Original Article

Association between sociodemographic, psychosocial, lifestyle factors, and self-reported health among migrant laborers in China

Cheng-Cheng Li [a], Xue-Hui Meng [b,*], Jing-Ru Wang [c], Hong-Jun Ma [a], Chun Chen [a], Yuan-Qing Liu [a]

[a] *Department of Health Service Management, Humanities and Management School, Wenzhou Medical University, Wenzhou, China*
[b] *Department of Healthcare Reform Research, Zhejiang Hospital Development Center, Hangzhou, China*
[c] *Medical Examination Center, Zhejiang Cancer Hospital, Hangzhou, China*

Abstract

Background: There were 245 million migrants in China in 2013, the majority of whom migrated from rural to urban areas. Thus, the purpose of this study was to investigate the association between sociodemographic, psychosocial, and lifestyle factors, and self-reported health (SRH) in Chinese migrant laborers.
Methods: This study was conducted based on data from the China Labor-force Dynamics Survey 2012. SRH was measured in a single item, although there were other risk factors from three different groups: sociodemographic, psychosocial, and lifestyle factors. The associations between these risk factors and SRH were tested using multilevel logistic regression analyses including interaction tests.
Results: All three groups of factors were explored simultaneously. These factors included age, working hours, marital status, illness, and hospitalization, which were associated with poor SRH, as well as earnings, number of friends, relations with neighbors, trust level, education, and alcohol consumption, which were associated with good SRH. However, there was minimal association found between the two factors of medical insurance and nationality, and SRH.
Conclusion: Our investigation indicated that there are many factors associated with SRH. In particular, this study undertook a comprehensive investigation of the associations between sociodemographic, psychosocial, lifestyle factors, and SRH in China, the results of which could better inform medical researchers and governments from a Chinese perspective.
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Keywords: Chinese migrant laborers; lifestyle factors; psychosocial factors; self-reported health; sociodemographic factors

1. Introduction

Since 2010, China has become the world's second largest economy. The middle-class population has been increasing dramatically in China's big cities, whereas the majority of rural residents remain financially impoverished.[1] The average

income of Chinese farmers is one-fourth of that made by urban residents; this wide gap between the average incomes of urban and rural residents led to the migration of a large number of rural laborers into the city. According to the Chinese National Bureau of Statistics, although the average income (2609 yuan per month) of these migrant laborers in Chinese cities is considerably higher than the income earned by rural farmers, it remains relatively low compared to that of urban residents. However, such migrant employment provided extra jobs to increase the household income, which prompted these people to become migrant laborers (or nong-min-gong in Mandarin).

China ranks among the countries with the largest migrant laborer populations in the world. The majority of the Chinese workforce consists of rural migrants, who are those special groups doing physical work under the household registration system. An earlier survey of Chinese migrant population[2] provides the definition of the migrant laborers: those who have been absent from rural locations for more than 6 months, although their registered permanent residence remains in rural areas. A unique institution was established in 1958, which effectively constrained citizens of specific areas in China through residency permits.[3] Since China thereafter implemented reform policy and "opened up" to the world in 1978, the volume of international migration and internal migration has been rising steeply. In this study, we primarily focus on internal migration within China.[4,5] Migration has become one of the most significant phenomena over the past few decades.[3] A survey of China's National Health and Family Planning Commission shows that the country is experiencing the most massive population movement in history, from 6 million in the 1980s to 245 million in 2013. This has been accompanied by a period of rapid development of urbanization, which results in a sustained growth of the migrant laborer population in subsequent years. Overall, this information suggests that there is one migrant worker for every six people in China.[6]

The large-scale migrant populations and their associated issues attract great interest from the social sciences community. Among several studies, some contrasted the differences between migrants and nonmigrants in certain areas, whereas others examined the variation of factors across groups of migrants. These investigations included studies focusing on the informal urbanization process that occurs in mass migrants,[7] the social status among migrants in urban areas,[8] migrant living conditions,[9,10] and possible solutions.[11] Health condition is a key determinant that includes ample relevant factors among migrant laborers due to societal and economic development in China. Exploring the health status of migrants is important to promote disease prevention, health promotion programs, and the delivery of appropriate health and social services to the migratory population. Health status has an influence on the incomes of migrant laborers because migrants have to reduce their working days or even forego working when health problems arise.

Self-reported health (SRH) is considered to be a valuable source of data on various aspects of general health.[12,13] In fact, it is one of the most widely used indicators of health status in survey research, and is recommended by the World Health Organization.[14] SRH can be influenced by individual determinants such as sociodemographic, psychosocial, and behavioral factors.[15–18] The association between sociodemographic factors and SRH was reported in previous research studies.[19] Epidemiological research has also found the exposure ratio of social variations in psychosocial factors.[20,21]

The social support network or the interpersonal relationship is considerably more important for the migrant population. One study explored the function of Social Support in the Mental Health of Migrant laborers in China, which examined migration stress, particularly in matters of financial and employment difficulties.[22] In 2008, a China migrant cross-sectional study (*n* = 475) claimed that the 73 migrant workers would be classified as mentally unhealthy (25% for men, 6% for women),whereas the female migrant laborers who experienced increased stress were more likely to rate their health as poor.[23] Moreover, foreign studies have shown that SRH is a crucial and strong predictor of morbidity and mortality.[12,24,25] In particular, Idler and Benyamini[12] found that the association between SRH and mortality even adjusts to prevalent diseases and some health behavior factors.

Some surveys have indicated that healthcare service utilization of migrant laborers is far lower than that of the local residents. The health infrastructure is unable to provide adequate healthcare for migrants in China.[11] Moreover, one 2014 survey examined the influence of health-related quality of life and health service utilization in Chinese female migrant laborers, which showed that the factors (e.g., bodily pain, general health, role physical) were associated with more frequent health service utilization in female migrant laborers.[26] However, the latest survey showed that 11% of the laborers will never use healthcare services, and 65% of the migrants will conduct self-treatment.[27] So migrants have to sometimes personally finance their healthcare.[4]

Most of the previous studies examined only a few factors, and focused on a very limited area in China about health risk factors of migrant laborers.[22,23,28] Although these studies have proven the existence of differences, some of these studies have no exact test to support their conclusions. Moreover, few studies have focused on migrant laborers within the context of a more comprehensive cross-sectional study. Therefore, the current study explored the nature and strength of the association between migrant health and SRH as varied by different risk factors.

The purpose of the present study was to explore the associations between sociodemographic, psychosocial, and lifestyle factors and SRH among male and female migrant laborers in China.

2. Methods

This study was conducted based on the data of China Labor-force Dynamics Survey 2012 (CLDS 2012), wherein the underlying data were collected through questionnaire survey. The results in this article are shown on the basis of a secondary analysis of these survey data. The basic sampling design used in all provinces was a multistage, random approach. The data used in this study were obtained from the CLDS 2012, as conducted in 29 provinces of Mainland China. This survey is nationally representative, in multistage clusters, stratified, with probability proportion to size (PPS) sampling and a sample size of 16,253 study participants ranging in age from 16 years to 65 years.

SRH was measured according to the following question: "In general, what do you think about your health?" The variable was dichotomized into good health (very good/good, coded 0), and poor health (fair/bad/very bad, coded 1).

Three groups of potential risk factors of SRH were studied: sociodemographic, psychosocial, and lifestyle factors.

2.1. Sociodemographic factors

These factors included age, medical insurance (Chinese social medical insurance model contains basic medical insurance for urban workers/residents, new rural cooperative medical system, free medical care, commercial medical insurance—a total of 3 items), working hours per week (< 56 hours/> 56 hours), income (average annual income of migrant labors), and nationality (the 56 ethnic groups were divided into the Han and the non-Han nationality).

Age, medical insurance, and nation factors were categorical variables. Working hours and income were dichotomized at the median of the average score of items.

2.2. Psychosocial factors

These factors included marital status, number of close friends (for help and support in case of illness, employment search, borrow money from friends, advice, depressed or feeling lonely—a total of 5 items), familiarity with neighbors (frequency of contact with neighborhood, surrounding residents—a total of 3 items), trust level (the degree of trust of the residents toward people/colleagues/legal system/press/police/government—a total of 6 items), education level (attending or attended college/never went to college), and religion (religious belief/no religion).

Marital status, education level, and religion were categorical variables. For the rest of the variables, an average score of the considered items was calculated and the median was used as the cutoff point.

2.3. Lifestyle factors

These factors included body mass index (BMI), tobacco smoking history (previously smoked/now smoking), alcohol consumption (beer/wine/spirit/alcoholic drinks over the past 2 weeks, a total of 4 items), 2 weeks of illness (outpatient service/emergency treatment), and hospitalization for a year (serious illness/chronic diseases).

BMI was calculated as kilograms per square meter and categorized in accordance with the World Health Organization classification of underweight (< 18.5 kg/m^2), normal weight (18.5–14.9), overweight (25–29.9), obesity Grade I (30–34.9), and obesity Grade II and more (35+; World Health Organization, 1998[48]).

2.4. Statistical analyses

The association between sociodemographic, psychosocial, and lifestyle factors and SRH were explored using χ^2 tests. The association between all groups of factors and SRH were examined by multilevel logistic regression analyses, each group being included separately (Models I–III). Finally, all factors were simultaneously explored as independent variables in the final model (Model IV). Factors that were significant at 5% in all sexes in the previous models (Models I–III) were retained for the final model. Multilevel analyses are

appropriate to address the data organized at various levels, and the correlation between factors. Therefore, a part of the factors were introduced as fixed effects, whereas nationality, medical insurance, region, and tobacco smoking served as random effects in the models.

Although we found interrelations between the factors, no collinearity was detected in all models because the variance inflation factors for each factor showed that the values were considerably below 4.

Interaction terms between lifestyle and each factor (significant in Model IV) were tested in independent models in order to examine whether the association between the factor considered and SRH differed according to different living behaviors. Estimated odds ratios (ORs) from one single model were then computed for individuals. (Model IV+ interaction term between nationality and factor were studied.) Analyses were performed using SPSS (version 12.0; SPSS Inc., Chicago, IL, USA).

3. Results

Our data indicated that the prevalence of poor SRH was significantly higher among men compared with women. A large number of factors were significant (except for medical insurance, nationality, religion, BMI, tobacco and smoking history). Age had a negative relation to SPH, especially for those older than 45 years (OR = 1.74, $p < 0.01$), and also for working hours (OR = 1.40, $p < 0.01$). Those with higher income had better SRH than those with lower income (OR = 0.62, $p < 0.001$). Table 1 shows a description of the sample. Almost all of the psychosocial variables showed a relatively good SRH condition, which included more friends (OR = 1.45, $p < 0.001$), harmonious with neighbors (OR = 1.51, $p < 0.001$), higher trust level (OR = 0.61, $p < 0.01$), and better education (OR = 0.53, $p < 0.01$). Furthermore, alcohol consumption (OR = 0.70, $p = 0.01$) was a protective factor in lifestyles. However, illness (OR = 4.12, $p < 0.001$) and hospitalization (OR = 1.74, $p = 0.03$) were associated with poor SRH in respondents.

3.1. Models I–III

The first column of Table 2 presents the results of multilevel logistic regression analyses, for each set of factors being studied. In Model I, older age (OR = 3.03, $p < 0.001$) and higher working hours (OR = 1.38, $p < 0.01$) were significantly associated with poor SRH. In Model II, unmarried (OR = 1.42, $p = 0.04$), more friends (OR = 0.58, $p < 0.001$), proper familiarity with neighbors (OR = 1.67, $p < 0.01$), high trust level (OR = 0.46, $p = 0.02$), and education (OR = 0.62, $p = 0.03$) were significantly associated with good SRH. The number of friends and degree of familiarity with neighbors were crucial for migrant laborers. Except for alcohol consumption (OR = 0.64, $p = 0.02$), other lifestyle factors (OR = 4.31, $p < 0.001$; OR = 1.75, $p = 0.03$) were associated with poor health in Model III. Interestingly, the respondents who consumed alcohol were significantly associated with good health.

Table 1
Description of the study and prevalence of poor and good SRH according to sociodemographic, psychosocial, and lifestyle factors.

	n	Poor SRH (n)	Good SRH (n)	p^a	OR
Sociodemographic factors					
Age (y)				<0.001	
≤ 24	180 (17.58)	37 (10.79)	143 (21.00)		1.00
25−34	383 (37.40)	118 (34.40)	265 (38.91)	0.16	0.82 (0.63, 1.08)
35−44	277 (27.05)	107 (31.20)	170 (24.96)	0.03	1.06 (1.02, 1.82)
45+	184 (17.97)	81 (23.62)	103 (15.12)	<0.01	1.74 (1.25, 2.40)
Sex				0.02	
Male	585 (57.13)	179 (52.19)	406 (59.62)		1.00
Female	439 (42.87)	164 (47.81)	275 (40.38)		1.35 (1.04, 1.76)
Medical insurance				0.26	
Yes	803 (78.42)	262 (76.38)	541 (79.44)		1.00
No	221 (21.58)	81 (23.62)	140 (20.56)		0.84 (0.61, 1.14)
Working h/wk				0.01	
56 h−	593 (57.91)	180 (52.48)	413 (60.65)		1.00
56 h+	431 (42.09)	163 (47.52)	268 (39.35)		1.40 (1.07, 1.81)
Income				<0.001	
Low (27,000 RMB−)	511 (49.90)	144 (41.98)	367 (53.89)		1.00
High (27,000 RMB+)	513 (50.10)	199 (58.02)	314 (46.11)		0.62 (0.48, 0.81)
Nationality				0.97	
Han	943 (92.09)	316 (92.13)	627 (92.07)		1.00
Non-Han	81 (7.91)	27 (7.87)	54 (7.93)		0.99 (0.61, 1.61)
Psychosocial factors					
Marital status				0.02	
Living alone	224 (21.88)	60 (17.49)	164 (24.08)		1.00
Living with partner	800 (78.12)	283 (82.51)	517 (75.92)		1.50 (1.08, 2.08)
Religion				0.34	
No	878 (85.74)	289 (84.26)	589 (86.49)		1.00
Yes	146 (14.26)	54 (15.74)	92 (13.51)		1.20 (0.83, 1.72)
No. of close friends				<0.001	
5−	625 (61.04)	240 (69.97)	385 (56.53)		1.00
5+	399 (38.96)	103 (30.03)	296 (43.47)		1.45 (1.21, 1.74)
Familiarity with neighbors					
Low	400 (39.06)	118 (34.40)	282 (41.41)		1.00
Mid	359 (35.06)	142 (41.40)	217 (31.86)	<0.01	1.51 (1.16, 1.98)
High	265 (25.88)	83 (24.20)	182 (26.73)	0.38	0.88 (0.65, 1.18)
Trust level					
Low	183 (17.87)	68 (19.83)	115 (16.89)		1.00
Mid	597 (58.30)	213 (62.10)	384 (56.39)	0.08	1.27 (0.97, 1.65)
High	244 (23.83)	62 (18.07)	182 (26.72)	<0.01	0.61 (0.44, 0.84)
Education level				<0.01	
University−	872 (85.16)	309 (90.09)	563 (82.67)		1.00
University+	152 (14.84)	34 (9.91)	118 (17.33)		0.53 (0.35, 0.79)
Lifestyle factors					
BMI				<0.002	
≤18.5	121 (11.82)	32 (9.33)	89 (13.07)	0.08	0.68 (0.45, 1.05)
18.5−24.9	718 (70.12)	243 (70.85)	475 (69.75)		1.00
25+	185 (18.07)	68 (19.83)	117 (17.18)	0.30	1.19 (0.86, 1.66)
Tobacco smoking history				0.96	
No	646 (63.09)	216 (62.97)	430 (63.14)		1.00
Yes	378(36.91)	127 (37.03)	251 (36.86)		1.01 (0.77, 1.32)
Alcohol consumption				0.01	
No	678 (66.21)	245 (71.43)	433 (63.58)		1.00
Yes	346 (33.79)	98 (28.57)	248 (36.42)		0.70 (0.51, 0.93)
2 wks of illness				<0.001	
No	831 (81.15)	226 (65.89)	605 (88.84)		1.00
Yes	193 (18.85)	117 (34.11)	76 (11.16)		4.12 (2.97, 5.71)
Hospitalization				0.03	
No	954 (93.16)	311 (90.67)	643 (94.42)		1.00
Yes	70 (6.84)	32 (9.33)	38 (5.58)		1.74 (1.07, 2.84)

Data are presented as n (%).
[a] Chi-square test for comparison between SRH condition.
OR = odds ratio; SRH = self-reported health.

Table 2
Associations between sociodemographic, psychosocial, and lifestyle factors, and SRH.

	Models I−III[a]		Model IV	
	p[a]	OR (95% CI)	p	OR (95% CI)
Sociodemographic factors (Model I)				
Age (y)	<0.001		<0.001	
≤24		1.00		1.00
25−34	<0.001	1.95 (1.26, 3.00)	0.003	2.25 (1.33, 3.83)
35−44	<0.001	2.61 (1.68, 4.06)	<0.001	2.96 (1.66, 5.26)
≥45	<0.001	3.03 (1.90, 4.85)	<0.001	3.62 (1.97, 6.64)
Sex	0.10			
Male		1.00		
Female		1.26 (0.95, 1.67)		
Medical insurance	0.78			
Yes		1.00		
No		0.95 (0.69, 1.32)		
Working h/wk	<0.01		0.04	
56 h−		1.00		1.00
56 h+		1.38 (1.05, 1.81)		1.40 (1.00, 1.98)
Income	<0.01		0.01	
Low (27,000 RMB−)		1.00		1.00
High (27,000 RMB+)		0.67 (0.50, 0.89)		0.68 (0.50, 0.93)
Nationality	0.74			
Han		1.00		
Non-Han		0.91 (0.56, 1.49)		
Psychosocial factors (Model II)				
Marital status	0.04		0.13	
Living alone		1.00		1.00
Living with partner		1.42 (1.01, 2.00)		0.70 (0.44, 1.11)
Religion	0.26			
No		1.00		
Yes		1.24 (0.85, 1.81)		
No. of close friends	<0.001		0.02	
5−		1.00		1.00
5+		0.58 (0.44, 0.77)		0.70 (0.51, 0.95)
Familiarity with neighbors	0.01		0.02	
Low		1.00		1.00
Mid	<0.01	1.67 (1.20, 2.32)	<0.01	1.65 (1.16, 2.35)
High	0.66	1.46 (0.98, 2.18)	0.25	1.29 (0.84, 1.97)
Trust level	<0.01		<0.01	
Low		1.00		1.00
Mid	0.21	0.79 (0.54, 1.14)	0.10	0.72 (0.48, 1.07)
High	0.02	0.46 (0.28, 0.75)	<0.01	0.42 (0.25, 0.71)
Education level	0.03		0.30	
University−		1.00		1.00
University+		0.62 (0.41, 0.95)		0.78 (0.49, 1.24)
Lifestyle factors (Model III)				
BMI	0.02		0.13	
<18.5	0.03	0.61 (0.38, 0.96)	0.20	0.73 (0.45, 1.18)
18.5−24.9		1.00		1.00
>25	0.16	1.28 (0.90, 1.83)	0.16	1.30 (0.90, 1.89)
Tobacco smoking history	0.22			
No		1.00		
Yes		1.21 (0.89, 1.63)		
Alcohol consumption	0.02		0.19	
No		1.00		1.00
Yes		0.64 (0.51, 0.95)		0.81 (0.59, 1.11)
2 wks of illness	<0.001		<0.001	
No		1.00		1.00
Yes		4.31 (3.09, 6.00)		4.05 (2.86, 5.74)
Hospitalization	0.03		0.02	
No		1.00		1.00
Yes		1.75 (1.05, 2.94)		1.84 (1.08, 3.13)

BMI = body mass index; CI = confidence interval; OR = odds ratio; SRH = self-reported health.

Medical insurance, nationality, religion, BMI, and tobacco smoking history were not associated with poor SRH among respondents. Therefore, these variables were excluded in the final model.

3.2. Model IV

In the second column of Table 2, the results of the final model (Model lV) are presented. The risk of poor SRH increased with age (OR = 2.55, p = 0.003; OR = 2.96, p < 0.001; OR = 3.62, p < 0.001). Longer working hours (OR = 1.40, p = 0.04) and lower income were considered risk factors for respondents. The extent of friends (OR = 0.70, p = 0.02) and high trust level (OR = 0.42, p < 0.01) were protective factors for respondents. Concerning lifestyle factors, illness (OR = 4.05, p < 0.001) and hospitalization (OR = 1.84, p = 0.02) were associated with poor SRH among individuals. Surprisingly, the effect of marital status on SRH turned out to be nonsignificant in the final model.

3.3. Area difference

The prevalence of poor SRH varied significantly across geographical areas (p < 0.0001). Workers working in western areas had the highest prevalence of poor SRH, whereas those working in eastern areas had the lowest prevalence among laborers. Some mid-area provinces manifested no difference when compared with some eastern-area provinces in China. A first interaction suggested that the effect of having more friends on SRH might be stronger in eastern areas than in other areas. A second interaction indicated that the association between income and SRH might be particularly strong in some Western areas. A third interaction suggested that the effect of alcohol consumption and social medical support might be stronger among respondents working in middle areas.

4. Discussion

This study found a large amount of significant associations between sociodemographic, psychosocial, and lifestyle factors and SRH among migrant laborers working in China. Age was typically associated with poor SRH in respondents, whereas there was no association in SRH for people younger than 34 years. Indeed, poor SRH exists among migrant laborers older than 45 years, in contrast with that of younger laborers. Longer working time and lower income increased the risk of poor SRH among migrant laborers. Small number of friends, familiarity with neighbors, and trust level were psychosocial risk factors for respondents. Interestingly, analysis results indicated that a good degree of familiarity with neighbors was associated with poor SRH, compared with general degree in ones. Moreover, higher trust level means better SRH in respondents. Beyond that, attending college among migrant laborers was a significant protective factor. Among lifestyle factors, consumption of liquor per 2 weeks, 2 weeks of illness, and hospitalization for a year showed a significant relation with SRH. Contrary to expectations, asking for help in a clinical environment has a stronger influence than hospitalization in SRH. In addition, appropriate alcohol consumption is beneficial for people in SRH. No significant difference was found between medical insurance and nationality in these associations. Furthermore, there was no finding of any significant difference that would suggest that BMI has any correlation with SRH in this sample.

In previous studies, age[29,30] was found to be a risk factor in SRH, and sex difference in SRH assessment and risk factors were shown to separately reinforce the relevance.[31,32] Younger migrants were positively selected with respect to health, whereas older migrant laborers were negatively selected.[33] When entire family migration was examined, younger city-bred migrants were unlikely to return to rural areas arising from a basic ignorance of agricultural production.[6] The per capita monthly income for half of the migrant laborers is less than 2500 yuan, according to a 2013 survey conducted by the Chinese National Bureau of Statistics, and only 10% of the migrant laborers surveyed have a monthly income of 3000 yuan. The area of east China is the most financially lucrative for migrant laborers, where the average income is 3528.7 yuan per month, compared with 2915.6 yuan and 3071.8 yuan in the central and western regions,[6] respectively. Some studies have shown that poor self-rated health is more prevalent among people in poor and socially disadvantaged positions.[13,34] The migrants are more likely to report their health as poor. Younger migrant laborers tended to be selected negatively on the grounds of chronic health disease and disabilities, which reflects an impaired ability to perform daily activities of living. Poor social network,[35] neighborhood problems,[36] and low trust level[37] have stronger associations in SRH among migrant laborers than those of urban residents. Migrating populations are vulnerable without an urban residency permit, and have fewer healthcare services and reduced health insurance use.[4,26] The association between occupation and SRH reported throughout the literature[38,39] is different from the previous studies. Another study showed the difference in health outcomes across social/occupational groups.[40,41]

Furthermore, many potential risk factors were examined in the current study, which contained a broad array of factors. Based on such a classification, groups of some factors were earlier referenced in the literature.[19,42] Although the distribution of association between some risk factors and SRH were similar to those distributions found in some published papers, the resulting analysis described in previous studies have been verified in this study. In Models I—III, age, low income, trust level, education level, 2 weeks of illness, and hospitalization have mostly a significant effect on poor SRH among migrant laborers. What cannot be ascertained is the evidence of association between BMI and SRH in migrant laborers. Previous research has shown that high levels of BMI were related to cardiovascular risk, mortality, and worse SRH.[43,44] However, the association between weight and SRH was not significant among migrant laborers in China. The data indicated that alcohol consumption and SRH are related. Some studies showed that excess alcohol consumption increased poor SRH and physical illness such as cardiovascular, cerebrovascular,

and vascular disease,[45−47] whereas appropriate alcohol consumption was good for SRH in Chinese migrant laborers. In Model IV, the effects of three groups of factors were explored together, and some risk factors became nonsignificant in association with SRH during different groups. Age, income, working hours, and veritable psychosocial factors appeared to have a significant effect on SRH. It is worth mentioning that 2 weeks of illness was more significant compared to hospitalization in SRH among migrant laborers.

Few meaningful results can be found by examining migrant laborers and the association between various risk factors and SRH in China. Lifestyle factors were increased during this analysis. The advantage of this study was that it included a relatively large harmogeneous sample size of migrant laborers and covered almost all provinces in China where stratified analyses were conducted. Health outcomes arising from this investigation are a good measure, which contains many indexes. The main limitation of this study was that the analysis was not related to the unavailability of access to medical service. This investigation was a cross-sectional study and data were collected in 2012, which may have created some measure of bias. Moreover, in order to pursue the integrity of data, the number of study participants simply may not be large enough for the population of China migrant laborers. Extra diligence should be undertaken to explore the effect of these risk factors on SRH.

In conclusion, this study aimed to explore some factors that are risk or protection factors for SRH among migrant laborers. There are several significant risk factors for migrant laborers' SRH, such as working time, income, social support, and medical service. Our results suggested that there should be policies by the Chinese government to increase the importance of SRH among migrant laborers. Furthermore, more comprehensive medical institutions are essential to improve conditions of SRH among migrant laborers. However, it is possible that improved social networking can enhance migrant laborers' SRH, and facilitate better communications with their partners.

Acknowledgments

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