How internal migrants' socioeconomic status affect their unmet inpatient service need? Evidence from a national study in China

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Research

Abstract

Background: China has experienced the largest migration during the past three decades. Compared with the permanent residents, migrants faced more obstacles in accessing essential health care services. This study aimed to explore the association between socioeconomic status and unmet inpatient service need among internal migrants in China.

Methods: The data used in this study were from the 2014 nationally representative cross-sectional sample of internal migrants in China. All respondents were aged 15-59 years who had been living in local residence without the 'Hukou' for more than one month, and a total of 7592 migrants with inpatient service need were included in this analysis.

Results: The migrants with unmet inpatient service need were 1667(21.96%). We found that internal migrants with higher socioeconomic defined by economic status(OR=1.74, 95 CI% 1.55-1.96) and educational attainment (OR=1.77, 95% CI 1.56-2.00) were more inclined to use inpatient services when needed, while the unemployed internal migrants (OR=0.36, 95% CI 0.32-0.41) were more likely to use inpatient service than the employed migrants. After adjustment for other demographic variables such as gender, age, marital status etc., these figures did not substantially change in model 2, the OR were 1.28(95% CI 1.12-1.46), 1.31(95% CI 1.13-1.52), and 0.59(95% CI 0.51-0.68), respectively.

Conclusion: Internal migrants with higher socioeconomic defined by economic status and education attainment were more inclined to use inpatient services when needed, while the unemployed internal migrants were more likely to use inpatient service than the employed. This suggests that future policies should make the reimbursement more pro-poor among migrants and more effective policies targeting the migrants with low educational attainment and employed.

Background

The key goal of the universal health coverage (UHC) is to ensure that everyone can obtain the health care they need[1]. But millions of people, especially the migrants, still do not have the access to health care when they need[1]. Migrants face many obstacles in accessing essential health care services due to factors such as language barriers, a lack of migrant inclusive health policies, and inaccessible public services.[2] World Health Organization (WHO) has been promoting the health of migrants and committed to adequately address health needs for migrants. A framework for migrants' health by the WHO has recognized an urgent need for the health sector to address the impact of migration on health more effectively.[2]

China has experienced the largest migration during the past three decades, the number of migrants increased from 230 million in 2011 to 244 million in 2017, which constituted 18% of the total population of China[3]. Internal migrants, also called "floating population", which is defined as those who have left their hometowns to live and work in a new residence for more than one month but do not have a local 'Hukou' of the new residence (officially registered residence).[4] Since 1980s, the rate of urbanization has

increased dramatically in China which is due to internal rural-to-urban migration[5]. However, they are also known to be marginalized in China, due to the strict Hukou system. Under the "Hukou" system, migrants cannot share most of the privileges as local residents do. Although the internal migrants have made an important contribution to urban economic growth and social stability, but their health status and health service utilization behaviors were not paid enough attention to. Comparing with local residents, the migrants face many obstacles in accessing essential health care, which lead to unmet health care need and poor quality care.[2, 6] Addressing the health care needs of migrants can improve their health status, facilitate social integration, and contribute to economic development.[7]

Socioeconomic status (SES) has been found to be a key determinant in the utilization of health services. A study in Korea found that women with lower SES have limited access to necessary health care service[8]. Another study conducted in China showed that the patients with higher SES preferred public health services than private[9]. A few studies also explored the needs and utilization of health services among migrants. A study[10] in the United States of America identified factors related to healthcare utilization among Asian migrant women and found that those had health insurance and more work-related health symptoms were more likely to visit a primary care provider. Guo M et al.[11] examined potential linkages between family relationships and health service utilization among US Chinese elderly, which showed that positive spousal or family relations were not associated with either physician visits or hospital stays. Another study[12] in China found that migrants who were insured were more likely to make doctor visits than those who were uninsured. These existing studies have mostly been divided into three categories. The first is about the difference and comparison of the utilization of health services between the migrants and the local registered population[6, 13, 14]. The second is on the influencing factors of the utilization of health services of the migrants, but few explored from the perspective of health needs[15–17]. Third, most studies on the internal migrants are based on regional data[12, 16, 18–20], and there were few studies using a nation-wide data about the migrants. To the date, there is a shortage of studies explored the effect of socioeconomic status on unmet health needs among internal rural-to-urban migrants. In order to fill this gap in the current studies, this study aims to explore the association between individual socioeconomic status and unmet inpatient service need among the internal rural-to-urban migrants in China.

Methods

Study design and Data collection

The data used in this study was derived from the 2014 National Internal Migrant Population Dynamic Monitoring Survey[21], which covered 348 cities in 32 provincial units by the National Health Commission of China. The purpose of the survey was to investigate the utilization of inpatient services among internal migrants. The sampling frame for this study was taken using the stratified multistage random sampling method by probability proportional to size (PPS) approach. All respondents in this study were aged 15–59 years who had been living in local residence without the 'Hukou' for more than one month in 2013, including migrants from both rural and urban areas. For more details on sampling, design and approvals

of the survey, please refer to Haiqin Wang et al.[22] Finally, a total of 7592 migrants with inpatient service need were included in this nationally representative cross-sectional analysis.

Outcome variable

In this study, migrants' inpatient service needs were measured by questions about whether they were asked to be hospitalized by a doctor during the last year (inpatient need). The inpatient service needs were categorized into unused inpatient services (unmet needs) and used services. The unmet need for inpatient service referred to the proportion migrants who were asked to be hospitalized but did not use it during the past year, based on the definite answer to the question "Have you ever been diagnosed by a doctor as requiring hospitalization but you have not been hospitalized in the past 12 months". On the basis of the negative answer to this question and a definite answer to the question "Have you ever been hospitalized due to illness, injury or delivery within 12 months" was classified as the group of used inpatient service. We only chose the migrants who were in need including those who used or had unmet inpatient service utilization for analysis.

Independent variables

Socioeconomic Status (SES)

Socioeconomic status (SES) was an economic and sociological combined total measure of a person's work experience and an individual's or family's economic and social position in relation to others, based on household income, individual education, and occupation[23]. The three main SES indicators used in this analysis were economic status, employment status and educational attainment. The participants' economic status was based on household income per month. It included four types: Quartile 1(Q1), Quartile 2(Q2), Quartile 3(Q3) and Quartile 4 (Q4). Quartile 1(Q1) was the poorest, and Quartile 4(Q4) was the richest. All three socioeconomic status types were measured in two categories: low SES and high SES. High and low SES was defined in the following ways: (1) economic status, as Q1, Q2 versus(vs). Q3, Q4; (2) employment status which means whether the respondent had a job, as employed vs. unemployed; (3) educational attainment, as middle school or below vs. high school or above.

Controlled variables

Controlled variables included demographic characteristics and other covariates. Demographic characteristics included gender, age, marital status (married or single), number of children and ethnic group (Han or ethnic minority). Other covariates includes whether had a health record, Hukou types (urban or rural), health insurance, movement area, duration of migration, region, and willingness for long-term residence of more than 5 years (yes, no, and not decided yet). Types of health insurance were divided into five subgroups: no health insurance, having New Rural Cooperative Medical Scheme (NCMS), having Urban Employee Basic Medical Insurance (UEBMI) and having Urban Resident Basic Medical Insurance (URBMI). Movement area was categorized into three types: migration across provinces; migration across prefectural cities but within a province and migration across counties but within a prefectural city. The survey region was categorized into four types: east, central, west and northeast. All

the controlled variables were available through the 2014 National Internal Migrant Population Dynamic Monitoring Survey and were included in multivariate model 2.

Statistical analysis

First, descriptive analyses were performed to compare the unmet inpatient service need across different subgroups of the participants using t-test or chi-square test as appropriate. Second, binary logistic regression (model 1) to examine the association between socioeconomic status and the unmet inpatient service need. In order to control for potential confounding effects of demographic factors, multiple logistic regression (model 2) were used to estimate the adjusted odds ratio and the 95% confidence intervals. Model 2 adjusted for respondents' demographic characteristics (gender, age, marital status, number of children and ethnic group), health records, Hukou, health insurance, movement area, duration of migration, region, and willingness for long-term residence (> 5 years). Sampling weights were included in all analyses.

Results

Descriptive results

According to the Table 1, the total number of the migrants who needed inpatient service diagnosed by doctors was 7592, of which, 1667(21.96%) did not use inpatient services (unmet inpatient service need). The high-SES defined by economic status, employment status, and educational attainment accounted for 45.28%, 60.30%, and 38.75%, respectively.

Table 1

Characteristics of the migrants who need to be hospitalized in 2014, China (n = 7592)

Characteristics	Total n(%)	Used inpatient service n(%)	Unmet need n(%)	p value
Socioeconomic status				
Economic status				< 0.001
High SES	3438(45.28)	2838(47.90)	600(35.99)	
Low SES	4154(54.72)	3087(52.10)	1067(64.01)	
Employment status				< 0.001
High SES	4578(60.30)	3314 (55.93)	1264 (75.82)	
Low SES	3014(39.70)	2611 (44.07)	403 (24.18)	
Educational attainment				< 0.001
High SES	2942(38.75)	2479(41.84)	463(27.77)	
Low SES	4650(61.25)	3446(58.16)	1204(72.23)	
Demographic variables				
Gender				< 0.001
Female	5461(71.93)	4670 (78.82)	791 (47.45)	
Male	2131(28.07)	1255 (21.18)	876 (52.55)	
Age	32.97 ± 9.02	31.48 ± 8.15	38.27 ± 9.91	< 0.001
Marital status				< 0.001
Married	7120(93.78)	5649 (95.34)	1471 (88.24)	
Single	472(6.22)	276 (4.66)	196 (11.76)	
Number of children				< 0.001
0	195(2.57)	126(2.13)	69(4.14)	
1	4070(53.61)	3340(56.37)	730(43.79)	
≧2	3327(43.82)	2459(41.50)	868(52.07)	
Ethnic group				0.91

Note: Hukou referred to the household registration system in China, classified all residents into rural and urban registration categories;

NCMS: New Rural Cooperative Medical Scheme; UEBMI: Urban Employee Basic Medical Insurance; URBMI : Urban Resident Basic Medical Insurance.

Characteristics	Total n(%)	Used inpatient service n(%)	Unmet need n(%)	p value
Han	6915(91.08)	5396 (91.07)	1519 (91.12)	
Ethnic minority	677(8.92)	529 (8.93)	148 (8.88)	
Health records				0.47
Yes	5648(74.39)	4396 (74.19)	1252 (75.10)	
No	1944(25.61)	1529 (25.81)	415 (24.90)	
Hukou				0.061
Urban	1301(17.14)	1041 (17.57)	260 (15.60)	
Rural	6291(82.86)	4884 (82.43)	1407 (84.40)	
Health insurance				0.002
No insurance	1066(14.04)	844(79.17)	222(20.83)	
NCMS	4447(58.57)	3433(77.20)	1014(22.80)	
URBMI	551(7.26)	410(74.41)	141(25.59)	
UEBMI	1528(20.13)	1238(81.02)	290(18.98)	
Movement area				0.034
Across province	3650(48.08)	2867(48.39)	783(46.97)	
Across city	2330(30.69)	1838(31.02)	492(29.51)	
Across county	1612(21.23)	1220(20.59)	392(23.52)	
Migration time (year),	4.51 ± 4.80	4.09 ± 4.42	6.03 ± 5.73	< 0.001
Region				< 0.001
East	3167(41.71)	2635(44.47)	532(31.91)	
Central	1246(16.41)	961(16.22)	285(17.10)	
West	2674(35.22)	1990(33.59)	684(41.03)	
Northeast	505(6.65)	339(5.72)	166(9.96)	
Plans for long-term residence(> 5 years)				0.093
Yes	5072(66.81)	3940(66.50)	1132(67.91)	

Note: Hukou referred to the household registration system in China, classified all residents into rural and urban registration categories;

NCMS: New Rural Cooperative Medical Scheme; UEBMI: Urban Employee Basic Medical Insurance; URBMI : Urban Resident Basic Medical Insurance.

Characteristics	Total n(%)	Used inpatient service n(%)	Unmet need n(%)	p value
No	740(9.75)	565(9.54)	175(10.50)	
Not decided yet	1780(23.45)	1420(23.97)	360(21.60)	
Total	7592	5925(78.04)	1667(21.96)	
Note: Hukou referred to the household registration system in China, classified all residents into rural and urban registration categories;				
NCMS: New Rural Cooperative Medical Scheme; UEBMI: Urban Employee Basic Medical Insurance; URBMI : Urban Resident Basic Medical Insurance.				

Of the 7592 participants, about two-thirds (n = 5461) were female. The mean age was 32 (SD = 9.02) years old. Most of the migrants were Han Chinese and had married, 97.43% had at least one child; 82.86% were registered as having a rural 'Hukou' and 74.39% had established the health records in the local residence. Overall, 58.57% of the respondents were covered by the NCMS, 7.26% and 20.13% were covered by the URBMI and UEBMI, respectively, while 14.04% had no social health insurance. Generally speaking, the majority of our sample population was migrants across province (48.08%), from east (41.71%), and has willingness for long-term residence (66.81%). Using chi-square tests, we found that there were statistically significant difference in socioeconomic status, gender, age, marital status, number of children, health insurance, movement area, duration of migration, and region.

Association between SES and inpatient service utilization among internal migrants

Table 2 used two models to understand the effect of SES on the unmet inpatient service need among internal migrants in China. The use of inpatient services were defined to as the reference group. There was a significant association between SES and the unmet inpatient service need. Model 1 presents the differences in utilization of hospitalization services in different socioeconomic status without covariate adjustment. The OR values of unmet inpatient service need by internal migrants with low SES according to economic status, employment status and educational attainment, which were 1.74(95% CI 1.55–1.96), 0.36(95% CI 0.32–0.41), and 1.77(95% CI 1.56-2.00), respectively.

Table 2
Association of SES and the unmet inpatient service need in migrant population in 2014, China

Characteristics	Model 1 (No covariates)		Model 2 (Covariates)	
	OR(95% CI)	P	OR(95%CI)	P
Socioeconomic status				
Economic status				
High SES	1		1	
Low SES	1.74(1.55−1.96)	< 0.001	1.28(1.12−1.46)	< 0.001
Employment status				
High SES	1		1	
Low SES	0.36(0.32−0.41)	< 0.001	0.59(0.51−0.68)	< 0.001
Educational attainment				
High SES	1		1	
Low SES	1.77(1.56-2.00)	< 0.001	1.31(1.13−1.52)	< 0.001
Demographic variables				
Gender				
Female			1	
Male			2.06(1.81−2.36)	< 0.001
Age(Years)			1.06(1.05−1.07)	< 0.001
Marital status				
Married			1	
Single			2.72(2.16−3.43)	< 0.001
Number of children				
0			1	
1			0.46(0.33−0.64)	< 0.001

Note: use of inpatient services were defined to as the reference group;

Hukou referred to the household registration system in China, classified all residents into rural and urban registration categories;

NCMS: New Rural Cooperative Medical Scheme; UEBMI: Urban Employee Basic Medical Insurance; URBMI : Urban Resident Basic Medical Insurance.

Characteristics	Model 1 (No covariates)		Model 2 (Covariates)	
	OR(95% CI)	P	OR(95%CI)	P
≧2			0.42(0.30−0.59)	< 0.001
Ethnic group				
Ethnic minority			1	
Han			1.12(0.91−1.39)	0.236
Health records				
No			1	
Yes			1.06(0.92−1.22)	0.420
Hukou				
Rural			1	
Urban			0.92(0.76−1.11)	0.376
Health insurance				
No insurance			1	
NCMS			0.96(080-1.16)	0.693
URBMI			0.97(0.74−1.27)	0.822
UEBMI			0.80(0.64−1.01)	0.059
Movement area				
Across province			1	
Across city			0.88(0.76−1.02)	0.099
Across county			0.88(0.74−1.04)	0.132
Duration of migration (Years)			0.98(0.97−0.99)	0.010
Region				
East			1	

Note: use of inpatient services were defined to as the reference group;
Hukou referred to the household registration system in China, classified all residents into rural and urban registration categories;
NCMS: New Rural Cooperative Medical Scheme; UEBMI: Urban Employee Basic Medical Insurance; URBMI : Urban Resident Basic Medical Insurance.

Characteristics	Model 1 (No covariates)		Model 2 (Covariates)	
	OR(95% CI)	P	OR(95%CI)	P
Central			1.19(0.97−1.45)	0.094
West			1.36(1.17−1.59)	< 0.001
Northeast			1.34(1.04−1.72)	0.023
Willingness for long-term residence(> 5 years)				
Yes			1	
No			1.22(0.99−1.50)	0.057
Not decided yet			1.05(0.90−1.22)	0.556
Constant	0.20(0.18−0.22)	< 0.001	0.22(0.13−0.38)	< 0.001
Note: use of inpatient services were defined to as the reference group;				
Hukou referred to the household registration system in China, classified all residents into rural and urban registration categories;				
NCMS: New Rural Cooperative Medical Scheme; UEBMI: Urban Employee Basic Medical Insurance; URBMI : Urban Resident Basic Medical Insurance.				

Table 3

Reasons for unmet inpatient service need among the internal migrants in 2014, China

Reasons	n(%)
Economic difficulty	605(36.29)
Feeling unnecessary	574(34.43)
Have no time	293(17.58)
No one to take care of	97(5.82)
No effective treatment	39(2.34)
Others	34(2.04)
Lack of hospital beds	25(1.50)
Total	1667

After adjusting for other demographic variables such as gender, age, marital status etc., the associations were still statistically significant in model 2. Specifically, the OR values of unmet inpatient service need by

internal migrants with low SES according to economic status, employment status and education attainment were 1.28(95% CI 1.12−1.46), 0.59(95% CI 0.51−0.68), and 1.31(95% CI 1.13−1.52), respectively. Regression analysis showed that migrants with lower SES defined by economic status were 1.28 times to unmet inpatient service need than the higher SES, and migrants with lower educational attainment were 1.31 times to unmet inpatient service need than the higher SES.

Discussion

Unmet healthcare need is a key indicator to assess the operation of a country's health service system, and any barriers of access to healthcare should be identified and then eliminated [8]. By analyzing the unmet inpatient service among the migrants is vital to develop targeting measures, so as to better meet the health services needs of the migrants. Using the National Internal Migrant Population Dynamic Monitoring Survey dataset, the current study explored the relationship between individual's SES and unmet inpatient service among the internal migrants in China, and found that individual-level SES indicators including economic status, employment status and educational attainment are significantly associated with unmet inpatient service needs among the migrants.

Our study indicated that economic status of internal migrants was a key barrier to accessing inpatient service. Compared with those in the low-economic status group, internal migrants with higher economic status were more likely to use inpatient service when they had an inpatient service need, which was consistent with the top reason (economic hardship, 36.29%) for unmet inpatient service needs among internal migrant. Previous studies have shown that the risk of unmet inpatient service of the poor people was significantly higher than that of non-poor people[24], both in the permanent residents and the migrants[4, 25]. There are several possible reasons for this finding. First, migrants with higher economic status in China have higher payment capacity, and hence, they were more likely to use inpatient services when in need. Second, most of those with low economic status were those rural-to-urban migrants. The primary goal for the migration in such population was in search of better income in urban areas. Thus, they tended to focus on their economic conditions only, and usually ignore their own health[2]. Even they had inpatient need, going to hospital would cause substantial economic losses for them. Despite the nearly universal medical insurance coverage in China, economic status remains the dominant obstacle in the use of healthcare services[26−28], including outpatient and inpatient services, and contributed to inequity in general health care utilization[29−31]. This phenomenon is even more serious among the internal migrants. Therefore, policy makers should pay more attention to migrants with low economic status, and develop pro-poor health insurance scheme to meet the inpatient service need among the migrants.

This study also found that low educational attainment was associated with unmet inpatient service need among internal migrants, which was consistent with other studies[15, 32−34]. One possible explanation was that the internal migrants with higher education usually had more knowledge and awareness about the importance of inpatient service use, and thus tended to use inpatient services when they have a need. Accordingly, future interventions might consider using health education focused on migrants with low

level of education. It is worth mentioning that popular and easy ways should be conducted to intervene for migrants with low educational attainment and improve their use of inpatient service when in need. In addition, a better form of health education on migrants is peer education. Those low education migrants with a similar age, gender and economic status can have a common topic of discussion, and thus share information, so as to amplify the effect of "peer effect".

To our surprise, the unemployed internal migrants were more likely to use inpatient service when in needs than the employed migrants, which was inconsistent with previous studies[15]. One possible explanation for this finding was the 'healthy worker effect'. This effect has been demonstrated in many migrant populations[35, 36]. First, employed migrants tended to be in better health status than the general population due to the exclusion of unhealthy migrants from employment[37]. They often have better self-perceived health outcomes than those unemployed migrants, hence they may choose to ignore inpatient service. Second, under the pressures of working, employed migrants were more inclined to ignore the health problems[38], which is consistent with the second reason (Feeling unnecessary, 34.43%) for unmet inpatient service need among internal migrant. The employed migrants had less free time than those unemployed migrants. Migrants who had a job need to pay the price of absenteeism and sick leave to use the inpatient service. Last but not the least, some unemployed migrants moved to the cities only to seek better health services rather than to seek jobs.[22] These reasons may explain the lower possibility to use inpatient service when they in need among employed migrants.

The major contribution of this study was that we sought to identify the relationship between individual's SES and unmet inpatient service among internal migrants. Although previous studies have shown that high-SES is a protective factor in using public health service among the migrants[9, 15, 17, 19, 38, 39], but few studies have explored the association between SES and unmet inpatient services among internal migrants in China. However, this study also had several limitations. First, it was a cross-sectional study, could only be used to explore associations between SES and inpatient service utilization among migrants. The relationships that we inferred cannot be interpreted as causal in nature. Second, the use of hospitalization services and doctor's diagnostic information of the internal migrants were both self-reported, therefore, recall bias might exist. Final, inpatient service utilization based on health needs was also determined by the accessibility of health services in terms of geography, cultural and administrative barriers in addition to socioeconomic status. It was necessary to explore more associated factors in the future.

Abbreviations

SES: socioeconomic status; UHC: universal health coverage; WHO: World Health Organization; PPS: probability proportional to size; NCMS: New Rural Cooperative Medical Scheme; UEBMI: Urban Employee Basic Medical Insurance; URBMI: Urban Resident Basic Medical Insurance.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

The datasets are open to all of the potential users online. [http://www.chinaldrk.org.cn/wjw/#/data/classify/population/yearList].

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

CZ conceived the idea and polished the manuscript. YW coded and analyzed data and wrote the manuscript. ZJ, YF, XT, and LD participated in interpretation of the data. All authors read and approved the final manuscript.

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