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ORIGINAL PAPER

# Determinants of the Proactiveness of Female Migrant Workers with Psychological Distress Seeking Allied Health Services

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**Abstract**
Seeking utilization of allied health services (AHS) has significant implications for psychological distress self-management. However, utilization of AHS by Chinese female migrant workers (FMWs) has not received enough attention. This study, therefore, aims to explore what contributes to FMWs' proactiveness in utilizing AHS. A cross-sectional study was conducted to collect data in terms of socio-demographic characteristics, work-related characteristics and AHS accessibility. A logistic regression model was adopted to examine association of these predictors with proactiveness in seeking AHS. 992 FMWs with psychological distress were interviewed with stratified multiple-stage sampling. The results indicated that Basic Public Health Services (BPHS) is a salient predictor affecting proactiveness in seeking AHS. BPHS includes psychological counseling (Odds Ratio (OR) =2.401, 95% Confidence Interval (CI) =1.284–4.490, $p = 0.006$), psychotherapy (OR = 2.063, 95% CI = 1.438–2.960, $p = 0.000$) and health knowledge lectures (OR = 1.613, 95% CI = 1.115–2.333, $p = 0.011$). Moreover, sampled participants under 25 and those who received education for more than 9 years are more likely to seek AHS compared with other groups. In addition, proactiveness in seeking AHS is clearly associated with working hours per day. The probability is only 31.1% for those working more than 12 h per day to seek AHS actively compared with those working below 8 h (95% CI = 0.119–0.812, $p = 0.017$). There are no differences between those with 8–12 working hours and those working less than 8 h (OR = 1.100, 95% CI = 0.798–1.518, $p = 0.560$). The present findings suggest that policies be made to improve the coverage of BPHS and to provide specified AHS to meet the increasing demand of different social groups.

**Keywords** Proactiveness · Allied health services · Female migrant workers · Urban China

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## Introduction

Mental illness is widely recognized as an important cause of disease burden, accounting for 13% contributors to the burden of disease worldwide [13]. More than 80% of people with mental illness are distributed in the low- and middle-income countries (LMICs), with mental illness making up 8.8% of the total burden of disease in LMICs [17]. Experts predict that by 2030, depression alone is likely to be the third leading cause of disease burden in low-income countries and the second highest cause of disease burden in middle-income countries [6]. The high incidence of mental illness in LMICs can in turn bring about an economic trap of disease burden and social decline. Furthermore, people with lower socioeconomic status are at 8 times greater risk of developing schizophrenia than those of the highest socioeconomic status [11], and in turn are denied from employment opportunities, trapped in poverty.

The World Health Organization has put forward a stepwise framework to prevent mental disorders among the population of interest [18]. In pursuit of these goals, one of pivotal steps of the framework is to assess and identify risk factors, so that effective intervention and prevention actions could be taken to solve existing problems. Previous research has indicated that people with mental health problems can improve quality of life with increased utilization of AHS [5], and the efficiency of AHS utilization has been demonstrated to be crucial to enhancing health status and is the core of effective models of chronic disease self-management [4]. Empirical evidence also shows that the more active and involved people are in seeking AHS, the more likely they will receive timely AHS meeting their mental health needs [2]. Given the importance of AHS to mental disease and the obvious association between people' proactiveness in seeking AHS and their mental health status, this study, therefore, explores the determinants contributing to the level of proactiveness in seeking AHS, which is a valuable topic that has not been sufficiently researched.

Industrialization, urbanization and the relaxation of the migration ban between rural and urban residents together trigger millions of rural residents to migrate into cities. The total number of rural to urban migrant workers has steadily increased to 286.5 million in 2017[8]. Migrant workers play a momentous role in the thriving urban economic developments, but they suffer from abundant disadvantages and experience higher-level psychological distress including life stress, work stress [1] and acculturative stress [20]. Compared with general population or their local counterparts, there is a higher prevalence of psychological distress among migrant workers [10, 12]. Therefore, the Chinese government implements AHS policies for migrant workers who expect to solve mental health problems. Simultaneously, a variety of studies has already investigated the factors affecting migrant workers' mental health. However, to the best of our knowledge, there is a scarcity of literature on FMWs' AHS utilization, and it is still unclear what the most important factors are that may influence the utilization of AHS which has been established to benefit people.

Therefore, the aim of this study is to furtherly explore factors affecting the proactiveness of AHS utilization among FMWs. The finding may provide better insight into the proactiveness of AHS utilization as well as policy recommendation for the AHS policy makers in China. As part of a comprehensive health intervention research program in urban China carried out from January 2018, this study was supported by Fundamental Research Funds for the Central Universities (No.: 2019WA01) and Postdoctoral Science Foundation of China (No.: 2019M650132).

## Materials and Methods

### Study Design

The cross-sectional survey was conducted between January and September in 2018 with stratified multiple-stage sampling. A three-level sampling procedure was carried out in urban China. First, all of the 17 provinces or municipalities in China were randomly divided into 2 groups based on the scale, distribution and flow of migrant workers in China Migrant Worker Report 2016 [7] and 2017 [8], and 2 provinces were randomly selected from each group, which were Guangdong province in southeastern China and Hubei province in central China. Second, all counties from these 2 provincial capitals were divided into 2 parts based on their regional economic status, and 4 counties were randomly chosen from each part in urban areas (i.e., $4 \times 2$ counties). Third, 130 participants with psychological distress assessed by themselves were randomly selected from each of the 8 counties (i.e., $130 \times 4 \times 2$ counties). Because of missing or implausible data, 48 participants were excluded. Finally, a total of 992 FMWs over the age of 18 were involved in the survey, with the response rate 95.4% (992/1040).

Well-trained investigators from School of Public Policy & Management, China University of Mining & Technology were organized to interview participants through face-to-face interviews using structured research questionnaires, mainly including socio-demographic characteristics, work-related characteristics and the condition in health-care services utilization. Each interview took from 20 to 30 min. All interviewees were offered compensation for their time-consumption.

### Methods

The dependent variable of proactiveness in seeking AHS was a binary variable, and "proactiveness" was measured by the actual utilization of AHS. It is quite parallel to the previous research [14]. The FMWs voluntarily seeking AHS and without any reminder were regarded as proactive and coded as the "proactive group". However, if the FMWs used AHS after reminder from others or communication channels, they were classified into the "passive group".

The accessibility of AHS such as psychological counseling service, psychotherapy service and health knowledge lectures was obviously pivotal to AHS utilization and thus was treated as an independent variable. Socio-demographic characteristics [15], work-related characteristics [21] have been shown to be important contributors to health behaviors [15] among FMWs with psychological distress. Therefore, they were also analyzed in this paper. The 14 independent variables were: (1) psychological counseling services, (2) psychotherapy services, (3) health knowledge lectures, (4) age, (5) educational levels, (6) number of children having migrated, (7) migration patterns, (8) duration of migration work, (9) number of moving houses, (10) occupation, (11) number of jobs have engaged in, (12) monthly income, (13) number of working hours per day, and (14) number of days off per month.

### Statistical Analysis

We divided the statistical analysis into three stages. In the first stage, descriptive statistics were applied to summarize and explore the 14 independent variables. In the second stage, in order to explore the significant difference in variable for regression further, Chi-square tests were utilized to compare the covariates of interest between the "proactive" and "passive" groups.

In the third stage, only variables with statistically significant differences were subsequently included in the binary logistic regression analysis with assistance of the Wald statistic with forward stepwise selection. In this research, all the cross-sectional data was coded, and then the statistical analysis was performed using SPSS 17.0 (SPSS Inc., USA). The statistical significance test level was set at $p < 0.05$ (2-sided).

### Ethical Statement

Information for this research was not at liberty to disclose in order to guarantee the participants' anonymity. Ethics approval was granted by the Ethics Committee of School of Public Policy & Management, China University of Mining and Technology. The informed protocol and survey questionnaires were reviewed and approved. Written consent document was obtained from all participants at the beginning of the interview, so as to indicate that interviews were fully voluntary. Questions and response choices were made clear in person by investigators when necessary.

## Results

### Sample Characteristics

Table 1 presents FMWs' socio-demographic characteristics, work-related characteristics and their accessibility of AHS in urban China. In this study, the majority of these 992 participants were migrant workers under the age of 35 (60.4%). Over 80% of the participants enjoyed less than 9 years of school education (84.6%). Most participants had no children migrating with them (76.2%), a similar percentage of them migrating alone (50.1%). The multitudes of participants had been working in cities over 7 years (65.2%), and have moved houses less than 2 times (71.1%). Most of participants were employees (84.8%), more than 60% of participants have not changed jobs (63.4%) with an average income below 2400RMB per month (61.0%). However, less than half of participants can work within 8 h (40.7%) and less than 10% can have more than 6 days off per month. Besides, though Chinese government has implemented BPHS in 2009, our finding is opposite to Chinese government's efforts, the coverage ratio of psychological counseling was the lowest among AHS (4.7%), only less than 30% of participants had received psychotherapy or health knowledge lectures respectively (26.9% and 26.2%, respectively).

### The Proactiveness of FMWs with Psychological Distress in Seeking AHS

25.4% of the 992 FMWs actively utilized AHS. Table 2 presents the comparison between proactive and passive groups in terms of their socio-demographic characteristics, work-related characteristics and their accessibility of AHS related to psychological distress. Significant differences are found between different AHS seekers on most of these variables. The active AHS seekers seem to be the ones who are almost evenly distributed in the age sample (32.5%, 39.3%, 28.2%, respectively), with 6–9 years (72.2%) education levels and less than 7 years of migration work, also with numbers of moving houses less than 2 times (79.0%). They have no more than 8 working hours per day (45.2%) and 6–8 days off per month (11.5%). The proactive AHS seekers are likely covered by psychological counseling, psychotherapy and

**Table 1** FMWs' socio-demographic characteristics, work-related characteristics and their accessibility of AHS in urban China

| Characteristics | Frequency ($n = 992$) | Percentage (%) |
|---|---|---|
| Socio-demographic characteristics | | |
| Age | | |
| >35 | 393 | 39.6 |
| 25–35 | 393 | 39.6 |
| <25 | 206 | 20.8 |
| Education | | |
| >9 | 153 | 15.4 |
| 6–9 | 709 | 71.5 |
| <6 | 130 | 13.1 |
| Children have migrated | | |
| No | 756 | 76.2 |
| Yes | 236 | 23.8 |
| Migration patterns | | |
| With all family members | 298 | 30.0 |
| Alone | 497 | 50.1 |
| With some family members | 197 | 19.9 |
| Duration of migration work | | |
| <7 | 345 | 34.8 |
| 7–14 | 308 | 31.0 |
| >14 | 339 | 34.2 |
| Number of moving houses | | |
| <2 | 705 | 71.1 |
| 2–4 | 202 | 20.4 |
| >4 | 85 | 8.5 |
| Work-related characteristics | | |
| Occupation | | |
| Employee | 841 | 84.8 |
| Self-employed | 132 | 13.3 |
| Non-work | 19 | 1.9 |
| Number of jobs have changed | | |
| <1 | 629 | 63.4 |
| 1–4 | 343 | 34.6 |
| >4 | 20 | 2.0 |
| Average monthly income | | |
| <2400RMB | 605 | 61.0 |
| 2400-4800RMB | 343 | 34.6 |
| >4800RMB | 44 | 4.4 |
| Number of working hours per day | | |
| <8 | 404 | 40.7 |
| 8–12 | 516 | 52.0 |
| >12 | 72 | 7.3 |
| Number of days off per month | | |
| <3 | 498 | 50.2 |
| 3–6 | 412 | 41.5 |
| >6 | 82 | 8.3 |
| Accessibility of health-care services | | |
| Psychological counseling services | | |
| Yes | 47 | 4.7 |
| No | 945 | 95.3 |
| Psychotherapy services | | |
| Yes | 267 | 26.9 |
| No | 725 | 73.1 |
| Health knowledge lectures | | |
| Yes | 260 | 26.2 |
| No | 732 | 73.8 |

**Table 2** Correlations between the proactiveness of FMWs with psychological distress in seeking AHS and socio-demographic characteristics, work-related characteristics and the accessibility of AHS

| Associated correlates | In total (n) | Percentage (%) | Passive group seeking AHCSs*($n = 740$) | | Active group seeking AHCSs*($n = 252$) | | $\chi^2$ | $P$ |
|---|---|---|---|---|---|---|---|---|
| | | | N | % | N | % | | |
| Age | | | | | | | 13.209 | 0.001 |
| Before 1980 | 393 | 39.6 | 311 | 42.0 | 82 | 32.5 | | |
| Between 1980 and 1990 | 393 | 39.6 | 294 | 39.7 | 99 | 39.3 | | |
| Since 1990 | 206 | 20.8 | 135 | 18.3 | 71 | 28.2 | | |
| Education | | | | | | | 22.191 | 0.000 |
| Senior high school | 153 | 15.4 | 98 | 13.2 | 55 | 21.8 | | |
| Junior high school | 709 | 71.5 | 527 | 71.2 | 182 | 72.2 | | |
| Elementary school | 130 | 13.1 | 115 | 15.6 | 15 | 6.0 | | |
| Children migrated with | | | | | | | 0.719 | 0.369 |
| No | 756 | 76.2 | 559 | 75.5 | 197 | 78.2 | | |
| Yes | 236 | 23.8 | 181 | 24.5 | 55 | 21.8 | | |
| Migration patterns | | | | | | | 8.865 | 0.012 |
| With all family members | 298 | 30.0 | 280 | 30.8 | 70 | 27.8 | | |
| Alone | 497 | 50.1 | 352 | 47.6 | 145 | 57.5 | | |
| With some family members | 197 | 19.9 | 160 | 21.6 | 37 | 19.9 | | |
| Duration of migration work | | | | | | | 9.913 | 0.007 |
| <7 | 345 | 34.8 | 241 | 32.6 | 104 | 41.3 | | |
| 7–14 | 308 | 31.0 | 227 | 30.7 | 81 | 32.1 | | |
| >14 | 339 | 34.2 | 272 | 36.7 | 67 | 26.6 | | |
| Number of houses removal | | | | | | | 11.459 | 0.003 |
| <2 | 705 | 71.1 | 506 | 68.4 | 199 | 79.0 | | |
| 2–4 | 202 | 20.4 | 161 | 21.8 | 41 | 16.3 | | |
| >4 | 85 | 8.5 | 73 | 9.8 | 12 | 4.7 | | |
| Occupation | | | | | | | 2.904 | 0.234 |
| Employee | 841 | 84.8 | 621 | 83.9 | 220 | 87.3 | | |
| Self-employed | 132 | 13.3 | 106 | 14.3 | 26 | 10.3 | | |
| Non-work | 19 | 1.9 | 13 | 1.8 | 6 | 2.4 | | |
| Number of jobs changed | | | | | | | 1.361 | 0.506 |
| <1 | 629 | 63.4 | 465 | 62.8 | 164 | 65.1 | | |
| 1–4 | 343 | 34.6 | 258 | 34.9 | 85 | 33.7 | | |
| >4 | 20 | 2.0 | 17 | 2.3 | 3 | 1.2 | | |
| Monthly income | | | | | | | 0.930 | 0.628 |
| <2400RMB | 605 | 61.0 | 445 | 60.1 | 160 | 63.5 | | |
| 2400-4800RMB | 343 | 34.6 | 262 | 35.4 | 81 | 32.1 | | |
| >4800RMB | 44 | 4.4 | 33 | 4.5 | 11 | 4.4 | | |
| Number of working hours per day | | | | | | | 14.672 | 0.001 |
| <8 | 404 | 40.7 | 290 | 39.2 | 114 | 45.2 | | |
| 8–12 | 516 | 52.0 | 383 | 51.8 | 133 | 52.8 | | |
| >12 | 72 | 7.3 | 67 | 9.0 | 5 | 2.0 | | |
| Number of days off per month | | | | | | | 8.073 | 0.018 |
| <3 | 498 | 50.2 | 388 | 52.4 | 110 | 43.7 | | |
| 3–6 | 412 | 41.5 | 299 | 40.4 | 113 | 44.8 | | |
| >6 | 82 | 8.3 | 53 | 7.2 | 29 | 11.5 | | |
| Psychological counseling services | | | | | | | 23.301 | 0.000 |
| Yes | 47 | 4.7 | 21 | 2.8 | 26 | 10.3 | | |
| No | 945 | 95.3 | 719 | 97.2 | 226 | 89.7 | | |
| Psychotherapy services | | | | | | | 37.557 | 0.000 |
| Yes | 260 | 26.2 | 157 | 21.2 | 103 | 40.9 | | |
| No | 732 | 73.8 | 583 | 78.8 | 149 | 59.1 | | |
| Health knowledge lectures | | | | | | | 45.844 | 0.000 |
| Yes | 267 | 26.9 | 158 | 21.4 | 109 | 43.3 | | |
| No | 725 | 73.1 | 582 | 78.6 | 143 | 56.7 | | |

health knowledge lectures (10.3%, 40.9% and 43.3%, respectively). However, the proactiveness in seeking AHS has no association with number of children migrating with FMWs ($\chi^{2=}0.719$, $p = 0.369$). Occupation, number of jobs changed and monthly income are also not related to proactiveness in using AHS ($\chi^2 = 2.904$, $p = 0.234$; $\chi^2 = 1.361$, $p = 0.506$; $\chi^2 = 0.930$, $p = 0.628$).

## Predictors Affecting the Proactiveness of FMWs with Psychological Distress in Seeking AHS

After discovering that occupation, monthly income and other factors are not significantly associated with proactiveness in seeking AHS, these factors were then excluded from the original model. A binary logistic regression was carried out to test the potential predictors of the proactiveness of FMWs with psychological distress in seeking AHS in urban China. Six predictor variables, including age, education, number of working hours per day, and health-care service types(psychological counseling, psychotherapy and health knowledge lectures), were finally retained in the binary logistic regression model. Table 3 presents the outcome of carrying ot the logistic regression analysis model.

Among all significant predictors, the odds of FMWs under the age of 25 who actively utilized AHS in urban China 1.86 times greater than those who were over the age of 35 (OR = 1.816, 95% CI = 1.200–2.750; $p = 0.005$). However, there are no differences between them and those age from 25 to 35 (OR = 1.149, 95% CI = 0.796–1.658; $p = 0.459$). Compared with those who received 9 years school education, the proactiveness in FMWs with less than 6 years of education levels is lower (OR = 0.366, 95% CI = 0.182–0.732; $p = 0.005$). There are no significant differences between them and those having received 6–9 years education (OR = 0.771, 95% CI = 0.515–1.155; $p = 0.207$). Moreover, number of working hours per day also seems to matter. The proactiveness in FMWs with more than 12 h working per day was lower than those with below 8 h working (OR = 0.311, 95% CI = 0.119–0.812; $p = 0.017$). However, no differences are found between them and those with 8 to 12 working hours per day (OR =

**Table 3** Outcome of the logistic regression analysis model examining predictors correlated with the proactiveness of FMWs with psychological distress in seeking AHS

| Predictors | Reference | B | *P* | OR | 95% CI | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Age | >35 | | 0.013 | | | |
| 25–35 | | 0.139 | 0.459 | 1.149 | 0.796 | 1.658 |
| <25 | | 0.597 | 0.005 | 1.816 | 1.200 | 2.750 |
| Education | >9 | | 0.017 | | | |
| 6–9 | | −0.260 | 0.207 | 0.771 | 0.515 | 1.155 |
| <6 | | −1.006 | 0.005 | 0.366 | 0.182 | 0.732 |
| Number of working hours per day | <8 | | 0.031 | | | |
| 8–12 | | 0.096 | 0.560 | 1.100 | 0.798 | 1.518 |
| >12 | | −1.167 | 0.017 | 0.311 | 0.119 | 0.812 |
| Psychological counseling | No | 0.876 | 0.006 | 2.401 | 1.284 | 4.490 |
| Psychotherapy | No | 0.724 | 0.000 | 2.063 | 1.438 | 2.960 |
| Health knowledge lectures | No | 0.478 | 0.011 | 1.613 | 1.115 | 2.333 |
| Constant | | −1.402 | 0.000 | 0.246 | | |

1.100, 95% CI = 0.798–1.518; $p = 0.560$). At last, whether one has received psychological counseling, psychotherapy and health knowledge lectures or not is highly related with FMWs' health behaviors (OR = 2.401, 95% CI = 1.284–4.490, $p = 0.006$; OR = 2.063, 95% CI = 1.438–2.960, $p = 0.000$; OR = 1.613, 95% CI = 1.115–2.333; $p = 0.011$).

## Discussion

Based on the empirical data collected from urban China, this study presented factors that affect the proactiveness of Chinese FMWs with psychological distress in seeking AHS, which is a valuable effort as little work had been done on FMWs' health behaviors in urban China. Similar to previous literature, our statistic analysis shows the accessibility of AHS is obviously positively related to the proactiveness in seeking and receiving AHS. Whereas the relationship between socio-demographic characteristics (such as age and education) and the level of FMWs' proactiveness is more complicated in our analysis model. The same goes for work-related characteristics.

Previous research pointed out that the utilization of health care services appeared to increase significantly with age [9]. However, in our analysis, while those aged below 25 were the most active in seeking AHS utilization, the proactiveness of those between 25 and 35 years old was not significantly different from that of participants over 35. This may be explained by the fact that those between 25 and 35 are not freed from their work, family care and other social obligations, and their disposable time in seeking AHS utilization was greatly limited. What's more, they are generally in good health. In additional, knowledge is the foundation of attitude, this means that the higher education levels of the FMWs are, the more likely they will actively seek AHS. For example, the education degree of those under 25 years old was significantly higher than that of other age groups.

Besides, the results indicate that No. of working hours per day has association with FMWs' proactiveness in seeking AHS. Overall, the longer FMWs work, the less likely they are proactive in seeking AHS. The proactiveness of those working more than 12 h was significantly lower then those who worked less than 8 h. This may be mainly because those working no more than 8 h enjoy much more free time and energy to obtain public health service information, which contributes to the level of proactiveness of FMWs' health behaviors. Similarly, FMWs working over 12 h may have more exposure to government's public health service information due to their longer stay in workplaces.

In particular, our research indicates that the proactiveness in seeking AHS seems to be "economic" and "cultural" in nature. As shown in our model, BPHSs is the most critical factor affecting FMWs' utilization of AHS. Established in 2009, BPHSs designed to control major health risk factors among urban and rural residents, has covered all the populations in China. For FMWs who work in cities suffering from poverty, the economic burden of diseases is much heavier compared with their rural counterpart. Unsurprisingly, BPHSs purchased by government is provided for free, can reduce the financial burden of health-care [16] and is the most salient predictor affecting the proactiveness of FMWs in seeking AHS. This can in turn explain why BPHSs has such an important influence on AHS utilization. However, in China, the mental health problems and AHS associated with them are usually stigmatized, creating a hostile climate for AHS seekers and making them feel different. To avoid discrimination and social isolation [3], FMWs had low utilization rate of mental health services [19].

## Limitation

We believe that there are some limitations in this study. Firstly, because our study is a cross-sectional survey, the result of psychological distress cannot represent long-term effect. Random outcome may take place. Secondly, the data are mainly based on FMWs' self-report, which certainly is subjected to individual variances. Thirdly, this study aims to find the determinants of the proactiveness in seeking AHS utilization, it may neglect the impact of other independent variables. However, our findings are meritorious with imperative implications for researchers, policy makers and services providers.

## Conclusions

Actively seeking AHS utilization is critical for the mental health management of Chinese FMWs with psychological distress. Hence it is significant to promote the AHS utilization among FMWs. This study was designed to examine the correlations between the proactiveness of FMWs with psychological distress in seeking AHS and their socio-demographic characteristics, work-related characteristics and accessibility of health-care services. This study revealed that the factors such as age, education, number of working hours per day were strongly associated to seeking behaviors. In addition, BPHSs play critical role in encouraging FMWS to utilize AHS. Based on the findings, we suggest that the policy makers and services providers further improve the coverage of BPHSs to the FMWs and provide more specified AHS to meet the complex needs of different FMWs segmentations.

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### Compliance with Ethical Standards

**Conflict of Interest** The authors declare no conflict of interest.

**Research Involving Human Participants and/or Animals** This article does not contain any researches with human participants or animals performed by any of the authors.

**Informed Consent** Both authors approve the final version of the manuscript.

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