby industry polluted the river. One
participant said that he had heard from a doctor in Urumqi that Fuyun had a high cancer prevalence rate and that this might be related to water pollution.

There was high homogeneity in all rural residents’ comments, although they might live very far away from each other. All of the rural residents described the environment as good, except some said that the climate was drier than it had been previously. They, including their urban siblings, described the major advantage of living in a rural area is having a better environment such as “fresh air” and “more living space.” For those who did not have tap water, they reported concerns about the well water and wanted running tap water.

3.3.7 Social engagement

Most participants reported a high interest in social engagement. Most of them were proud of the Kazakh people’s reputation of hospitality and indicated they would love to engage in busy social lives. Wedding, funerals, and banquets were some events composing social engagement. Losing physical abilities and losing their peers were factors affecting social engagement. Some of them would ask their children to provide transportation to some social events. Those who had physical limitations attended fewer events outside but were satisfied by having relatives visit them. Rural residents have more social engagement with Kazakh neighbors and friends living in the same village and with relatives living in other places. Urban residents could engage socially in the park when doing exercise except social engagements mentioned above.
3.3.8 More factors influence health

A few other factors were mentioned as having affected their health and underlying their health beliefs. Drinking and smoking were mentioned as potential risk factors for chronic diseases. Receiving timely health care was mentioned and thought to be a limitation for rural residents. Genetic factors were mentioned by a few participants as their reasons for acquiring certain diseases. Some participants said it was important to maintain a good disposition to stay in good physical health. Both rural and urban participants mentioned those factors.

3.3.9 Mental health

The residences seem not to be directly related to mental health status, though some urban residents reported feeling “depressed because of limited space available for living.” Physical health conditions, income, and social supports are significant to mental status. The two rural participants who had a high risk of experiencing poor mental health have limited support from family, low income, and poor physical health status. Both of them said they have lost one son. One rural participant talked about she lost her one eye sight probably because she cried too much when she lost her son and she experienced a lot of pain recently which affect her sleep (age 73). The other participant, though not mentioned during the interview, talked to the translator about her current condition, which she was the only caregiver of her grandson (before school age) because her son and daughter-in-law were not able to take care of their son. She was also the
only one expressed “there was nothing good living in rural areas” (age 78). Other who had medium risk also had worse physically ability generally, but no significant evidence can be detected in qualitative interviews.

### 3.3.10 More comparison between rural and urban areas

There were a few more advantages and disadvantages mentioned when asked to comment in greater detail (food safety, physical activity, health care, work, and environment).

**Urban**

Urban residents reported that they were less economically limited than rural participants were. Both rural and urban participants agreed that it was convenient living in urban area because they had more diverse food and merchandise choices and better health care access. They also said it was easier to live in urban areas, as they did not need to spend much time on chores. Urban residents said they were more informed and had altered their diets and increased their physical activity. Most loved being retired better in the city, except one who was still working wanted to move back to rural area after retirement.

**Rural**

Most rural residents preferred living in rural areas except one. They reported they had “better environment” and “could produce what we eat by our hands, so it was much safer.” They felt unused to urban life because of the air and space in urban areas. The disadvantage of living in rural areas included high intensity and physically
demanding work, inconvenience of buying goods, and worse health care access. A few mentioned that they look older than elders who were living in urban areas because of the long time spent outdoors working.

“Our lifestyles are quite different. I still take care of animals and do chores, and my children are now grown up. My elder sister is a teacher and also has heavy work, but she didn’t have that much physical work. I look even older than she does” (Rural, 73)
4. Discussion

The study provided some degree of evidence that there could be a health status and perception difference between rural residents and rural-urban migrants in later life. From a qualitative perspective, we investigated the difference and distinction in an ethnic minority group in Western China. From the interviews, the participants reported their life had improved in the past but that there was a big gap between rural and urban areas. Overall, the rural-to-urban migrants have many advantages compared with their counterpart siblings. The urban residents have nearly four times the income and the twice education compared with their rural residents, which indicates a huge difference in socioeconomic status. Rural residents tend to suffer from more medical conditions in selected diseases (myocardial infarction, fracture, hypertension, asthma, chronic bronchitis, and mental health risks) but no statistical difference could be tested due to the small sample size of this study.

Examining the education time and reason of migration, the selectivity related more to socio-economic factors though the initial health difference cannot be eliminated. The cumulative effect of living in the current urban or rural residence seems to be crucial in determining health in later life. The health condition upon migration or younger age was not asked because there could be a strong recall bias.

Previous study shows urban residents often have better mental health status and marriage, social activities had positive effect on mental health (Tian, Chen, Zhu, & Liu,
The study shows the long-time rural to urban migrants may also have better mental health condition and social activities may also part of the reason. Urban residents who worked in a unit will have had colleagues, which is one part of social support that rural residents do not typically have. But upon retirement, social supports come mostly from family, relatives, and friends, which is not much different from what is found among rural residents. Social engagement is limited by physical health status, as they cannot go out to any social event but rely on people visiting them, which may be part of the reason that those with worse physical health have worse mental health.

Even armed with similar health information, rural residents and urban residents demonstrate different health behaviors. The attitudes about a traditional diet are very diverse and do not differ by rural-urban areas. With the information on food diversity and more diverse food availability, some participants still preserve a traditional diet structure. It seemed as though they were physically incapable of changing their eating behaviors. Among these participants, the cultural value and health information together shaped their eating behaviors. A similar degree of urban residents eat a traditional diet as do rural residents, though the former group has different food access and lives in a culturally diverse environment. It could be explained that the migrants at times exaggerated their original cultural practice as part of adapting to a new environment (Helman, 2007). Food availability should be a motivator for diet change; however, food safety, or the preference of “natural food,” was a barrier to diet change. The attitudes on
dietary and nutrition are similar between brothers and sisters, which may due to their frequent contact and desire of having similar opinion with their siblings.

Health care access shows the strongest disparity between rural and urban areas. Primary health care may be enough for most rural and urban residents. However, higher quality and wider choice exist only for urban residents because of geographic accessibility and transportation—especially for residents in larger cities. Previous studies showed in China temporary migrants workers faced barriers in seeking health care (Hesketh, Ye, Li, & Wang, 2008; Wei et al., 2009) and the “healthy migrant effect may diminished in the long-term because of limited health care (Hesketh et al., 2008). However, for urban participants in our study, they did not experience barriers related with hukou status for most of their urban living which allowed them to access urban health care without those barriers presented for migrant workers. As a result, for the larger rural-urban migrant population, the health care in the city could be a benefit if the barriers were eliminated. Rural residents however have greater limitations of time, finance, transportation, and insurance. The insurance for rural residents, normally “New Cooperative Medical Scheme” (NCMS), has been proven to promote health access (Dai, Zhou, Mei, Wu, & Mao, 2011), but the difference of rural and urban health care still persists in the quality and access.

Overall, the information gap is relatively low, and the perception difference is small between rural residents and urban migrants. However, personal socioeconomic
capacity and easy access to certain essentials are much different between rural and urban residents, which creates the disparity in health status in later life. The study implies that elder health, especially in rural China, still faces challenges regarding access to health care and essentials. For urban migrants, their problem stems from a more sedentary lifestyle added to the traditional high-calorie diet.

This study’s strength is that it is the first qualitative study conducted on any health-related topic in this population. It combines the ethnic culture aspect with the challenges related to urbanization and modernization. It also demonstrates the challenges that seniors have in both rural and urban areas. The coding process also used two researcher to reduce bias and information lost in the coding process.

The limitation of this study is that it does not combine any quantitative study and therefore cannot provide a clear comparison of health status between the two groups of people. The initial selectivity of health status cannot be ruled out in this retrospective view. All the disease history were self-reported, which could result in recall bias.
5. Conclusion

The rural-urban distinction remains significant in Western China, which may create difference in health status and perception between rural residents and rural-urban migrants in later life. The income gap and difference in access to healthcare should be reduced. The health information should be made more easily access in rural areas.

This study also gave a view of urbanization’s challenge for people living in rural and urban areas respectively. For urban residents, the public space of exercise is important to motivate people reduce sedentary lifestyle. The pollution still acts as a concern for living in urban area which should be tackled in the future. For rural residents, the better health care access and better access to other life essentials are important to increase their quality of life.
Appendix A

Questionnaire:
One、Demographic information（All Adults）
1 Birthday _______year______month______day
2 Sex
   1. Male
   2. Female
3 Who live with
   1. Father
   2. Mother
   3. Spouse
   4. Son
   5. Daughter
   6. Nurse
   7. Alone
   8. Other Specify_______
4 What you marriage status
   1. Single
   2. Married
   3. Divorced
   4. Widowed
   5. Separated
   6. Other
5 How long is your education
Two、Occupational Background
1. Do you have a job now?
   0 No
   1 Yes（Jump to 3）
2. Why do you away from job?
   1 Retirement
   2 Housework
   3 Disease
   4 Others（Specify: _____________）
3. How much is your income every month on average in the previous year? （yuan）
4. What’s your role in this work?
   1 Self-employed with hiring
   2 Self-employed without hiring（including peasant）
   3 Permanent worker hired by others
   4 Contract worker hired by others
   5 Temporary worker
   6 Domestic worker with salary
   7 Domestic helper without salary
   8 Other（Specify: _____________）
Three、Smoking and drinking history
1. Have you ever smoked? (Including cigarettes and pipe)
   0 Never (Jump to 6)
   1 Yes
   9 DON’T KNOW (Jump to 6)
2. How old were you when you start to smoke?
3. Do you still smoke?
   0 No (Jump to 5)
   1 Yes
   9 DON’T KNOW (Jump to 5)
4. How many cigarettes a day?
5. How long have you stopped? (months)
   * DON’T KNOW=99.
6. Have you drink alcohol?
   0 No (Jump to next part)
   1 Yes
   9 DON’T KNOW (Jump to next part)
7. What kind of drink do you have?
   1 White spirit
   2 Wine
   3 medical liquor
   4 Rice wine/ yellow wine
   5 Beer
8. How often do you drink?
   1 Everyday
   2 3-4 times per week
   3 1-2 times per week
   4 1-3 times per month
   5 less than once a month
   9 DON’T KNOW
9. How long have you drink regularly? (year)

Four、Social support scale
The following questions are measuring how much social support you receive.

<table>
<thead>
<tr>
<th>1. How many friends do you have you can receive help from? (Single choice)</th>
<th>None</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3-5</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
2. In the past year: (Single choice)  
<table>
<thead>
<tr>
<th>Choice</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live alone without family member</td>
<td>0</td>
</tr>
<tr>
<td>Move a lot, surrounding by strangers</td>
<td>1</td>
</tr>
<tr>
<td>Live with schoolmates, colleagues or friends</td>
<td>2</td>
</tr>
<tr>
<td>Live with family member</td>
<td>3</td>
</tr>
</tbody>
</table>

3. Neighbors: (Single choice)  
<table>
<thead>
<tr>
<th>Choice</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don’t care about each other</td>
<td>0</td>
</tr>
<tr>
<td>Care when you have difficulties</td>
<td>1</td>
</tr>
<tr>
<td>Some neighbors care about you</td>
<td>2</td>
</tr>
<tr>
<td>Most neighbor care about you</td>
<td>3</td>
</tr>
</tbody>
</table>

4. Colleague: (Single choice)  
<table>
<thead>
<tr>
<th>Choice</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Don’t care about each other</td>
<td>0</td>
</tr>
<tr>
<td>Care when you have difficulties</td>
<td>1</td>
</tr>
<tr>
<td>Some colleagues care about you</td>
<td>2</td>
</tr>
<tr>
<td>Most colleagues care about you</td>
<td>3</td>
</tr>
</tbody>
</table>

5. In the past, when you need help, where can you receive finance help and substantive help  
<table>
<thead>
<tr>
<th>Choice</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>No resources</td>
<td>0</td>
</tr>
<tr>
<td>Spouse</td>
<td>1</td>
</tr>
<tr>
<td>Other family members</td>
<td>2</td>
</tr>
<tr>
<td>Relatives</td>
<td>3</td>
</tr>
<tr>
<td>Colleagues</td>
<td>4</td>
</tr>
<tr>
<td>Employer</td>
<td>5</td>
</tr>
<tr>
<td>Official organizations</td>
<td>6</td>
</tr>
<tr>
<td>Un-official organizations</td>
<td>7</td>
</tr>
<tr>
<td>Other (specify)</td>
<td>8</td>
</tr>
</tbody>
</table>

6. In the past, from whom do you receive emotional support?  
<table>
<thead>
<tr>
<th>Choice</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>No resources</td>
<td>0</td>
</tr>
<tr>
<td>Spouse</td>
<td>1</td>
</tr>
<tr>
<td>Other family members</td>
<td>2</td>
</tr>
<tr>
<td>Relatives</td>
<td>3</td>
</tr>
<tr>
<td>Colleagues</td>
<td>4</td>
</tr>
<tr>
<td>Employer</td>
<td>5</td>
</tr>
<tr>
<td>Official organizations</td>
<td>6</td>
</tr>
<tr>
<td>Un-official organizations</td>
<td>7</td>
</tr>
<tr>
<td>Other (specify)</td>
<td>8</td>
</tr>
</tbody>
</table>

7. Who do you tell about your worry? (Single choice)  
<table>
<thead>
<tr>
<th>Choice</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never talk about it</td>
<td>0</td>
</tr>
<tr>
<td>Only tell 1-2 close persons</td>
<td>1</td>
</tr>
<tr>
<td>Tell friends if they askes</td>
<td>2</td>
</tr>
<tr>
<td>Actively talk about it to receive help</td>
<td>3</td>
</tr>
</tbody>
</table>
8. How do you do if you are worried? (Single choice)

- Rely on myself: 0
- Seldom ask for help: 1
- Often ask for help: 2
- Ask help from family, friends, organizations: 3

9. For organizational activity (Single choice)

- Never attend: 0
- Sometimes attend: 1
- Often attend: 2
- Actively attend and organize: 3

10. Support and care from family member (check appropriate with “√”)

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Little</th>
<th>Normal</th>
<th>Strong support</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1</td>
<td>Spouse</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.2</td>
<td>Parents</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.3</td>
<td>Children</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.4</td>
<td>Siblings</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10.5</td>
<td>Others (exp. Sister-in-law)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Five, K10 Scale**

The following scale asks about your mood in the past 30 days. Please specify how often you feel like that.

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
<th>DON’T KNOW</th>
<th>Refuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>K10 _01 Do you feel tired out for no good reason?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>K10 _02 Do you feel nervous?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>K10 _03 Do you feel nervous that nothing can calm you down?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>K10 _04 Do you feel hopeless?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>K10_05</td>
<td>Do you feel restless or fidget?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>-----</td>
</tr>
<tr>
<td>K10_06</td>
<td>Do you feel so restless that you could not sit still?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>K10_07</td>
<td>Do you feel depressed?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>K10_08</td>
<td>Do you feel so depressed that nothing can cheer you up?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>K10_09</td>
<td>Do you feel everything is an effort?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>K10_10</td>
<td>Do you feel worthless??</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>K10_11</td>
<td>The last 10 questions asked about the last 30 days. Do you feel you have more time in this mood in the last 30 days?</td>
<td>More than normal</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less than normal</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Six. Activities of daily living**

The following questions are about activities of daily living. Please think about difficulties conducting them and how much limitation do you have.

<table>
<thead>
<tr>
<th>1. Strong limitation</th>
<th>2. Little limitation</th>
<th>3. No limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Intense physical activity, like running</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2) Normal physical activity, like Taichi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Lifting everyday use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(4) Climb several floors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(5) Climb one floor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(6) Bow, bend knee, squat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(7) Walk 1500 meters or above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(8) Walk 1000 meters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) Walk 100 meters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10) Take shower</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Seven. Disease history**

1. Do you have hypertension?
   - 0 No (Jump to 4)
   - 1 Yes

2. How long were you diagnosed?
3. Are taking medication?
   0 No
   1 Yes

4. Do you have diabetes?
   0 No (Jump to 6)
   1 Yes

5. How old were you when you are diagnosed?

6. Do you have myocardial infarction?
   0 No (Jump to 9)
   1 Yes

7. How old were you when you have myocardial infarction?
   *Record the nearest one. Don’t know record as 99*

8. Did you have stroke?
   0 No (Jump to 10)
   1 Yes

9. How old were you when the first stroke happened?

10. Do you have tumor?
    0 No (Jump to 13)
    1 Yes

11. Do you know what type of tumor?
    0=No, 1=Yes, 9=DON’T KNOW
    (1) Lung tumor
    (2) Stomach tumor
    (3) Liver tumor
    (4) Esophagus tumor
    (5) Colon tumor
    (6) Breast tumor
    (7) Cervix tumor
    (8) Lymphoma/leukemia
    (9) Scrotum tumor
    (10) Melanoma
    (11) Skin cancer
    (12) Brain tumor
    (13) Uterus tumor
    (14) Prostate tumor
    (15) Bone tumor
    (16) Other (specify______)

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12. How old were you when you were diagnosed tumor?

13. Do you have fracture?
   0 No (Jump to 16)
   1 Yes
   9 DON’T KNOW (Jump to 16)

14. How old were you when first fracture?

15. How many time of fracture do you have?

16. Do you have asthma?
   0 No (Jump to 19)
   1 Yes
   9 DON’T KNOW (Jump to 19)

17. In the past 12 months, do you have noise when breath?
   0 No (Jump to 19)
   1 Yes
   9 DON’T KNOW (Jump to 19)

18. How long do you have asthma?

19. How do you rate your life now?
   1 Very good
   2 Good
   3 Normal
   4 Bad
   5 Very bad
   9 DON’T KNOW

<table>
<thead>
<tr>
<th>Statement</th>
<th>1 Strongly disagree</th>
<th>2 Disagree</th>
<th>3 Neutral</th>
<th>4 Agree</th>
<th>5 Strongly agree</th>
<th>9 DON’T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am as energetic as before</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am as happy as I was young</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I get older, something is better</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Appendix B

Interview guide

When did you leave your home? What was the reason of migration? What kind of opportunity do you get because of migration?

Can you describe what kind of job you do/did?

How do you feel about physical environment in your current community?

How do you feel about the public service facilities (e.g., public schools, libraries, hospitals, and other social services, senior centers, meals on wheels)?

How do you feel about the pollution (e.g., air, water, and food safety)?

How is your diet change in recent years?

What do you think of traditional diet?

Do you have regular exercise?

What do you think about health care service here? (Do you have regular preventive care?)

How do you feel about relationship with your family members/neighbors/relatives/others?

What else do you think influence your health?

What’s the advantage of living in rural areas, comparing with your brother/sister?

What’s the disadvantage?
References


Liu, M., Zhang, Q., Lu, M., Kwon, C. S., & Quan, H. (2007). Rural and urban disparity in health services utilization in China. *Med Care, 45*(8), 767-774. doi:


