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## Social Capital Associated with Quality of Life Mediated by Employment Experiences: Evidence from a Random Sample of Rural-to-Urban Migrants in China

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### Abstract

Working-age migrants need to possess adequate social capital in order to secure a stable and satisfactory job so that they can pursue a better quality of life (QOL). The positive relationship between social capital and vocational experiences, including successful employment, has been well established. In this study we focused on testing a multi-step mediation model linking social capital with employment experiences, and further to QOL. Survey data from rural-to-urban migrants randomly selected from Wuhan, China were analyzed. Social capital, including bonding and bridging capital, was measured using the Personal Social Capital Scale; employment experiences were measured using five job-related items; and QOL was measured using the Brief Symptoms Inventory. Structural equation modeling analysis indicated that job security and job satisfaction were positively and significantly associated with QOL, and social capital measures were significantly associated with higher QOL (primarily for males). Furthermore, job security and job satisfaction fully mediated the relationship between social capital and QOL after controlling for covariates. Findings of this study suggest the significance of social capital, job security and satisfaction in improving migrants' QOL, implying the importance of vocational experiences in mediating the effect from social capital to QOL. If the findings can be confirmed with longitudinal data, these factors should be considered in decision making to improve rural-to-urban migrants' QOL in China.

### Keywords

Social capital; Quality of Life (QOL); Employment; Domestic Migrants; China

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## 1. Introduction

A primary goal of human activity is to achieve a high quality of life (QOL) (Mularska-Kucharek 2015; Barcaccia 2013; Burckhardt and Anderson 2003). QOL is generally accepted as an individual's sense of physical, psychological and social *well-being*, and it represents one of the most significant indexes of subjective perceptions of an individual's position and status in a society (WHOQOL Group 1995). A widely recognized factor associated with high QOL is social capital (Halpern 2005; Hawe and Shiell 2000; Requena 2003; X. Chen et al. 2011; Hassanzadeh et al. 2016; Karimzadeh 2013). Postulated as *social adhesives*, social capital, consisting of bonding and bridging social capital, is operationally characterized as durable, trustworthy, reciprocal and resource-rich network connections (X. Chen et al. 2009). Social capital thus functionally links individual human beings to the society through its bonding and bridging mechanisms (Watanabe et al. 2014; X. Chen et al. 2009; Son and Lin 2008; Lin 1999), facilitates purposeful human activities through information and resource sharing (Coleman 1988; Putnam 2004; X. Chen et al. 2011), and enhances life satisfaction through mutual trust and reciprocal support (Coleman 1988; X. Chen et al. 2009; Putnam 2004; Halpern 2005; De Silva et al. 2005). Consequently, development of social capital may represent one of the best approaches to improving QOL.

One factor that is closely related with social capital for the working-age populations is vocational experience, including employment conditions and job satisfaction. Adequate social capital can enhance opportunities for employment through information sharing and mutual support (Ommen et al. 2009; Halpern 2005; Mouw 2003; Erickson 2001). The workplace represents an institutional social setting ideal for employees to better achieve their goals with the assistance of adequate social capital (Leana and Van Buren 1999; Leenders and Gabbay 2013; Cohen and Prusak 2001). The workplace also provides an ideal setting for employers to create a quality cultural and social life, cultivating social capital for both work efficiency and employee satisfaction (Mularska-Kucharek 2015; Ommen et al. 2009). Therefore, understanding the mechanisms linking social capital to employment and job satisfaction and further to QOL will be of great significance to enhancing vocational experience and to promoting health and well-being in the workplace (Hawe and Shiell 2000; De Silva et al. 2005).

In supporting the conceptual frameworks described above, positive relationships between social capital and QOL are frequently reported in the literature. Data collected from different countries have shown positive social capital – QOL relationships among general populations (Hassanzadeh et al. 2016; Islam et al. 2006; Rogers et al. 2011; Karimzadeh 2013; Abdul-Hakim et al. 2010), children (Drukker et al. 2003) and the elderly (Lucumi et al. 2015; Kim and Harris 2011; Wahl et al. 2010), hospitalized patients (Hu et al. 2015) and people living with HIV/AIDS (Ma et al. 2012), and even volunteers (Watanabe et al. 2014). A few studies have also reported a relationship between social capital and QOL among migrant populations (Kim and Harris 2011; X. Chen et al. 2009; X. Chen et al. 2015a). Further studies are needed to investigate the mechanisms linking social capital to vocational experience and further to QOL among working-age populations.

Migrants represent an ideal working-age population to investigate the relationship between social capital, vocational experiences and QOL. Migrants experience substantial reduction in social capital after leaving their place of origin (Schiff 1992). They have to rebuild their social capital in their new destination to search for jobs and establish a new life (X. Chen et al. 2011). The large number of rural-to-urban migrants in China provides a window of opportunity to examine the relationship between social capital and QOL, including mechanisms by which social capital links to QOL through employment conditions and job satisfaction. Such knowledge is of great significance for social capital theory-based interventions to improve QOL for the rural-to-urban migrant population in China as well as domestic and international migrant populations in general.

### 1.1 Employment as a prerequisite for QOL among migrants

Migrating to a new place is a stressful and challenging process. The first and most urgent thing migrants have to do is to find a job to earn money. If a migrant fails to find a job or loses his/her job, he or she could be struggling to survive, leading to a poor QOL. Previous studies have reported that unemployment is significantly associated with poor mental health in both migrants and the general population (L. Chen et al. 2012; Paul and Moser 2009), suggesting the significance of secure employment in promoting QOL for people of working-age. In addition, for most migrants, having a job and creating work-related inter-personal interactions is the primary social process by which they adapt and integrate themselves into the society in their new destination (Aycan and Berry 1996).

The type of job a migrant is able to find may affect his/her subjective well-being. Among various employment-related factors, job security is of particular significance. Lack of job security is a sense of no assurance of employment continuity and a lack of self-control of the employment conditions (T. M. Probst 2003). The QOL of an individual might not be high if he does not feel that he is in control of his employment status and is always worried about losing his job. For example, a prospective cohort study among 3,360 white-collar office workers revealed that moving from more secure jobs to less secure jobs was associated with poor self-rated health, greater risk of hypertension, and increased odds of depression (Ferrie et al. 2002).

The QOL might not be high if workers are not satisfied with their current job (Faragher et al. 2005; Cimete et al. 2003). When individuals feel satisfied in their work, they will be much more likely to enjoy their job, keep a good mood, and have fewer health problems, leading to an overall better well-being (Cimete et al. 2003). Many factors negatively affect job satisfaction, including a high demand job with low pay, a lack of opportunities for promotion, and poor relationships with co-workers (Erlinghagen 2008; Vandenberghe et al. 2011; Ferrie et al. 2002; Faragher et al. 2005; Cimete et al. 2003). Among these factors, having a secure job is of great significance (De Witte and Näswall 2003; Buitendach and De Witte 2005; Guest and Conway 1997; Cimete et al. 2003). People tend to secure a job they like, and working on a job a person likes is associated with high job satisfaction (Tahira M Probst et al. 2002). On the other hand, the threat caused by the possibility of unemployment prevents workers from feeling satisfied in the workplace. For instance, compared with workers with secure jobs, workers with insecure jobs are less likely to feel satisfied with

current salary and opportunities for promotion (Tahira M Probst et al. 2002). Furthermore, people with a secure job have stronger feelings that they are under control of their employment and are less likely to worry about losing their job, enhancing job satisfaction (De Witte and Näswall 2003).

Lastly, people with insecure or unsatisfying jobs are more likely to have a heightened intention for job change and to spend more time and efforts on job searching (X. Chen et al. 2011; Egan et al. 2004; Sverke et al. 2002; Tahira M Probst et al. 2002). Intending to change jobs and job searching are both highly stressful, distracting a person from focusing on their current job, and reducing their time and effort focused on enjoying life. As a result, people who are consistently looking for jobs are more likely to have poor QOL (Vandenberghe et al. 2011). A longitudinal survey study reported a negative relationship between intention to change jobs and QOL among newly employed participants (Vandenberghe et al. 2011).

## 1.2 Social capital enhances employment for better QOL

Personal social capital can exert significant impact on employment and vocational experience (Seibert et al. 2001; Requena 2003; Erickson 2001). Individuals who possess a greater amount of social capital have more opportunities to receive information regarding new jobs, reducing the stress of job-searching (Requena 2003; X. Chen et al. 2009; Drukker et al. 2003). For people who are temporarily unemployed, adequate social capital may help them successfully cope with the situation to maintain good QOL because more social capital means more emotional, instrumental and social support to deal with the stress and also more resources and information to help with job searching (Seibert et al. 2001; Erickson 2001).

In addition, social capital could improve QOL by enhancing job security and job satisfaction, and by reducing intentions to change one's job (Seibert et al. 2001; Requena 2003; Leana and Van Buren 1999; Ommen et al. 2009). Adequate social capital makes a worker feel more competent, more self in controlled, more successful, and more secure and satisfied with their job (Seibert et al. 2001; Requena 2003; Leana and Van Buren 1999; Ommen et al. 2009). For example, research findings indicate that office workers with more social capital have broader network connections in an organization, including vertical connections with leaders and supervisors, and horizontal connections with colleagues, giving them feelings of high levels of job security, stability and satisfaction (Woolcock and Narayan 2000; Leana and Van Buren 1999; Ommen et al. 2009). Possessing adequate social capital in the workplaces with an enhanced perception of job security and satisfaction may reduce the likelihood that one may consider changing their jobs, further reducing stress and enhancing QOL (Vandenberghe et al. 2011; Flap and Völker 2001).

When migrants leave home, their network connections rooted in their place of origin will be substantially weakened, if not totally lost. Major connections include, but are not limited to family, relatives, close friends, social groups and various organizations in their hometown, constitute the backbone of a person's social capital (X. Chen et al. 2009; X. Chen et al. 2011). When migrants settle down in their new destination, they face numerous uncertainties and challenges, forming an invisible barrier between them and the local society in the new destination. Migrants must break the barrier and interact with people, organizations and the new society in order to build new relationships—to reconstruct their social capital (X. Chen et

al. 2011). Not only can social capital reconstruction facilitate migrants' integration into the society at the new destination, it may also increase the chance for them to find a secure and well-paid job.

### 1.3 Models linking social capital and employment to QOL among migrants

Evidence presented in Sections 1.1 and 1.2 suggests a potential mechanism by which vocational experience mediates the relationship between social capital and QOL. A wealth of studies presented in Section 1.2 support the significance of adequate social capital in improving both vocational experiences and QOL, while a number of studies presented in Section 1.1 further demonstrate a strong positive relationship between various vocational experiences and QOL. Consequently we proposed a mediation model with social capital as the predictor variable  $X$ , vocational experience as the mediator variable  $M$ , and QOL as the outcome variable  $Y$  (Figure 1). This model consists of two effect paths, a direct path assessing the association between social capital and QOL after considering the impact of the mediator  $M$ , and an indirect path linking social capital to QOL through the bridging effect of a measured vocational experience. The mediation effect model we proposed for this study has been commonly used in health behavior research (Chen X, et al, 2006; Wang and Chen 2015).

To the best of our knowledge, no published study to date has investigated the mediation models we proposed. If the proposed mediation model is supported by data, such analysis will unify the research findings from the published studies regarding the relationship between social capital and vocational experience with those regarding the relationship between vocational experience and QOL. In addition to adding new knowledge, such mediation modeling analysis will provide new evidence supporting decision making and intervention programs to enhance social capital and QOL in the workplace.

### 1.4 Rural-to-urban migrants in China

China has witnessed the rapid economic growth since the reform that started in the 1980s. A large and increasing number of farmers have migrated from their rural homes to urban areas to earn money while contributing to the economic growth (Lu and Song 2006). However, relative to the population in general, migrants may experience much lower QOL and more health-related problems (Zhu et al. 2012). The total number of rural-to-urban migrants exceeded 260 million in 2014, and ways to improve their QOL presents a great public health challenge (X. Chen et al. 2015c; National Bureau of Statistics of the People's Republic of China 2014). This large number of rural migrants also provides a window of opportunity to test the proposed mediation model that links social capital, employment and QOL. Findings of such studies are urgently needed for researchers as well as decision-makers to develop and deliver relevant policies and intervention programs to rural migrants to build social capital and to enhance QOL.

### 1.5 Purpose of this study

The purpose of this study is to test the hypothesized mediation model that links social capital, employment experiences, and QOL, and to demonstrate the significance of social capital in improving QOL among rural-to-urban migrants in China. The ultimate goal is to

provide new data advancing our understanding of the mechanisms by which social capital links to employment experience, and further to QOL among rural migrants, and to support further empirical research targeting vocational experiences to improve QOL among the migrant population in general and rural migrants in China in particular.

## 2. Materials and Methods

### 2.1 Participants and sampling

Data for this study were collected from a large random sample of rural-to-urban migrants. Details regarding the study population and sampling procedures were described elsewhere (X. Chen et al. 2015c). Briefly, the participants were legal rural residents 18–45 years old, who moved to Wuhan City to earn money, and stayed there for at least one month. Wuhan, located in central China, is the capital city of the Hubei Province. In 2014, it had a total population of approximately 10 million people and a per capita GDP of \$16,024 (Statistical Bureau of Wuhan 2014).

The participants were selected using the GIS/GPS-assisted innovative method, which randomly samples mobile populations by linking the geographic space with households in residential areas (X. Chen et al. 2015c). In this method, the continuous geographic areas of Wuhan were divided into mutually exclusive geounits using a computer-created grid system with cell size of 100 by 100 meters. After exclusion of non-residential areas (e.g., lakes, streets, factories and other public areas), a total of 60 geounits with residential housing were randomly selected. More geounits were allocated to the areas with a higher density of migrants using the *optimal design method* (Cochran 1977; Grove 2004; Spiegelman and Gray 1991). From each sampled geounit, approximately 20 participants were recruited with one person per gender per household. To facilitate the procedures for sampling and participant recruitment, assistance was obtained from local community health workers and community leaders through the *primary healthcare network*, a unique system in China for reaching local communities.

### 2.2 Data collection and processing

Data collection was conducted by trained data collectors from Wuhan Center for Disease Prevention and Control during the period from March 2011 to December 2013. Trained data collectors (including senior staff and graduate assistants) went to sampled geounits one at a time to recruit participants and to administer the survey. Data were collected using the Migrant Health and Behavior Questionnaire (MHBQ) (X. Chen et al. 2015b; X. Chen et al. 2015) delivered through the Audio Computer-Assisted Self Interviewing (ACASI) technique on a touchscreen computer. The survey was anonymous and confidential. A brief 5–10 minute training to use ACASI was provided to participants who were not familiar with touchscreen computers. The survey was conducted in the local community health center or a room in the participants' home according to their preference. All participants were required to complete the survey independently. One data collector was on standby to provide help if needed. Only participants who signed the informed consent were enrolled. After completing the survey, the participants were provided material rewards with a value of \$5–6.

Among the total 1,414 participants approached, 121 (8.6%) refused and 1,293 completed the survey. Data for 1,135 (87.8%) were included in the final sample for analysis after excluding of 158 who indicated at the end of the survey that less than 80% of their answers were reliable. The study protocol was approved by the Institutional Review Boards at Wuhan CDC, Wayne State University, and the University of Florida.

### 2.3 Measures

**Social capital-the predictor variable X**—The predictor variable social capital was assessed using the Personal Social Capital Scale (PSCS) (X. Chen et al. 2009). PSCS is a novel instrument that was developed with a systematic approach, psychometrically evaluated among adults in China, and verified in different populations (P. Wang et al. 2013; X. Chen et al. 2015; Shahabudin and Low 2013; X. Chen et al. 2015a; Archuleta and Miller 2011; Wutich et al. 2014). The scale consists of 32 items and two subscales: bonding social capital (24 items) and bridging social capital (8 items). The four attributes measuring the bonding social capital are: a) personal network size, assessed using a 5-point Likert scale with 1 (*very few*) to 5 (*many*), and the number of network members who are b) trustful, c) reciprocal, and d) possessing important resources, assessed using a 5-point Likert scale with 1 (*few or none*) to 5 (*almost everyone*). These attributes are assessed among six groups of people, including family members, relatives, neighbors, friends, co-workers/fellows, and classmates/country fellows.

Two types of organizations are used to assess the bridging social capital: a) governmental, political, economic and social groups/organizations; b) and cultural, recreational, and leisure groups/organizations. Similarly, the four attributes for the bridging capital are: a) the number of organizational groups with 1 (*a few*) to 5 (*a lot*); and the perceptions of the number of groups/organizations that b) represent a participant's personal rights and interests; c) would provide help when needed; and d) possess various resources) with 1 (*few or none*) to 5 (*almost everyone*). The Cronbach alpha coefficients in this study were 0.91 for the PSCS, 0.88 for the bonding social capital subscale and 0.93 for the bridging social capital subscale respectively. Mean scores were calculated for analysis with higher scores indicating greater amount of social capital.

**Employment – the mediator variables M**—Five variables regarding employment were assessed as the mediator variables: a) Job security was assessed based on participants' responses to the question: "To what extent do you think your current job is stable?" The question was assessed using a five-point Likert scale varying from 1 (*very unstable*) to 5 (*very stable*). b) Job satisfaction was assessed based on participants' responses to the question: "To what extent do you feel you are satisfied with your current job?" Answer options for this question were from 1 (*very unsatisfied*) to 5 (*very satisfied*). c) Job searching was assessed based on responses to the question: "How often did you ever look for new jobs in past 12 months?" Answer options varied from 1 (*never*) to 5 (*always*). d) Intention to change job was assessed by asking if the participant would consider changing his/her job in the next 6 months with answer options varying from 1 (*very likely*) to 5 (*very unlikely*). e) Unemployment was assessed using the variable months of joblessness, based on responses to the question: "How many months were you unemployed in the past 12 months? (#

months)” These variables are often used in research to study the relationship between employment and health (Nagy 2002; Demerouti et al. 2001).

**QOL – the outcome variable Y**—The outcome QOL was assessed using the Brief Symptom Inventory (BSI) (Derogatis and Melisaratos 1983). BSI is a well-developed instrument with adequate reliability and validity, and has been widely used to assess QOL for research in many countries (Gilbar and Ben-Zur 2002; Hwang and Ting 2008; Loutsiou-Ladd et al. 2008), including China (Chang et al. 2005; Wong et al. 2008; Yu et al. 2015). To address the goal of this study, five BSI subscales were included: (a) Anxiety, (b) Depression, (c) Somatization, (d) Hostility and (e) Obsessive-Compulsive symptoms. Individual BSI items regarding the frequency of physical, mental, and social symptoms were assessed using a five-point Likert scale ranging from 1 (*never*) to 5 (*always*), and the Cronbach alpha of the scale was 0.97. Items were reverse recoded and mean scores calculated for analysis such that higher scores indicated better QOL. In addition to total scale score, scores for the five subscales were also calculated and used in analysis.

A number of other measures are available for assessing QOL among adults, including the World Health Organization Quality of Life Assessment (WHOQOL) (100 items) (WHOQOL Group 1995) and its brief version WHOQOL BREF (26 items, Cronbach’s alpha = 0.52–0.79) (Vahedi 2010), the Quality of Life Scale (QOLS) (16 item, Cronbach’s alpha = 0.82) (Burckhardt and Anderson 2003), and the Quality of Life Index (QLI) (35 items, Cronbach’s alpha = 0.73–0.99) (Ferrans and Powers 1985, 2016). We elected to use the BSI because relative to other measures, BSI is more commonly used in survey studies and it is shorter with higher reliability.

**Demographic factors and work experience**—Five demographic variables were included: age (in years), gender (male/female), marital status (married/not married), educational attainment (middle school or less and high school or more), and monthly income (RMB: <1000, 1000–2000–2000–4000, 4000+). Five variables were used to assess personal work experience: number of cities ever migrated to (1, 2, 3, and 4 or more), number of years working in the current city, number of days worked per month, number of hours worked per day, and number of days off per month in the past 12 months.

## 2.4 Statistical analysis

Descriptive statistics (i.e., mean, standard deviation, proportion, and rate) were used to describe the study sample; simple regression modeling analysis was used to analyze the relationship between social capital and QOL as well as between employment experiences and QOL. Complex mediation modeling analysis was used to test the proposed mediation relationships among social capital, employment experiences and QOL. To consider for the multistage GIS/GPS-assisted sampling design, the survey estimation methods were used for descriptive analysis and simple regression analysis. In conducting both regression and mediation modeling analyses, a 95% confidence interval [CI] of an effect estimate not including zero was used as a criterion for statistical significance at  $p < .05$ . All statistical analyses were conducted using commercial software SAS version 9.4 (SAS Institute Inc, Cary, NC).



In the mediation modeling analysis, social capital was used as the predictor variable  $X$ , the five employment measures were used as the mediators  $M_1$ - $M_5$ , and QOL was used as the outcome  $Y$  (Figure 1). For each of the five mediation models, the coefficient  $a_j$  was used to measure the association between social capital (as the predictor  $X$ ) and an employment measure (as mediator  $M_j$ ); and the coefficient  $b_j$  as the measure of the relationship between a  $M_j$  and QOL (as the outcome  $Y$ ). Consequently, the product  $a_j \times b_j$  was used as the indirect (mediation) effect of  $M_j$  in bridging the relationship between  $X$  and  $Y$ . The mediation modeling analysis was completed in two steps. In step one, five mediation models were used to test which of the five employment measures significantly mediated the relationship between social capital and QOL. In step two, a multi-step mediation model was used to include the relationships among significant mediators detected from step 1. SAS macro “*PROCESS*” (Hayes 2013) was used to conduct all the mediation modeling analyses with mediation (or indirect) effects and 95% CI estimated using the Bootstrap method.

In both the regression and mediation modeling analyses, age, marital status, educational attainment, and number of years migrated were included as covariates.

### 3. Results

#### 3.1 Characteristics of the study sample

Among the total 1,135 participants, 50.4% were male with a mean age of 32.5 (SD=7.9) years, 78.4% were married, 32.7% had a high school or higher education, and 38.2% had a monthly income of 2000 RMB (approximately \$325) or higher.

#### 3.2 Employment experiences

Results in Table 2 indicate that 18.2% of the participants had ever migrated and worked in 4 or more cities with a median of 9 years living in the current city. On average [95% CI], these participants worked 24.1 [23.4, 24.9] days per month, and 9.3 [9.0, 9.6] hours per day with 5.1 [4.3, 5.9] days off per month. Approximately a third (29.0%) had looked for jobs in the past 12 months, and a quarter (24.1%) had an intention to change their jobs. More than a half (54.6%) reported that their job was either stable or very stable, and slightly more than a third (33.8%) were satisfied with their job.

#### 3.3 Associations of social capital and employment with QOL

Table 3 presents the results from the regression analyses assessing the associations of both social capital and employment measures with QOL for the overall sample and also stratified by gender. The association (regression coefficient [95% CI]) of bonding capital ( $b=0.21$  [0.02, 0.40]), including the trustful component ( $b=0.19$  [0.02, 0.36]), with QOL was significant. Regarding the employment measures, job security ( $b=0.10$  [0.04, 0.17]) and satisfaction ( $b=0.15$  [0.08, 0.21]) were positively associated with QOL while intention to change jobs ( $b=-0.11$  [-0.19, -0.03]) was negatively associated with QOL. When analyzed by gender, social capital scores, including the bonding and bridging capital and all four bridging capital attributes, were associated with QOL for males; job security and satisfaction were associated with QOL for both genders; and intention to change jobs was negatively associated with QOL only for females.

### 3.4 Mediation effect of employment between social capital and QOL

Results from the single-mediator modeling analyses indicated that among the five employment measures, two significantly mediated the relationship (effect [95% CI]) between total social capital scores and QOL. These were job security ( $a_i \times b_j = 0.028$  [0.014, 0.046],  $p < 0.05$ ) and job satisfaction ( $a_i \times b_j = 0.021$  [0.010, 0.036],  $p < 0.05$ ). Meanwhile, none of the direct effects  $c'$  were statistically significant. Similar results were observed for the bonding and bridging social capital (results are available upon request).

Figure 2 presents the results of a multi-step mediation analysis linking social capital with both job security and job satisfaction with QOL, also considering the associations between job security and job satisfaction. Results from bootstrapping indicated three significant mediation paths: Mediation path (a) from social capital (X) to the first mediator job security ( $M_1$ ) to QOL (Y) (effect estimate: 0.02 95% CI: 0.01, 0.04;  $p < 0.05$ ); mediation path (b) from social capital (X) to the second mediator job satisfaction ( $M_2$ ) to QOL (Y) (effect estimate: 0.01, 95% CI: 0.003, 0.021;  $p < 0.05$ ); and mediation path (c) from social capital (X) to the first mediator ( $M_1$ ), further to the second mediator ( $M_2$ ), ultimately to the outcome (Y) (effect estimate: 0.006, 95% CI: 0.002, 0.010;  $p < 0.05$ ).

## 4. Discussion

### 4.1 Summary of this study

For decades we have recognized the health benefits of having a high social capital, yet there is a lack of understanding of mechanisms backed by data that can demonstrate how social capital leads to better health and QOL (Kawachi et al. 1999; Hawe and Shiell 2000). In this study, we attempted to fill this gap by testing a proposed model in which several employment measures may mediate the relationship between social capital and QOL. We tested the model using data from a cross-sectional sample randomly selected in a large inland city in China with a population of approximately 10 million, with 2 million rural-to-urban migrants. The proposed mediation mechanism was tested through a progressive analytical strategy starting from simple correlational analyses to advanced multi-mediation modeling analyses. In addition to confirming the positive relationship between social capital and QOL as well as the positive relationship between two employment measures (perceived security of employment and satisfaction with current job) and QOL, results from mediation analyses demonstrated that the positive relationship between social capital and QOL was completely mediated through the two employment measures.

### 4.2 Work and life of migrants in Wuhan

Findings of this study indicate that rural-to-urban migrants in Wuhan are generally young with a mean age of slightly greater than 30 years, and eight in ten were married. These migrants worked about 10 hours per day, and 24 days a month with about five days off per month, and six in ten earned RMB 2000 Yuan or less a month. About a quarter expressed intentions to change their jobs in the next 6 months and about one in three looked for a new job in the past year. On average, participants were unemployed for one month in the past year and almost a half reported having unstable jobs and two thirds were not satisfied with their current job. Compared with previous studies focusing on employment among rural

migrants in China (Knight et al. 1999; Wen and Wang 2009), migrants in Wuhan have adequate employment, but have a relatively lower level of employment security and satisfaction. Cross-regional research is indicated to investigate factors that prevent rural migrants in Wuhan from getting more secure and satisfactory jobs.

### 4.3 Social capital positively associated with QOL

As the number of farmers who migrate to cities to earn money is still increasing in China, improving the QOL of these rural migrants has drawn much attention (B. Wang et al. 2010; Zhang et al. 2009; Zhu et al. 2012; Shi 2008). Pursuing a better life is one of the most important driving forces that push a migrant to leave their home. Social capital and employment are two important and correlated factors that are linked to QOL (Requena 2003). In this study, we confirmed that social capital is positively associated with QOL, including total social capital, as well as bonding and bridging capital. This finding is consistent with the results reported in previous studies among other populations and in countries other than China (Requena 2003; Kawachi et al. 1999; Nilsson et al. 2006; Aycan and Berry 1996). Individuals with higher social capital are more likely to perceive a higher QOL. Findings of our study provide additional data supporting the significance in enhancing social capital to improve QOL.

In addition, findings of our study indicate that among rural migrants in China, the positive relationship between social capital and QOL is particularly strong for males, including the total social capital, bonding capital and its resource component, and bridging capital and its four components (i.e., network size, representative, reciprocal and resource-rich). These gender differences in the relationship between social capital and QOL may be due to the differences in gender roles defined by Chinese culture (Guo et al. 2016). In China, men are expected to build broader social connections that stretch beyond family and local communities and are expected to bring in income for their spouse and the whole family. On the contrary, women are expected to focus more on family life and build ties on a small scale with people who are more like them (Fu and Shaffer 2001; Bu and McKeen 2001). Further research is needed to investigate this issue.

### 4.4 Strong mediation effect of employment experiences

Findings from the advanced modeling analyses support the mechanism we proposed: employment experiences mediate the relationship between social capital and QOL. Among the five measures, perceived job security and satisfaction play key roles. In addition to a positive association between the two, they fully mediate the relationship between social capital and QOL for Chinese rural migrants. The mediation role of other measures, such as intentions to change job, job searching and duration of joblessness are statistically insignificant. According to the results from our analysis, more social capital is associated with higher levels of job security and job satisfaction, and higher job security is also associated with greater job satisfaction, leading to higher levels of well-being. The findings add new data to the current literature, and advance our understanding of the mechanism underlying the relationship between social capital, employment experience and QOL. Findings of this study can also be used in future research to investigate other factors

associated with QOL, including residential arrangement, levels of education, and vocational experiences (McCormick and Wahba 2001; Zheng et al. 2009; Aycan and Berry 1996).

Findings of our study supported several conclusions from reported studies that social capital can exert significant and positive effects on job security and job satisfaction (Requena 2003; Seibert et al. 2001). People build their social capital through social capital investment (X. Chen et al. 2015a), and higher social capital is often derived from durable, trustworthy, reciprocal and resource-rich networks (X. Chen et al. 2009). Therefore, increases in social capital will empower a person to access job-related information and other resources (X. Chen et al. 2015a; X. Chen et al. 2009). With such information, a person can find stable and well-paid jobs, perform better and be more satisfied with their jobs (Fernandez et al. 2000; Erickson 2001; Adler and Kwon 2002), and be less likely to change jobs (Heaney et al. 1994). Relative to temporary employees with no job security, people with permanent jobs are more satisfied with their job (De Witte and Näswall 2003). Likewise, individuals with a stable and satisfied job are more likely to enjoy their life with improved QOL (Cimete et al. 2003; B. Wang et al. 2010; Requena 2003; Zhu et al. 2012; Heaney et al. 1994; Ferrie et al. 2002; Faragher et al. 2005). In theory, improvement in job satisfaction and QOL will in turn enable migrants to build more durable, trustworthy, reciprocal and resource-rich network connections, forming a positive feedback loop (X. Chen et al. 2015a; Halpern 2005).

To the best of our knowledge, this study is the first to demonstrate a mediation mechanism that links social capital with QOL through employment experiences with data collected from a random sample of rural-to-urban migrants. In order to improve QOL for these Chinese rural migrants, intervention programs must focus on social capital in addition to many other important factors to help them find secure and satisfactory jobs. When leaving home, rural migrants lose connections with family, friends and social groups, resulting in a huge social capital loss. These migrants need help to rebuild social capital in the urban environment, which is totally new to them. Social capital theory-based intervention programs have been shown to improve physical health and reduce risk behaviors. One such community-based program in China helped prevent stroke and heart attack (Gong et al. 2015), and another intervention in South Africa reduced intimate partner violence (Pronyk et al. 2008).

#### 4.5 Limitations and future research

There are limitations to this study. First, this study is cross-sectional in nature, and causal conclusion is not warranted without longitudinal data. Second, data used in this study were collected in one city in China, and thus, findings may not be generalizable to other areas of China or to other countries. Third, we used only one method, the BSI to measure QOL. This measure is strict and relies more on mental health than other measures of QOL. The findings might be different if other QOL measures were used, such as WHOQOL (WHOQOL Group 1995), QOLS (Burckhardt and Anderson 2003) or HRQOL (Guillemin et al. 1993). Lastly, the complex multi-stage random sampling design could not be considered in all mediation models due to software limitations, the advantage of such a design to reduce sampling error cannot be fully realized. Despite these limitations, this study is the first to demonstrate a mediation mechanism that links social capital to QOL through employment. Findings of this study add timely data supporting further longitudinal research to confirm the study findings

and to provide solid data supporting interventions to enhance QOL of rural migrants in China.

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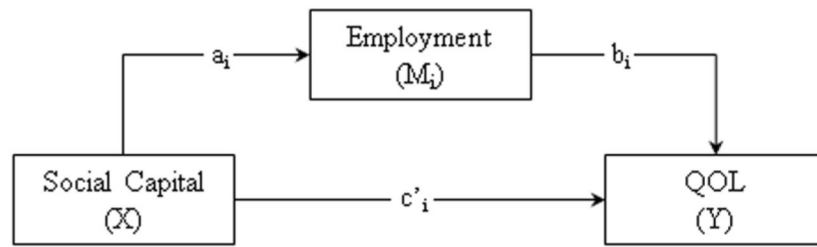
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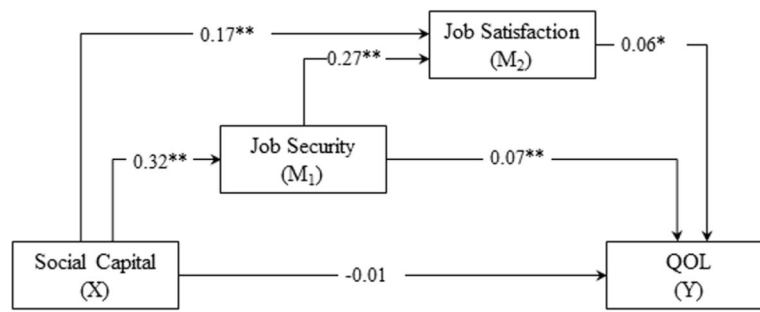


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**Figure 1.**  
A Schematic Mediation Model Linking Social Capital with Employment and QOL for Rural-to-Urban Migrants in China

**Note to Figure 1:**  $Y$ : QOL as the outcome variable;  $M_i$  ( $i=1,2..5$ ): five employment experience measures as the mediators, including job security, job satisfaction, job searching, job changing and unemployment; and  $X$ : social capital as the predictor.



**Figure 2.**

Results from multi-step mediation modeling analyses linking social capital with job security and job satisfaction, and further to QOL among rural-to-urban migrants in China

**Note to Figure 2:** Macro “PROCESS” was used for the mediation analysis. Values in the figure were standardized coefficients. \*:  $p < 0.05$  and \*\*:  $p < 0.01$

**Table 1**

## Characteristics of the Study Sample

Variables	Male	Female	Total
<b>Total, n (%)</b>	572 (50.4)	563 (49.6)	1135 (100.0)
<b>Age in years, n (%)</b>			
18–35	353 (61.7)	335 (29.5)	688 (60.6)
36–45	219 (38.3)	228 (40.5)	447 (39.4)
Mean (SD)	32.1 (8.2)	32.8 (7.6)	32.5 (7.9)
<b>Marital status, n (%)</b>			
Married	411 (72.1)	476 (84.7)	887 (78.4)
Not married	159 (27.9)	86 (15.3)	245 (21.6)
<b>Educational attainment, n (%)</b>			
Middle school or less	361 (63.3)	401 (71.4)	762 (67.3)
High school or more	209 (36.7)	161 (28.6)	370 (32.7)
<b>Monthly income (RMB<sup>a</sup>), n (%)</b>			
<1000	61 (10.7)	165 (29.3)	226 (19.9)
1000–2000	220 (38.5)	256 (45.5)	476 (41.9)
2000–4000	230 (40.2)	123 (21.9)	353 (31.1)
>4000	61 (10.7)	19 (3.4)	80 (7.1)

Note:

<sup>a</sup>6.1 RMB ≈ 1 US dollar in 2015

**Table 2**

Employment among Rural-to-Urban Migrant in China, Mean or % [95%CI]

Variables	Men	Women	Total
<b>No. of cities ever stayed, % [95% CI]</b>			
1 city	25.9 [21.2, 30.5]	47.4 [41.4, 53.4]	36.4 [32.5, 40.2]
2 cities	21.3 [16.8, 25.7]	25.7 [20.0, 31.4]	23.4 [19.8, 27.0]
3 cities	22.3 [18.7, 26.0]	21.6 [17.5, 25.7]	22.0 [19.3, 24.7]
4 or more cities	30.5 [25.4, 35.7]	5.3 [3.0, 7.5]	18.2 [15.2, 21.4]
<b>No. of years migrated</b>			
Median [IQR]	10.0 [3.5–15.7]	8.8 [3.7–14.8]	9.4 [3.5–15.2]
<b>No. of days worked per month</b>			
Mean [95%CI]	24.9 [24.0, 25.7]	23.3 [22.0, 24.6]	24.1 [23.4, 24.9]
<b>No. of days off per month</b>			
Mean [95%CI]	5.0 [4.3, 5.8]	5.2 [3.8, 6.5]	5.1 [4.3, 5.9]
<b>No. of hours worked per day,</b>			
Mean [95%CI]	9.6 [9.3, 10.0]	8.9 [8.4, 9.4]	9.3 [9.0, 9.6]
<b>Job security,% [95%CI]</b>			
Very stable	17.4 [13.3, 21.5]	6.7 [2.8, 10.7]	12.2 [9.4, 15.1]
Stable	41.2 [35.5, 48.8]	43.7 [37.7, 49.7]	42.4 [38.3, 46.5]
Unsure	26.0 [21.1, 30.9]	29.7 [24.7, 34.7]	27.8 [24.2, 31.3]
Unstable	14.1 [10.6, 17.7]	17.4 [12.8, 22.1]	15.7 [12.7, 18.7]
Very unstable	1.4 [0.5, 2.2]	2.5 [0.0, 5.2]	1.9 [0.5, 3.3]
<b>Job satisfaction, % [95%CI]</b>			
Very much satisfied	2.9 [0.9, 5.0]	12.0 [7.8, 16.1]	7.3 [5.0, 9.6]
Satisfied	27.2 [21.6, 32.8]	25.8 [20.7, 31.0]	26.5 [22.7, 30.4]
Unsure/do not know	53.1 [47.5, 58.7]	45.5 [39.7, 51.3]	49.4 [45.4, 53.5]
unsatisfied	14.2 [9.6, 18.9]	14.6 [9.3, 20.0]	14.4 [10.9, 17.9]
Very unsatisfied	2.6 [1.1, 4.1]	2.1 [0.7, 3.5]	2.3 [1.3, 3.4]
<b>Job searching, % [95%CI]</b>			
Never	78.3 [73.3, 83.3]	63.3 [57.9, 68.7]	71.0 [67.3, 74.7]
Seldom	11.4 [8.2, 14.5]	24.1 [19.0, 29.3]	17.6 [14.5, 20.7]
Sometime	5.6 [3.0, 8.3]	9.1 [7.2, 11.1]	7.3 [5.6, 9.1]
Often	2.6 [0.8, 4.3]	3.3 [1.8, 4.8]	2.9 [1.8, 4.1]
Always	2.2 [0.0, 5.6]	0.2 [0.0, 0.4]	1.2 [0.0, 3.0]
<b>Intention to change jobs, % [95%CI]</b>			
Very likely	5.6 [3.7, 7.6]	3.5 [0.0, 7.0]	4.6 [2.6, 6.5]
Likely	20.8 [16.1, 25.4]	18.3 [14.0, 22.6]	19.6 [16.5, 22.7]
Unsure	13.1 [10.0, 16.2]	13.7 [9.1, 18.3]	13.4 [10.7, 16.1]
Unlikely	37.5 [32.8, 42.2]	34.0 [28.6, 39.3]	35.8 [32.3, 39.3]
Very unlikely	23.0 [17.6, 28.4]	30.6 [25.4, 35.8]	26.7 [23.0, 30.4]
<b>Months of jobless</b>			
Mean [95%CI]	0.9 [0.7, 1.0]	2.3 [1.7, 2.8]	1.5 [1.3, 1.8]

**Note:** The PROC SURVEYMEANS was used to compute the point estimate and 95% confidence interval.

IQR=Interquartile Range

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**Table 3**

Associations of Social Capital with QOL as well as Employment with QOL (regression coefficient, [95%CI]), Rural-to-Urban Migrants, Wuhan, China

Variables	Male	Female	Total
<b>Social capital</b>			
Total	<b>0.31 [0.10, 0.53]</b>	-0.09 [-0.34, 0.16]	0.15 [-0.02, 0.32]
Bonding social capital	<b>0.25 [0.01, 0.48]</b>	0.13 [-0.14, 0.41]	<b>0.21 [0.02, 0.40]</b>
<i>Network size</i>	0.13 [-0.07, 0.33]	0.12 [-0.07, 0.32]	0.14 [-0.01, 0.29]
<i>Trust</i>	0.17 [-0.01, 0.35]	0.21 [-0.05, 0.46]	<b>0.19 [0.02, 0.36]</b>
<i>Reciprocal</i>	0.17 [-0.04, 0.38]	0.08 [-0.11, 0.27]	0.14 [-0.02, 0.29]
<i>Resource-rich</i>	<b>0.16 [0.02, 0.29]</b>	-0.05 [-0.21, 0.10]	0.08 [-0.04, 0.19]
Bridging social capital	<b>0.22 [0.08, 0.37]</b>	-0.12 [-0.30, 0.06]	0.05 [-0.07, 0.17]
<i>Network size</i>	<b>0.18 [0.06, 0.31]</b>	<b>-0.20 [-0.38, -0.02]</b>	-0.01 [-0.12, 0.11]
<i>Representative</i>	<b>0.15 [0.03, 0.26]</b>	-0.06 [-0.20, 0.09]	0.05 [-0.05, 0.15]
<i>Reciprocal</i>	<b>0.18 [0.06, 0.30]</b>	-0.04 [-0.18, 0.10]	0.06 [-0.04, 0.15]
<i>Resource-rich</i>	<b>0.18 [0.04, 0.31]</b>	-0.06 [-0.22, 0.10]	0.05 [-0.05, 0.15]
<b>Employment</b>			
Job security	<b>0.10 [0.03, 0.18]</b>	<b>0.11 [0.01, 0.21]</b>	<b>0.10 [0.04, 0.17]</b>
Job satisfaction	<b>0.15 [0.05, 0.24]</b>	<b>0.15 [0.06, 0.24]</b>	<b>0.15 [0.08, 0.21]</b>
Job searching	0.05 [-0.09, 0.19]	-0.19 [-0.40, 0.02]	-0.05 [-0.22, 0.11]
Intention to change job	-0.06 [-0.17, 0.04]	<b>-0.16 [-0.29, -0.03]</b>	<b>-0.11 [-0.19, -0.03]</b>
Months of jobless	-0.05 [-0.12, 0.02]	0.02 [-0.01, 0.05]	0.004 [-0.03, 0.03]

**Note:** The SAS PROC SURVEYREG was used for regression analysis with point estimates and 95% confidence intervals, QOL was treated as the dependent variable, social capital and employment were included as independent variables. Only one independent variable was included in the model each time. Age, marital status, educational attainment, and years of migration were included as covariates.

**Table 4**

Mediation modelling analysis of social capital, employment experiences and QOL among rural-to-urban migrants in China, model coefficients [95% CI], overall and by gender

Mediators (M)	X→M (a)	M→Y (b)	Indirect effect (a×b)	Direct effect (c')
<b>Job security</b>				
Total	<b>0.321 [0.217, 0.425]</b>	<b>0.088 [0.050, 0.125]</b>	<b>0.028 [0.014, 0.046]</b>	0.006 [-0.060, 0.072]
Male	<b>0.362 [0.218, 0.505]</b>	<b>0.055 [0.004, 0.106]</b>	<b>0.020 [0.001, 0.044]</b>	0.043 [-0.047, 0.132]
Female	<b>0.273 [0.119, 0.427]</b>	<b>0.123 [0.069, 0.177]</b>	<b>0.034 [0.012, 0.061]</b>	-0.041 [-0.138, 0.056]
<b>Job satisfaction</b>				
Total	<b>0.254 [0.158, 0.350]</b>	<b>0.084 [0.043, 0.124]</b>	<b>0.021 [0.010, 0.036]</b>	0.013 [-0.053, 0.078]
Male	<b>0.357 [0.229, 0.485]</b>	<b>0.078 [0.021, 0.134]</b>	<b>0.028 [0.008, 0.052]</b>	0.035 [-0.055, 0.125]
Female	0.131 [-0.013, 0.274]	<b>0.093 [0.035, 0.152]</b>	0.012 [-0.002, 0.031]	-0.020 [-0.117, 0.077]
<b>Job searching</b>				
Total	-0.078 [-0.168, 0.012]	<b>-0.092 [-0.134, -0.051]</b>	0.007 [-0.001, 0.018]	0.022 [-0.042, 0.085]
Male	-0.115 [-0.239, 0.009]	<b>-0.063 [-0.121, -0.005]</b>	0.007 [-0.001, 0.023]	0.049 [-0.038, 0.136]
Female	-0.040 [-0.171, 0.091]	<b>-0.120 [-0.179, -0.061]</b>	0.005 [-0.012, 0.022]	-0.015 [-0.108, 0.078]
<b>Intention to change job</b>				
Total	-0.018 [-0.141, 0.106]	<b>-0.065 [-0.095, 0.035]</b>	0.001 [-0.007, 0.010]	0.028 [-0.036, 0.092]
Male	-0.047 [-0.220, 0.125]	-0.050 [-0.092, 0.008]	0.002 [-0.007, 0.013]	0.054 [-0.033, 0.141]
Female	0.022 [-0.156, 0.200]	-0.082 [-0.126, 0.039]	-0.002 [-0.018, 0.014]	-0.008 [-0.101, 0.085]
<b>Months of jobless</b>				
Total	<b>-0.353 [-0.690, -0.017]</b>	-0.009 [-0.020, 0.002]	0.003 [-0.001, 0.009]	0.026 [-0.038, 0.090]
Male	<b>-0.172 [-0.477, 0.133]</b>	-0.015 [-0.039, 0.008]	0.003 [-0.004, 0.013]	0.054 [-0.034, 0.141]
Female	-0.472 [-1.072, 0.127]	-0.005 [-0.018, 0.009]	0.002 [-0.005, 0.011]	-0.012 [-0.106, 0.082]

**Note:** The SAS macro "PROCESS" was used for mediation analysis. Five mediation models were used to analyze the five mediators separately. Age, marital status, educational attainment, and years of migration were included as covariates. Numbers in bold: p<0.05; refer to Figure 1 for the meaning of the estimated model parameters *a*, *b* and *c'*.