



# Remedying Psychological Depression of Rural to Urban Female Migrant Workers with Proactiveness in Seeking Health Care Services in Urban China

Chao Wang<sup>1†</sup>, Yibao Wang<sup>1</sup>, Huimin Cao<sup>1</sup>, Rongzhen Xu<sup>2</sup>, Wendong Xu<sup>1</sup>

## ABSTRACT

Proactiveness in seeking health care services among psychopaths lies at the core of self-efficacy, improvements in health services utilization can cause better control of psychological depression among rural to urban female migrant workers. However, a paucity of literatures have shown the proactiveness of seeking health services in the context of psychological depression control among female migrant workers. A cross-sectional survey was carried out in the selected urban region from one province in China, and 781 participants were interviewed between January and September in 2018 with stratified multiple-stage sampling to examine the interrelationship between psychological depression control and socio-demographic and economic variables as well as proactiveness of female migrant workers in seeking health care services. The primary outcome for this research was psychological depression control (depression score < 50 for each individual). Out of the total 781 participants with almost more than 6 years of education, the number of proactive health care service seekers was 1.463 times greater than the passive seekers (odds rate (OR)=1.463, 95% confidence interval (CI)=1.061-2.016,  $p=0.020$ ). In all subgroups, participants actively seeking were more likely to have healthy psychological status than those passively utilizing health care services. Proactiveness in seeking contributes to the control of psychological depression and improvements in psychological health status among female migrant workers.

## Keywords

Seeking health care services, Psychological depression, Female migrant workers

## Abbreviations:

HCSs: Health-Care Services; FMWs: Female Migrant Workers; OR: odds rate; CI: Confidence Interval; LMICs: Low and Middle-Income Countries.

## Introduction

Psychological depression is one of the major contributing risk factors for disability, which represents a total of 19.1% of all disability related to health conditions in low-and-

middle-income countries (LMICs) [1]. It is also commonly perceived in LMTCs that over 80% of population have suffered from disorders mentally [2], which account for 8.8% of the total burden of disease in LMTCs [3]. The high percentage of psychological depression in population in LMTCs can be turned into a burden in economy, which in turn put people with psychological depression in poverty and holds back a demographic of the less-developed countries worldwide [2]. Therefore, most of LMICs are on their way to become informed of the burden of psychological depression and

<sup>1</sup>China University of Mining and Technology, Xuzhou, China

<sup>2</sup>Hubei University of Science and Technology, Xianning, China

<sup>†</sup>Author for correspondences: Chao Wang, School of Policy and Management, China University of Mining and Technology, 221000, China, Tel: (+86)18271395045; email: wangchaoaccnu@163.com

have proposed a plan to effectively relieve and remedy people's psychological depression [2]. Undoubtedly, it is the most important step to identify the risk factors prevalent among the population of interest.

China is a developing country with surging numbers of rural to urban migrant workers moving from the less developed regions to more developed areas from 70 million in 1993 to 286.5 million in 2017 [4,5], a result of economic globalization and rapid economic development. Female migrant workers (FMWs) consist of the majority of the employees in manufacturing and service industries, and play a crucial role in Chinese economy. However, it is generally believed that FMWs are at higher risk of poor mental health, which mainly comes from their socially and economically disadvantageous status in urban China [6]. FMWs' mental health has been increasingly recognized as a social concern in China [4,7], but, according to literature search in PubMed, psychological depression of FMWs is largely neglected in existing occupational health research and practice in China [8,9].

The previous research has explored the influence of health service utilization on health-related quality of life in Chinese FMWs. It is also demonstrated that the efficiency of patients' utilization of health care services (HCSs) is crucial to enhancing their health status [10,11]. However, there is a paucity of research showing the evidence in proactiveness of seeking HCSs. In this study, we hypothesize that there exists an obvious association between Chinese FMWs' mental health status and their proactiveness in seeking HSU. Therefore, the main purpose of this research is to explore the association between the proactiveness of FMWs in seeking HSU and psychological depression control. The findings may provide useful information for policy makers and service providers to optimize health service delivery to FMWs in China.

## Materials and Methods

### ■ Study design and participants

The cross-sectional survey was conducted in March 2018 with stratified multiple-stage sampling across 3 levels in Hubei province, China. First, all of the 13 cities in Hubei province were divided into 3 parts, and one city was randomly selected from each part based on their regional economic status. Second, all counties from these 3 cities were divided into

2 parts and 3 counties were randomly chosen from each part (i.e.,  $3 \times 2=6$  counties). Third, 130 participants with psychological depression assessed by themselves were randomly selected from each of the 6 counties (i.e.,  $3 \times 2 \times 130=780$  participants). According to previous research, the rate of psychological depression among occupational group was 50% in China. Assuming 95% coincidence level and an absolute sampling error of 4%, a minimum of 600 FMWs are needed. Because of missing or illogical data, 48 participants were excluded; finally, the needed sample size was 770.

Well-trained investigators majoring in Public Administration, from China University of Mining and Technology, were responsible to interview participants and collect research data through face-to-face interviews using structured research questionnaires. In the formal survey, all FMWs were given a brief introduction on this research and instructions for filling out the questionnaires, then participants were required to independently and anonymously complete the questionnaires. Every interview took about 20 to 30 minutes, all interviewees were offered compensation for their time-consumption. In addition, trained investigators were assigned to read out questions in the questionnaires for those participants who were illiterate, and check the questionnaires for implausible responses or missing data before the collection of questionnaires.

### ■ Assessment of psychological depression and proactiveness in seeking HCSs among participants

Psychological depression of participants was assessed on the spot by themselves under the direction of the trained investigators based on the Self-rating Depression Scale (SDS). The primary outcome for this research was psychological depression (depression score  $< 50$  for individual was defined as normal, "normal" group hereafter). Otherwise, it is considered as abnormal, "abnormal" group hereafter. The variable of proactiveness in seeking HCSs was a binary variable and was measured by the actual utilization of HCSs by individual participant. Participants were coded as proactive group in seeking HCSs if they went to utilize public health service without any reminder ("proactive" group hereafter). However, if they sought HCSs after reminders, then they were considered as passive in seeking HCSs ("passive" group hereafter).

■ **Other variables and covariates**

Previous literatures have already investigated the factors of migrant workers' mental health [12,13], mainly coming from socio-demographic characteristics, migration-related data and work-related factors [6]. Those variables, therefore, should be included in this analysis, which are age (before 1980, between 1980 and 1990, after 1990), education (>12 years, 9-12 years, 6-9 years,<6 years), occupation (employed, self-employed), marital status (single, married, divorced), average monthly income (<2100 RMB, 2100-4200 RMB,>4200 RMB), self-reported average monthly income level (low, middle, high), duration of migration work (0-7 years, 8-15 years, 16-40 years), number of working hours per day (<8,>8), number of days off per month (<4, 5-8, 9-15), self-evaluation of social exclusion (low, middle, high) and proactiveness of seeking HSU (passive, proactive).

■ **Statistical analysis**

The 7 independent variables were first summarized using descriptive statistics, the  $\chi^2$  tests were used to compare the covariates of interest between normal and abnormal group, and then a binary logistic regression analysis model was used to explore the association between the proactiveness in seeking HCSs and psychological depression among participants. Moreover, the homogeneity of the interaction between the normal psychological depression status rates across the subgroups and the group assignment rate was estimated with the Cochran-Mantel-Haenszel test [11,14]. Within the 2 subgroups, the means of  $\chi^2$  tests were implemented to compare the rates of normal psychological health status in the 2 proactiveness groups. In this research, all the cross-sectional data were coded and processed by SPSS 17.0 (SPSS Inc., USA) with the statistical significance test level set at 0.05 (2-sided).

■ **Ethics statement**

All the information collected through face-to-face interviews and questionnaires was confidential and anonymous. Ethics approval was granted by the Ethics Committee of School of Public Policy and Management, China University of Mining and Technology. Written informed consents were obtained from all participants and it clarified that participating in this research was fully voluntary.

**Results**

■ **Sample characteristic and differences in psychological depression control**

As shown in **Table 1**, more than half of 781 samples were married (64.8%). Nearly half of the survey participants were born in between 1980 and 1990 (43.1%). About 93% of respondents have more than 6 years of education (97.1%), which is opposite to a previous study that a relatively high prevalence of the lower literacy ability in urban China [8]. A high proportion of the sample were employed (77.0%) with average working hours of more than 8 per day (42.5%), with monthly income of 2100 RMB (approximately 318 USD) (the average monthly disposable income of urban residents was 2254 RMB (about 338 USD) in urban areas of Hubei Province in 2017) [15], which is consistent with the self-evaluation of their average monthly income level, as well as low (40.5%).

In terms of accessibility to HSU, with the appearance of Basic Public Health Services (BPHSs) in 2009 and the efforts from Chinese government to prevent rural residents from being impoverished by medical expenses [11], more and more migrant workers paid attention to their health management, 40.1% of survey participants were proactive in seeking HSU. Among all the participants, 41.6% (325/781) of them had abnormal psychological depression after the measuring with SDS. Average monthly income, self-reported average monthly income level, and self-evaluation of social exclusion were significantly different between abnormal and normal groups. Compared with the abnormal group, participants in the normal group of psychological health status seemed more likely to be proactive in seeking HSU, and this difference was statistically significant (**Table 1**).

■ **Association between proactiveness in seeking hcss and psychological depression control**

Statistically significant differences were discovered in the 3 variables above, and then binary logistic regression model was applied to examine the association between proactiveness in seeking HCSs and psychological depression control. As shown in **Table 2**, the most noteworthy was the odds of proactiveness of HCSs seekers being 1.463 times greater than the passive seekers (odds rate=1.463, 95% confidence interval=1.061-2.016, p=0.020). After considering the association between the

**Table 1: Univariate analyses examining factors associated with psychological depression control among FMWs in urban China.**

Characteristics	In Total (n=781)	Percentage (%)	Whose psychological depression is abnormal		Whose psychological depression is normal		$\chi^2$	P
			N	%	N	%		
<b>Sociodemographic characteristics</b>								
Age							2.946	0.229
before 1980	308	39.4	120	36.9	188	41.2		
between 1980 and 1990	330	42.3	149	45.8	181	39.7		
after 1990	143	18.3	56	17.3	87	19.1		
<b>Education, year</b>								
>12	220	28.2	98	30.2	122	26.8		
9-12	264	33.8	107	32.9	157	34.3		
6-9	274	35.1	110	33.8	164	36.0		
<6	23	2.9	10	3.1	13	2.9		
<b>Duration of migration work, year</b>								
0-7	322	41.2	135	41.5	187	41.0	0.360	0.835
8-15	239	30.6	102	31.4	137	30.0		
16-40	220	28.2	88	27.1	132	29.0		
<b>Occupation</b>								
Employee	601	77.0	257	79.1	344	75.4	1.416	0.234
self-employed	180	23.0	68	20.9	112	24.6		
<b>Marital status</b>								
Single	260	33.3	104	32.0	156	34.2		
Married	506	64.8	215	66.2	291	63.8		
Divorced	15	1.9	6	1.8	9	2.0		
<b>Average monthly income, RMB</b>								
<2100	525	67.2	201	61.8	324	71.1	7.695	0.021
2100-4200	239	30.6	117	36.0	122	26.8		
>4200	17	2.2	7	2.2	10	2.2		
<b>Self-reported average monthly income level</b>								
Low	316	40.5	105	32.3	211	46.3	17.774	0.000
Middle	345	44.2	156	48.0	189	41.4		
High	120	15.4	64	19.7	56	12.3		
<b>No. of working hours per day</b>								
<8	449	57.5	194	59.7	255	55.9	1.104	0.293
>8	332	42.5	131	40.3	201	44.1		
<b>No. of days off per month</b>								
<4	626	80.2	257	79.3	369	81.3	0.496	0.780
5-8	147	18.8	65	20.1	82	18.0		
9-15	8	1.0	2	0.6	3	0.7		
<b>Self-evaluation of social exclusion</b>								
Low	224	28.7	146	44.9	78	17.1	75.180	0.000
Middle	306	39.2	109	33.5	197	43.2		
High	251	32.1	70	21.5	181	39.7		
<b>Proactiveness of seeking HSU</b>								
Passive	313	40.1	120	36.9	193	42.3	2.305	0.129
Proactive	468	59.9	205	63.1	263	57.7		

**Table 2: Multivariable analyses examining factors associated with psychological depression control among FMWs in urban China.**

Characteristic	Reference	B	DF	P	OR	95% C.I.	
						Lower	Upper
<b>Age</b>	After 1990		2	0.888			
before 1980		0.070	1	0.779	1.073	0.656	1.755
1980-1990		-0.029	1	0.899	0.972	0.622	1.519
<b>Education, y</b>	<6		3	0.964			
>12		-0.107	1	0.833	0.899	0.334	2.419
9-12		-0.101	1	0.836	0.904	0.347	2.352
6-9		-0.008	1	0.987	0.992	0.389	2.529
<b>Occupation</b>	Employee						
self-employed		0.168	1	0.391	1.183	0.806	1.735
<b>Duration of migration work, y</b>	<7		2	0.799			
8-15		-0.114	1	0.542	0.892	0.618	1.287
16-40		0.000	1	0.999	1.000	0.664	1.506
<b>Average monthly income</b>	<2100		2	0.275			
2100-4200		-0.287	1	0.114	0.751	0.526	1.072
>4200		0.024	1	0.966	1.024	0.347	3.025
<b>Self-reported average monthly income level</b>	Low		2	0.045			
High		-0.557	1	0.021	0.573	0.356	0.920
Middle		-0.314	1	0.072	0.731	0.519	1.028
<b>No. of working hours per day</b>	>8						
<8		-0.072	1	0.676	0.930	0.662	1.306
<b>No. of days off per month</b>	<4		2	0.904			
5-8		-0.083	1	0.704	0.920	0.598	1.415
9-15		-0.250	1	0.795	0.779	0.118	5.154
<b>Self-evaluation of social exclusion</b>	High		2	0.000			
Middle		-1.529	1	0.000	0.217	0.145	0.325
Low		-0.364	1	0.056	0.695	0.479	1.009
<b>Proactiveness of seeking HSU</b>	Passive						
Proactive		0.380	1	0.020	1.463	1.061	2.016
CI = confidence interval							

rates of normal psychological depression and the subgroup assignment rate, comparison of the rates of the normal psychological depression among hierarchical subgroups is shown in **Table 3**. Nearly all the subgroups of proactive seekers were more likely to have higher rate than those of passive seekers. And there seem to be statistically significant differences between the proactive and passive subgroup, a consistent effect of proactiveness in seeking HCSs across various characteristics groups was shown in the observed patterns.

## Discussion

### ■ Main findings

As reported in previous findings, there was no disparity to be observed among rural to urban female migrant workers in seeking health service utilization [4]. The purpose of this research was then to examine the association between proactiveness in seeking HCSs and

the psychological depression of FMWs in urban China. We found that the proactiveness in seeking HCSs was passively associated with the psychological depression control. After discovering the differences of psychological depression between proactive and passive group and with other variable groups, the binary logistic regression model was implemented to explore the impact of predictors on psychological depression control with the result revealing that proactiveness of FMWs seeking HCSs directly influenced the outcome. In addition, the rate of normal psychological depression among proactive seekers and passive seekers was more likely to be higher and it was distributed among almost all hierarchical subgroups.

### ■ Implications

This research indicated that there existed a positive relationship between the proactiveness of FMWs in seeking HCSs and positive results of psychological depression control. The causality

**Table 3: Psychological depression control rates of proactive and passive subgroup seeking HCSs.**

Characteristics	Proactive subgroup		Passive subgroup		$\chi^2$	P
	No. Whose Psychological Depression Is Normal/Total No.	%	No. Whose Psychological Depression Is Normal/Total No.	%		
<b>Age</b>					19.629	0.000
before 1980	60/106	56.6	128/202	63.4		
between 1980 and 1990	81/133	60.9	100/197	50.8		
after 1990	52/74	70.3	35/69	50.7		
<b>Education, y</b>					16.911	0.001
>12	66/109	60.6	56/111	50.5		
9-12	72/109	66.1	85/155	54.8		
6-9	51/88	58.0	113/186	60.8		
<6	4/7	57.1	9/16	56.3		
<b>Duration of migration work, y</b>					1.083	0.582
0-7	81/138	58.7	106/184	57.6		
8-15	61/93	65.6	76/146	52.1		
16-40	51/82	62.2	81/138	58.7		
<b>Occupation</b>					6.305	0.012
Employee	157/251	62.5	187/350	53.4		
self-employed	36/62	58.1	76/118	64.4		
<b>Marital status</b>					17.574	0.000
Single	87/132		69/128	53.9		
Married	103/174		188/332	56.6		
Divorced	3/7		6/8	75.0		
<b>Average monthly income, RMB</b>					0.636	0.728
<2100	138/213	64.8	186/312	59.6		
2100-4200	52/95	54.7	70/144	48.6		
>4200	3/5	60.0	7/12	58.3		
<b>Self-reported average monthly income level</b>					1.364	0.506
Low	23/49		33/71	46.5		
Middle	84/146		103/199	51.8		
High	86/118		127/198	64.1		
<b>No. of working hours per day</b>					4.468	0.035
<8	119/196	60.7	136/253	53.8		
>8	74/117	63.2	127/215	59.1		
<b>No. of days off per month</b>					9.246	0.010
<4	143/231	61.9	226/395	57.2		
5-8	47/78	60.3	35/69	50.7		
9-15	1/2	50.0	2/3	66.7		
<b>Self-evaluation of social exclusion</b>					12.584	0.002
Low	47/100	46.9	31/124	25.0		
Middle	74/121	58.9	123/185	66.5		
High	72/92	71.2	109/159	68.6		

might be explained by that the proactiveness may relate with self-efficacy and self-management, which play an important role in mental health control [16]. In this survey, there was a relatively high prevalence of high education level among participants. Knowledge is the foundation of attitude [17], meaning that the higher education level the FMWs have reached, the higher likelihood they would actively seek HCSs, which can help them achieve a psychological health status for better defending and competing

with disease [18]. Moreover, in China, basic public health services are provided for free by government to reduce the financial burden of disease for those living in poverty. It seems useful for migrant workers who do not have sufficient economic resources for paid services.

### Limitations

This research has several limitations. First, as this is a cross-sectional survey, the outcome of



the psychological depression cannot represent the long-term effect, and it may indicate the random result. Second, the data are based on participants' self-estimation, which certainly is subjected to individual variances. Factors such as average monthly income level or social exclusion are quite subjective and hard to estimate. Third, this study, which has been designed to examine the association between the proactiveness of FMWs in seeking HCSs and psychological health status, may neglect the impact of other independent variables. However, our findings can provide valuable and important implications for researchers, policy makers and services providers.

the proactiveness of FMWs, especially those with psychological depression in seeking HCSs and offer instructions to improve the efficiency and effect of psychological depression control.

### Acknowledgements

We would like to thank the interview and questionnaire respondents for their time-consumption and the valuable information they afforded. As financially supported by City Public Security Research Center, China University of Mining and Technology (No.: 2018WHCC02), the authors also want to express sincere gratitude to them.

### Conclusions

In urban China, the improvement of psychological health status is positively associated with the proactiveness of rural to urban female migrant workers in seeking health service utilization. It indicates that policy makers and services providers should not only further improve the coverage of basic public health service and provide more specified health services to meet the complex health service need of different FMWs segmentation, but also address

### Conflicts of Interest

The authors declare no conflict of interest.

### Data Availability Statement

Data used to support the findings of this study will be released in the "Public Security Research Centre of China University of Mining and Technology" (<http://ccps.cumt.edu.cn/>) which is still under construction. The data are currently available from the corresponding author upon request.

### References

- World Health Organization. Disease and Injury Regional Estimates for 2004: World Health Organization. Geneva, Switzerland (2004).
- Rathod S, Narsimha Pinninti N, Muhammed Irfan M, et al. Mental health service provision in low- and middle-income countries. *Health. Serv. Insights* 10(1), 1-10 (2017).
- World Health Organization. The Global Burden of Disease: 2004 Update: World Health Organization. Geneva, Switzerland (2008).
- Lu CH, Wang PX, Lei YX, et al. Influence of health-related quality of life on health service utilization in Chinese rural-to-urban female migrant workers. *Health. Qual. Life. Outcomes* 12(1), 121-128 (2014).
- National Bureau of Statistics China. National economy and society developed statistical bulletin of the People's Republic of China (2017).
- Zhong BL, Chan Sandra SM, Liu TB, et al. Mental health of the old- and new-generation migrant workers in China: who are at greater risk for psychological distress? *Oncotarget* 8(35), 59791-59799 (2017).
- Mein G, Martikainen P, Stansfeld SA, et al. Predictors of early retirement in British civil servants. *Age. Ageing* 29(6), 529-536 (2000).
- Zeng Z, Guo Y, Lu LM, et al. Mental health status and work environment among workers in small-and-medium-sized enterprises in Guangdong, China-a cross-sectional survey. *BMC. Public. Health* 14(1), 1162-1169 (2014).
- Martin A, Sanderson K, Scott J, et al. Promoting mental health in small- medium enterprises: An evaluation of the "Business in Mind" program. *BMC. Public. Health* 9(1), 239-247 (2009).
- Lorig KR, Ritter P, Stewart AL, et al. Chronic disease self-management program: 2-Year health status and health care utilization outcomes. *Med. Care* 39(11), 1217-1223 (2001).
- Tang S, Bishwajit G, Ji L, et al. Improving the blood pressure control with the proactive attitude of hypertensive patients seeking follow-up services: evidence from China. *Medicine. (Baltimore)* 95(14), e3233 (2016).
- Ganster DC, Rosen CC. Work stress and employee health: A multidisciplinary review. *J. Manag* 39(5), 1085-1122 (2013).
- Zhang Q, Zhang Z, Sun M. The mental health condition of manufacturing front-line workers: the interrelationship of personal resources. *Profess. Tasks. Mental. Health* 100(2017), 05012-05015 (2017).
- Sun X, Feng Z, Zhang P, et al. Association between time of pay-for performance for patients and community health services use by chronic patients. *PlosOne* 9(2), e89793-e89796 (2014).
- Hubei Provincial Statistics Bureau. Hubei economic and social development statistics report in 2017 (2018).
- Yusuf S, Rangarajan S, Teo K, et al. Cardiovascular risk and events in 17 low-, middle-, and high-income countries. *N. Engl. J. Med* 371(9), 818-827 (2014).
- Tang S, Dong D, Ji L, et al. What contributes to the activeness of ethnic minority patients with chronic illnesses seeking allied health services? A cross-sectional study in rural Western China. *Int. J. Environ. Res. Public. Health* 12(9), 11579-11593 (2015).
- Frentzel-Beyme R, Grossarth-Maticek R. The interaction between risk factors and self-regulation in the development of chronic diseases. *Int. J. Hyg. Environ. Health* 204(1), 81-88 (2001).