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Original article

# How Job Stress and Psychological Adaptation Predicting Interpersonal Needs Among Female Migrant Manufacturing Workers in China: A Structural Equation Model

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ABSTRACT

*Background:* This study aimed to explore relationships between job stress and psychological adaptation and how they related to interpersonal needs through mood states among female migrant manufacturing workers.

*Methods:* A cross-sectional survey was conducted in 16 factories in Shenzhen, China. Sociodemographic, job stress, psychological adaptation and other psychological information of was collected. Structural equation modeling was performed to delineate the internal relationship between variables.

*Results:* The hypothetical structural equation model exhibited acceptable model fit among female migrant manufacturing workers ($\chi^2$ = 11.635, df = 2, $\chi^2$/df = 5.82, p = 0.003, RMSEA = 0.090, CFI = 0.972, SRMR = 0.020). Job stress was directly associated with mood states and interpersonal needs; Psychological adaptation was directly associated with mood states and indirectly associated with interpersonal needs; Bootstrapping tests demonstrated mediation effect of mood states in the way from psychological adaptation to interpersonal needs.

*Conclusion:* Female migrant manufacturing workers who suffered stress from job and the process of psychological adaptation may have worse mood states and workers with worse mood states are more likely to develop unmet interpersonal needs, a proximal factor of suicidal ideation.

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## 1. Background

Migrant workers are a group of workers to be reckoned with under the background of globalization. In some developing areas with rapidly expanding economy, problems coming with increasing population of migrant workers were serious, and health-related issues were commonly concluded in social surveys. Migrant workers may deal with unfair income, weaker health insurance guarantee, poorer healthy literacy and worse mental health as well as higher intention to suicidal ideation [1,2]. China has been approaching this kind of dilemma since internal migration is growing larger these years. Due to Hukou, a typical policy related to household registration system in China which limits people's registered residency, migrant workers in China are more vulnerable in health-resource allocation compared with local counterparts. According to Porru's literature review, clinical data showed that

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migrant workers in manufacturing industries was more likely to develop mental disorders [3]. In a cross-sectional survey of 3031 migrant manufacturing workers, the proportion of people who have common mental health problems reached up to 34.4% [4], especially, prevalence for depression was 28% [1]. The prevalence of suicidal ideation of migrant population ranged from 4.8% to 8.2% [5,6]. Moreover, female migrants are more apt to mental disorders and have higher prevalence of suicidal ideation compared with males [7,8]. Improving the poor mental health status of migrant workers is critical to promoting health equity and suicide prevention, especially among females in manufacturing industry.

A wide-recognized psychological interpretation for the process of suicide is to explain it from interpersonal perspective [9]. Interpersonal needs, a psychological structure shaped by thwarted belongingness and perceived burdensomeness which was grounded in Interpersonal Psychological Theory of Suicide (IPTS) model, was proposed by Van Orden [9,10]. In this explanation, when feelings of belongingness and social competence were hurt, a psychological state of unmet interpersonal needs would happen to an individual, leading to the desire for suicide, the first phase of suicide commitment [10]. A systematic review including 122 distinct samples manifested that interpersonal needs were associated with suicidal ideation in many domains and thus could be considered as proximal psychological cause of suicidal ideation [11]. Our previous research has also linked suicidal ideation to interpersonal needs on migrant industrial workers, and suicidal ideation could be predicted by interpersonal needs [12]. Van Orden suggested by assessing thwarted belongingness and perceived burdensomeness, clinicians are able to use crisis intervention strategies to directly target these risk factors and thereby potentially decrease suicidal desire [10]. How perceived burdensomeness and thwarted belongingness were affected could help us better figure out the structural cause of suicidal ideation [13]. Furthermore, measuring and interpreting interpersonal needs and its related reasons may be less offensive, contributing to preventing suicidal ideation at an earlier stage.

Many empirical tests were performed to expand the interpretation scope of interpersonal needs with incorporating more recognized risk factors, like mental health problems, based on the clear evidence that mental disorder precedes suicide [14,15]. Taking a cue from Christensen's population-based cohort survey from the PATH Through Life Project, the subjective perceived burdensomeness could elevate the degree of depression, but the role of anxiety was ambiguous in the process of both thwarted belongingness and perceived burdensomeness [16]. Hill examined a serial mediation model including anxiety, depression and thwarted belongingness, and found that depression and anxiety were associated with thwarted belongingness in some extent [17]. Bottomley validated the role of anxiety and depression and how they connected with thwarted belongingness and perceived burdensomeness in a more complex model encompassing more risk factors [18].

Another relevant interpretation focused on stress. Kinser and Lyon proposed a conceptual framework which explain the relationship from stress vulnerability to health outcome. Stress vulnerability (e.g., accumulation of stress in life) may fuel depression and thus cause suicidality directly and indirectly [8]. An important stress vulnerability pertaining to migrant workers that need to be coped with is migration itself [19]. Besides, migrants experience stress after migration, like acculturation according to Berry and Kim's acculturation model [20,21]. Acculturation refers to a dynamic process adapting to changes in new environment, and psychological adaptation is one of acculturation outcomes. Psychological adaptation of migrants is often deemed as a mental status of satisfaction for new life which related to mental health, and is mainly discussed in the context of stress coping system [22,23]. Compared with local workers, migrant workers have belongingness problems - they are prone to isolate themselves from others, thus receiving less social support, which impede the capability of psychological adaptation [24,25].

Another noteworthy stress vulnerability for female migrant manufacturing workers is perceived job stress for the fact that job stress is one of the main health concerns in working environment, which exacerbates mental disorders, thus a risk factor for elevated suicide ideation [7,26,27]. Job stress related factors such as excessive workload and effort–reward imbalance were found contributive in affecting mental health among migrant workers [7]. In addition, Chen's structural equation model demonstrated job stress exhibited direct effect on anxiety and indirect effect on depression among nurses [28].

Rarely did other researchers explored risk factors of unmet interpersonal needs as individuals would not develop suicidal ideation in the absence of thwarted belongingness or perceived burdensomeness. This study first aimed to test a possible structural mechanism developed on IPTS theory combining stress vulnerability framework, which integrating job stress and psychological adaptation and explore how they related to interpersonal needs via depression and anxiety. We also endeavored to explain the effect of depression and anxiety together on interpersonal needs, taking the fact that depression and anxiety are commonly coexisted [29,30]. Thus, we tried to provide a better understanding of the process of unmet interpersonal needs and a more advanced suicide prevention insight embracing distal and proximal risk causes.

In this research, we hypothesized that.

(1) job stress and psychological adaptation were directly associated with interpersonal needs;
(2) job stress and psychological adaptation were indirectly associated with interpersonal needs through mood states of depression and anxiety;
(3) job stress and psychological adaptation were interrelated.

## 2. Methods

### 2.1. Participants

A cross-sectional survey was conducted from October to December 2019 among female migrant manufacturing workers in Shenzhen, the biggest migrant city in southern China with migrants excessing half of the population and manufacturing workers occupying 12% of the population in 2020 [31].

The proportion of the manufacturing industrial workers in Longhua District engaged in machinery processing industry, electronic device manufacturing industry, printing and dyeing industry, chemical material industry, melting industry and garment industry was obtained through the report of Shenzhen Statistical Yearbook. Combined with the required sample size of the study, the number of workers to be sampled from each industry was determined priori to data collection. Based on the size of factories, 16 manufacturing and processing factories involved in machinery, chemicals, smelting, garment, printing, dyeing, food and beverage were selected. We chose 3 or 4 workshops each factory, and workers were randomly invited to attend survey at Longhua District Center for Disease Control and Prevention (CDC).

Sample size was calculated to be 507 by taking account for $\alpha = 0.05$, $d = 0.1$, $deff = 3$ and prevalence of suicidal ideation = 8.2% along with a 80% non-response rate (Considering interpersonal needs is a subjective mental state which is hard to observed, we used suicidal ideation in the past year in female migrant workers, a

predicted outcome of interpersonal needs, as an index for sample size calculation).

### 2.2. Procedure

A panel of six people consisted of public health professionals, a psychologist, an epidemiologist, a health promotion professional, and a manufacturing worker designed the questionnaire.

The research was conducted after acquisition of signed participants' written informed consent and explanation of survey purpose. Full disclosure of all potential risks was made to participants.

The survey carried out after the implementation of a pilot survey aiming to check the logit, presentation and potential problems of the questionnaire. A group of twenty manufacturing workers completed the questionnaire and was excluded from the following survey.

Participant was surveyed in a separate room with CDC researchers' instructions. Private information was not involved, and participant can drop out at any time without consequence. After the survey, cash compensation (2.6 US dollars voucher) per person was provided.

### 2.3. Ethical approval

The study was implemented according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of School of Public Health, Sun Yat-sen University (2019/3).

### 2.4. Measures

A self-administrated questionnaire was used to collect participants' sociodemographic characteristics, interpersonal needs, mood states including depression and anxiety, job stress and psychological adaptation.

### 2.5. Sociodemographic characteristics

Characteristics including age, nationality, education, income, marital status, hometown situation, length of residence, time away from home, proportion of income for supporting and debt situation were collected.

### 2.6. Interpersonal needs

Interpersonal Needs Questionnaire (INQ) developed by Van Orden [10], a 15-item version was used to assess participants' interpersonal needs from two constructs - thwarted belongingness and perceived burdensomeness (Cronbach $\alpha$ for two constructs varies from 0.85-0.89). Participants chose options from 1 (not at all) to 7 (very true for me) which best suited their situation.

The predictive value of INQ questionnaire for suicidal ideation was confirmed in migrant industrial workers previously, and the cut-point of INQ questionnaire was 53 [12]. Therefore, the participants were divided into higher-scored INQ groups and lower-scored INQ groups with higher-scored INQ groups indicated unmeted interpersonal needs.

### 2.7. Job stress

Job Stress Questionnaire developed by Caplan [32], a 13-item questionnaire which measures job stress from four constructs including workload, role conflict, role ambiguity and utilization of skills. Participants chose options best suited their situation (from 1 = never to 7 = always). (Cronbach $\alpha$ for all constructs varies from 0.79-0.51).

### 2.8. Psychological adaptation

Psychological Adaptation Scale developed by Demes & Geeraert [23], a scale for comfortable and happy feelings when people facing new environment with different culture. We extracted 8 items from the scale considering that migrants in this research were internal migrant which did not have to be adapt to foreign cultures. Participants chose options which best suited their situation (ranged from 1 = never to 7 = always). (Cronbach $\alpha = 0.73$).

## 3. Mood states

### 3.1. Depression

The Centre for Epidemiological Studies Depression Scale (CES-D-10) was a short self-reported scale assessing depressive symptoms in the general population [33]. Participants chose options which best suited their situation (from 0 = not at all to 3 = nearly every day). (Cronbach $\alpha = 0.92$).

### 3.2. Anxiety

Generalized Anxiety Disorder (GAD-7) scale, developed by Spitzer [34], a 7-item scale was employed to assess participants' anxiety disorder. Participants chose options which best suited their situation (ranged from 0 = not at all to 3 = nearly every day). (Cronbach $\alpha = 0.92$).

### 3.3. Data analysis

Sample size calculation was conducted by PASS (version 15). Questionnaire data was input by Epidata (version 3.1) via double data entry. Descriptive statistical analysis and structural equation modeling (SEM) analysis were conducted by R (version 3.6.3) and Mplus (version 8.0).

Shapiro-wilk tests were checked to examine the normality of continuous variables Non-normally distributed continuous data were described by median (interquartile range (IQR)). Categorical data were described by frequency (percentage). The association of depression, anxiety, job stress and psychological adaptation with interpersonal needs was evaluated by univariate logistic analysis and multivariate logistic analysis.

The hypothetical model was tested by SEM which is fit for demonstrating dependency relationships between variables. Since the variable represented interpersonal needs was categorical, the estimation of weighted least squares means and variance adjusted (WLSMV) method was performed to avoid bias in simulations [35]. Model fit index were checked including chi-square test ($\chi^2$/df), the root mean squared error of approximation (RMSEA), comparative fit index (CFI), and standardized root mean square residual (SRMR). Standardized regression coefficients were reported, two-sided $p$-value $<0.05$ was considered statistically significant. Total, indirect and direct effects test were performed by bias-corrected (BC) bootstrapping (iterations = 5000) to determine the mediation effect in the model. When the BC 95% CI for mediation effect does not include zero, the mediation was considered statistically different from zero [36].

## 4. Results

### 4.1. Participants' sociodemographic characteristics

The questionnaire survey was completed by 591 female migrant industrial workers, and basic sociodemographic characteristics were concluded in Table 1. The participant median age was 32.00

**Table 1**
Participants' sociodemographic characteristics

| Characteristics | Mean (SD)/n (%) |
|---|---|
| **Age** | 32.00 (11.00) |
| **Nationality** | |
| ethnic Han | 489 (82.74%) |
| Others | 102 (17.26%) |
| **Education** | |
| less than high school | 410 (69.37%) |
| high school | 129 (21.83%) |
| college degree or above | 34 (5.75%) |
| Unknown | 18 (3.05%) |
| **Income/per month (CNY)** | |
| under 3000 | 56 (9.48%) |
| 3000-4999 | 405 (68.53%) |
| Above 4999 | 110 (18.61%) |
| Unknown | 20 (3.38%) |
| **Marital Status** | |
| Unmarried | 92 (15.57%) |
| Married | 475 (80.37%) |
| Divorced | 10 (1.69%) |
| Others | 14 (2.37%) |
| **Hometown** | |
| areas (expect Shen Zhen City) in Guangdong province | 106 (17.94%) |
| other areas in different provinces | 485 (82.06%) |
| **Hometown Conditions** | |
| urban area | 99 (16.75%) |
| rural area | 402 (68.02%) |
| Unknown | 90 (15.23%) |
| **Length of residence in Shenzhen** | |
| less than 10 years | 359 (60.74%) |
| 10-20 years | 145 (24.53%) |
| Above 20 years | 21 (3.55%) |
| Unknown | 66 (11.17%) |
| **n% of Income for Supporting Family-in-hometown** | |
| None | 199 (33.67%) |
| 10 | 168 (28.43%) |
| 20 | 224 (37.90%) |
| **Debt Problem** | |
| No | 424 (71.74%) |
| Yes | 167 (28.26%) |
| **Unmet Interpersonal Needs** | 86 (14.55%) |

SD, standardized deviation.

(IQR: 11.00), and most of them had not received high school education (69%), made 3000-4900 CNY per month (68%) and came from rural areas (68%). 86 (14%) participants developed unmet interpersonal needs.

### 4.2. Preliminary analysis

The correlation analysis between variables showed that job stress, psychological adaptation, depression and anxiety were significantly associated (referring to supplementary Table 1). The Median (IQR) of scores for all scales, univariate logistic analysis and multivariate logistic analysis were concluded in Table 2. Depression and job stress continued to be significantly associated with interpersonal needs.

### 4.3. Structural equation model testing

The hypothetical model exhibited acceptable model fit ($\chi^2$ = 11.635, df = 2, $\chi^2$/df = 5.82, p = 0.003, RMSEA = 0.090, CFI = 0.972, SRMR = 0.020). The value of RMSEA was conservative. For the small degree of freedom in our model, the RMSEA may not indicate model fit properly [37].

Standardized coefficients for pathways in the hypothetical structural equation model were concluded in Table 3 and depicted in Fig. 1. Firstly, mood states, as a latent variable, was indicated by depression (reference; β = 0.737) and anxiety (β = 0.824, $p < 0.001$), and job stress and psychological adaptation were closely-interrelated (β = 0.481, $p < 0.001$). Secondly, job stress was directly associated with interpersonal needs despite small influence (β = 0.143, $p = 0.026$), and mood states (β = 0.103, $p = 0.035$); Psychological adaptation was directly associated with mood states (β = 0.192, $p < 0.001$), while not directly associated with interpersonal needs (β = -0.037, $p = 0.601$). Thirdly, mood states were directly associated with interpersonal needs (β = 0.311, $p < 0.001$).

### 4.4. Direct and indirect effects testing

Bootstrap test for estimates of direct and indirect effects were concluded in Table 4. We checked the mediation effect of mood states in two pathways from job stress and psychological adaptation to interpersonal needs. For Path 1 (from job stress to interpersonal needs), bootstrap test results demonstrated there was no mediation effect of mood states in Path 1 (BC 95% CI: 0.000−0.005).

For Path 2 (from psychological adaptation to interpersonal needs), the direct effect, indirect and total effect was -0.004, 0.006 and 0.002. Bootstrap test supported our hypothesis that psychological adaptation can indirectly associated with interpersonal needs through mood states (BC 95% CI: 0.003−0.012).

## 5. Discussion

As a proximal cause of suicidal ideation, individual's interpersonal needs could predict suicidal tendency to some extent. 15.16% of the participants in this study developed unmet interpersonal needs, higher than the rate of suicidal ideation among this population [38]. What can lead to fluctuation of interpersonal needs and then impact suicidal ideation remained critical for preventing suicide. In the current study, we explored interpersonal needs and its relationship with job stress and psychological adaptation among female migrant manufacturing workers, and exhibited a model which elucidates the direct and indirect association.

In accordance with hypothesis, job stress was directly linked to interpersonal needs. This finding added to the theoretical evidence

**Table 2**
Logistic analyses between variables and interpersonal needs in the model

| Scales | Median (IQR) | Univariate analysis | | | | Multivariate analysis | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | β | SE | Z | *p* | β | SE | Z | *p* |
| Depression | 8.00 (6.00) | 0.128 | 0.026 | 4.840 | **<.001** | 0.109 | 0.034 | 3.206 | 0.001 |
| Anxiety | 2.00 (5.50) | 0.099 | 0.025 | 4.000 | **<.001** | 0.024 | 0.033 | 0.718 | 0.473 |
| Job stress | 30.00 (19.00) | 0.027 | 0.008 | 3.180 | **0.001** | 0.026 | 0.010 | 2.573 | 0.010 |
| Psychological adaptation | 25.00 (13.00) | 0.022 | 0.013 | 1.720 | 0.086 | -0.009 | 0.015 | -0.573 | 0.566 |

β: standardized estimate; SE: standard error (of estimate); Z: Z-value (of estimate); *p*-value (in bold) < 0.05 is considered statistically significant.

**Table 3**
Standardized coefficients for pathways in the final structural equation model

| Path | B | β | SE | Z | p |
|---|---|---|---|---|---|
| Job Stress → Mood states | 0.024 | 0.103 | 0.049 | 2.111 | **0.035** |
| Job Stress → Interpersonal needs | 0.011 | 0.143 | 0.064 | 2.228 | **0.026** |
| Psychological Adaptation → Mood states | 0.065 | 0.192 | 0.048 | 3.974 | **<0.001** |
| Psychological Adaptation → Interpersonal needs | -0.004 | -0.037 | 0.071 | -0.523 | 0.601 |
| Mood states → Interpersonal needs | 0.099 | 0.311 | 0.066 | 4.692 | **<0.001** |
| Job Stress ↔ Psychological Adaptation | 58.684 | 0.481 | 0.028 | 16.897 | **<0.001** |
| Mood states → Depression | 1.000 | 0.737 | 0.053 | 13.830 | **<0.001** |
| Mood states → Anxiety | 1.090 | 0.824 | 0.062 | 13.350 | **<0.001** |

B, unstandardized estimate; β, standardized estimate; SE, standard error (of estimate); Z, Z-value (of estimate); *p*-value (in bold) < 0.05 is considered statistically significant.

highlighting the negative effect of job stress among females in working environment, suggesting that elevated job stress can yield unmet interpersonal needs which further fueled suicidal ideation in the framework of IPTS. Job stress is a multi-structured risk factor consisting of various specific stressors from work, such as workload and role conflict. When individual fails to cope with the accumulated workload or unable to solve the conflict and ambiguity in working environment, excessive job stress would contribute to job burnout, another interpersonal stressor which manifested by depersonalization, emotional exhaustion and diminished personal accomplishment based on the role theory [39,40]. Emotionally exhausted female workers engaged in manufacturing work may have decreased resources cognitively, psychologically, and emotionally, which would made them unable to manage interpersonal relationship demand and further caused interpersonal dysfunction [41,42]. Meanwhile, mood states, comprised of depression and anxiety, also involve in the relationship between job stress and interpersonal needs. Studies of female manufacturing workers showed that job stress was significantly related to meatal disorders [43–45]. Our finding approved it but did not support that depression and anxiety combine to mediate the way from job stress to interpersonal needs, partly at odds with our primary hypothesis.

Psychological adaptation could cause depressive and anxious mood states, thus leading to unmet interpersonal needs indirectly in our model. For migrant workers, the process of acculturation is inevitable and psychological adaptation is the hardest part. The dysfunction of psychological adaptation could cause uncomfortable and anxious moods or feeling of out of place when being in a new environment [23]. If no active responds were made for adjustment, the impeded psychological adaptation would be a stress vulnerability and cause mood and interpersonal problems with respect to Kinser and Lyon's conceptual stress vulnerability and IPTS framework [8,18]. This result echoed some recognized findings but contrary to some conclusions as well. Those did not support that migrants suffer from poorer mental health in the process of coping with acculturative stress discussed the issue in context of healthy migrant phenomenon in immigrants, which imply that the internal migrants do not share the same characteristics in the mental outcome of acculturative stress [46,47]. In Zheng and Berry's study, a "U-curve" was identified on adaptation level, which indicated that the adaptive capacity of the migrant population will be reduced for a period after moving to a new environment and then raised again [48]. In the light of these findings, we could pay more attention to the psychological adaptation of migrant people with the consideration of their length of the migration.

Additionally, we found that the combined predictive effect of job stress and mood states on unmet interpersonal needs among female migrant workers was not small, which may hint us that the development of unmet interpersonal needs is a mental outcome of intricate interactions of various risk factors. Improving ability of stress coping in manufacturing workers and taking care of female migrants' mental health may effectively prevent them from developing unfulfilled interpersonal needs. Besides, management of mood states is also the important. For female migrant manufacturing workers, their struggle of adaptation and job stress was source of pressure for their mood states. In the context of manufacturing industry, it may be uneasy to cope with these pressure in a more actively way, while practices such as cognitive education might improve their awareness about unhealthy mood states and unmet interpersonal needs.

The current study provides suggestive findings on suicide prevention for internal migrants. Especially for female migrant workers, who were prone to experiencing inequity in job assignments at factories, the same priority to their interpersonal states should be given as it gives to suicide prevention. The biggest

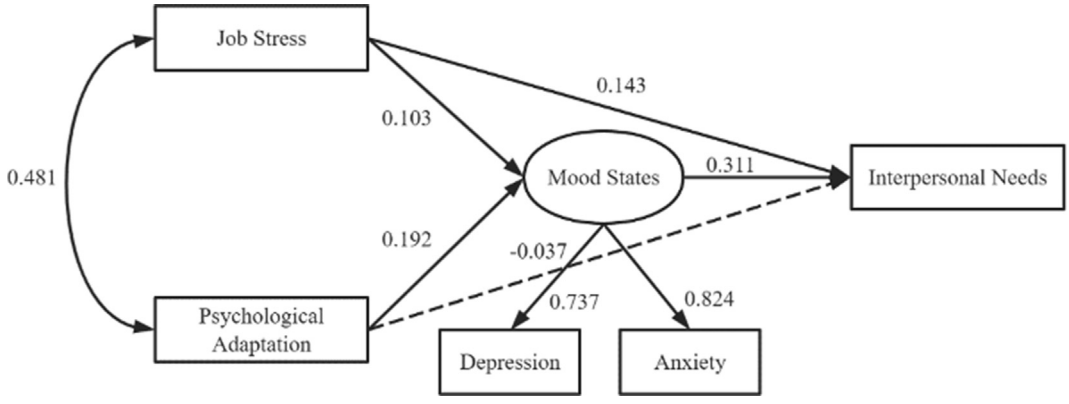


**Fig. 1.** The final structural model among female migrant manufacturing workers. **Note:** The solid line indicates the standardized coefficient for this path is statistically significant; The dotted lines indicates the standardized coefficient for this path is not statistically significant.

**Table 4**
Standardized total effect, indirect effect and direct effect in the final structural model

| Predictors | Mediator variable | Result variable | Direct effect | Indirect effect | BC 95% CI | Total effect |
|---|---|---|---|---|---|---|
| Job Stress | Mood states | Interpersonal needs | 0.011 | 0.002 | 0.000−0.005 | 0.013 |
| Psychological Adaptation | Mood states | Interpersonal needs | -0.004 | 0.006 | 0.003−0.012 | 0.002 |

Bootstrap resamples = 5000; BC 95% CI: Bias-Corrected 95% confidence intervals.

strength of this study is that suicidal ideation was explored innovatively in a context of integration of IPTS and stress vulnerability framework. The role of interpersonal needs is emphasized, and its interactions with mood states, psychological maladaptation and job stress provided us insight into the process how unmet interpersonal needs occurs to female migrant workers. The problem caused by job stress and psychological maladaptation to new environment can't be ignored considering suicide prevention.

### 5.1. Limitations

Results in this study must be interpreted under the consideration of its limitation. First, the causal relationship and temporal sequence can't be explained by cross-sectional data. Second, we choose female migrant worker in manufacturing as our participants, made it uncertain that whether our model and findings could be applied to male counterparts or migrant worker in other industries. Future research should test and validate the model in a broader and more diverse sample. Third, the possible outcomes of acculturative stress pertaining to migrant workers are various, such as feeling of marginality and confusion [20]. However, anxiety and depression are more discussed and regarded as more common mental health in the context of psychological problems in migrants. Besides, interpersonal needs were tested instead of suicidal ideation in the present study. Therefore, these findings need further comprehensive validation before practical application.

## 6. Conclusion

Female migrant manufacturing workers who perceived stress from job and the process of psychological adaptation may have worse mood states and workers with worse mood states are more likely to develop unmet interpersonal needs, a proximal factor of suicidal ideation. Attention to negative effect of job stress and psychological maladaptation among female migrant manufacturing workers may be critical for suicide prevention.

## Availability of data and materials

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to protection of participants' privacy.

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## Authors' contributions

ML, LJ and YC conceived the idea; XY conducted the methodology and formal analyses; XY, RW and HC wrote the initial draft of the paper; ML led and conducted the research investigation. The remaining authors contributed to the research investigation, writing and revisions. All authors have read and agreed to the publication of the manuscript.

## Conflicts of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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We acknowledge all participants involved in collection of questionnaires.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.shaw.2023.03.001.

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