

# Self-esteem, job insecurity and psychological distress among Chinese nurses

yun liu

Liaocheng People's Hospital

chunyan yang

Liaocheng People's Hospital

guiyuan zou (✉ [zouguiyuan00@126.com](mailto:zouguiyuan00@126.com))

Shandong Mental Health Center

---

## Research Article

**Keywords:** Job insecurity, self-esteem, psychological distress, mediation, nurse

**Posted Date:** February 24th, 2021

**DOI:** <https://doi.org/10.21203/rs.3.rs-221598/v1>

**License:** © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

**Version of Record:** A version of this preprint was published at BMC Nursing on August 10th, 2021. See the published version at <https://doi.org/10.1186/s12912-021-00665-5>.

# Abstract

## Background

Many studies have investigated the related variables of nurses' psychological distress, but little is known about the underlying mechanism between job insecurity, self-esteem and psychological distress.

## Aims

The purpose of this study examined the role of self-esteem as a mediator between job insecurity and psychological distress among Chinese nurses.

## Methods

Questionnaires, assessing job insecurity, self-esteem and psychological distress, were collected from 462 nurses at a third-grade class-A hospital in Shandong Province, China.

## Results

Results showed that the prevalence of psychological distress among nurses was 83.8%. Regression analysis showed that job insecurity was positively associated with psychological distress, explaining 17.5% of variance in psychological distress. Mediation analysis showed that self-esteem partially mediated the effect of the two dimensions of job insecurity on psychological distress.

## Conclusions

Nurses with low self-esteem and high job insecurity deserved attention. Programs that reduce uncertainty and increase predictability and cultivate a supportive, cooperative work climate may promote nurse overall health and foster self-esteem.

## Introduction

Psychological distress among nurses has been the focus of research about occupational health over the past decade <sup>[1-3]</sup> Several data have shown that psychological distress was not only correlated with poor psychological function and quality of life but also a risk predictor of psychosomatic diseases among nurses <sup>[1, 4]</sup>. Moreover, empirical evidence has found that psychological distress could also cause poor job performance and high turnover rate, which undoubtedly affects the professionalism of nurses and quality of care <sup>[5, 6]</sup>. Today, changes in the healthcare realm have resulted in organizational and personal challenges, such as fiercer competition among hospitals, changing of employment relations model,

increasing workload, deficient knowledge and decisive autonomy [7, 8]. These challenges, coupled with the rapid development of economy and aging population, a growing burden of chronic diseases, the unreasonable expectations of administrators and patients, and the unsafe working conditions or practice environment have led to increased psychological distress and caused employees to feel insecure about their jobs [9, 10].

Job insecurity is defined as a subjective perception of a potential threat to the continuity of the current job [11]. Quantitative job insecurity refers to an overall concern about the continued existence of the job in the future [12, 13]. Qualitative job insecurity refers to perceived threats of impaired quality in the employment relationship, such as a reduction in income, lack of career opportunities and deterioration of working conditions [12]. Job insecurity is a form of job stress, which undoubtedly affects professional performance and psychosomatic health [14–16]. In addition, a significant relationship was found between job insecurity and sleep disorders, psychological distress, burnout, job satisfaction and problems in family relationship [17, 18]. While a large number of population-based empirical studies have investigated the detrimental effects of job insecurity on work-related attitudes and health and wellbeing outcomes, studies about the relationship between job insecurity and psychological distress among nurses were limited [19, 20].

Self-esteem has also attracted attention as a psychosocial determinant of nurse health [21, 22]. Self-esteem was defined as the confidential experience or will to have a happy life despite stressful circumstance [23, 24]. Studies have shown that self-esteem is among the strongest predictors of life satisfaction and is negatively correlated with psychological distress in the form of anxiety, depression, interpersonal problems and the general severity index of symptom disorders [25–27]. Thus, self-esteem is important for an individual's psychological development. Self-esteem as a psychological determinant, which could help individual effectively cope with stressful dilemma [24, 28]. Previous surveys certified that self-esteem was negatively related with perceived stress [23], and self-esteem as intermediary variable was worthy of consideration [22, 29, 30]. For example, Wang has revealed that an individual's self-esteem could mediate the relationship between occupational stress and well-being [28]. Based on these facts, we concluded that self-esteem might mediate the effect of job insecurity on psychological distress among nurses.

## Methods

### Aim

The purpose of this cross-sectional study was to achieve the following aims: first, to investigate the prevalence of psychological distress among Chinese nurses; second, to examine the relationship between job insecurity, self-esteem and psychological distress; and finally, to explore the mediation of self-esteem on job insecurity and psychological distress.

## **Study design, setting and sampling**

The cross-sectional study was performed in a third-grade class-A hospital from July 2018 to September 2018 in Shandong Province, China using convenience sampling to survey registered nurses. A total of 480 nurses employed at the hospital were recruited to participate in the survey. The inclusive criteria for the participants were as follows: (a) with practice licence for nurses of the People's Republic of China; (b) directly involved in a nursing unit, including internal medicine department, surgical department, intensive care unit, emergency department or gynecology department. The study design was approved by the Ethics Committees of Shandong Mental Health Center. Participants were informed orally and in writing of the purpose, participants' rights and anonymity of this research project, and invited to participate in our survey by answering self-administered hard copy questionnaires, in which they were instructed to complete in staff room or health education room following their daily work. The all questionnaires required 10 to 15 minutes to complete. Finally, 462 nurses returned the filled questionnaires, and the response rate was 96.25%. The most frequently reported reasons for refusal were not interested in the survey.

## **Measures**

### **Sociodemographic characteristics of the participants**

The sociodemographic characteristics of the participants included age, gender, educational level, marital status, economic status, years of working and job type.

### **Rosenberg Self-Esteem Scale (RSES)**

The Rosenberg Self-Esteem Scale, a measure of individual self-esteem, comprised 10 items such as "All in all, I am inclined to feel that I am a failure."<sup>[31]</sup> The respondents rated each item according to the extent to which they agree on a 4-point Likert scale (1 = do not agree at all, 4 = agree completely). Answers were summed to obtain a total score, ranging from 10 to 40, with a higher score indicating a higher level of self-esteem. The Chinese version of the RSES appeared to be a valid single structure from factor analysis and the alpha reliability for Chinese nurse sample was 0.83~0.85<sup>[32,33]</sup>. In this survey, Cronbach's  $\alpha$  for the RSES was 0.79.

### **Kessler-10 Rating Scale**

The Kessler-10 (K10) rating scale developed by Kessler and Mroczek was used to evaluate the level of mental health<sup>[34]</sup>. This scale consisted of 10 items, and the responses on each item were obtained on a 5-point Likert scale ranging from 1 (not at all) to 5 (extremely). The total score ranged from 10 to 50, with a higher total score indicating a higher level of psychological distress. A total score > 16 indicates psychological distress. Many studies supported the psychometric properties of the K10 as a measure of mental health among clinical and nonclinical samples<sup>[35,36]</sup>. Moreover, the K10 has also shown adequate

support for its reliability and validity among Chinese nurses<sup>[37]</sup>, and its Cronbach's  $\alpha$  in the present study was 0.92.

## **Job Insecurity Scale**

Job insecurity was evaluated using a 7-item scale developed by Hellgren<sup>[12]</sup>. The scale consists of two dimensions, with 3 and 4 items, designed to evaluate quantitative and qualitative insecurity. Participants were required to rate every item on 5-point Likert ranging from 1 (strongly disagree) to 5 (strongly agree). A combination of higher quantitative and qualitative insecurity indicated a greater job insecurity. The scale has been proven valid ( $\chi^2/df = 2.283$ , CFI = 0.979, NFI = 0.974, RMSEA = 0.076) and reliable (the Cronbach's  $\alpha$  was 0.730, 0.949 and 0.903 for the overall job insecurity scale and the subscales in this study) in measuring job insecurity experienced by clinical nurses<sup>[38]</sup>. In this study, Cronbach's  $\alpha$  for the quantitative and qualitative insecurity were 0.76 and 0.87, respectively.

## **Ethical considerations**

The study all procedures in this study were approved by the ethics committee of Shandong Mental Health Center (2018R23) and were conducted in accordance with the ethical standards of the 1964 Helsinki declaration. All participants were informed of the purposes and procedures of the study and signed the written informed consent.

## **Data analysis**

The Statistical Package for the Social Sciences (SPSS) software version 22 was used for all analyses. Descriptive statistics for psychological distress, job insecurity, self-esteem and sociodemographic information were calculated. Analysis of variance or t-test was used to evaluate the differences in the participants' psychological distress. Pearson's  $r$  was calculated to examine the correlation between psychological distress, self-esteem and job insecurity among nurses in China. Hierarchical regression analysis was used to explore the mediating effects of self-esteem between job insecurity and psychological distress on mediation according to Baron and Kenny's method<sup>[39]</sup>, and standardised estimate ( $\beta$ ),  $F$ ,  $R^2$  and  $R^2$ -changes ( $\Delta R^2$ ) for each step were provided. Finally, a nonparametric resampling method (2000) was used by running the PROCESS plugin in the SPSS Macro proposed by Preacher and Hayes to examine the statistical significance of the mediating effect<sup>[40]</sup>. All continuous variables were standardised to prevent multicollinearity before performing the regression analyses. For all analyses, a  $P$  value  $< 0.05$  was considered statistically significant.

# **Findings**

## **Sociodemographic information and distribution of psychological distress in categorical items**

As summarized in Table 1, the sample comprised of 428 (92.6%) women and 34 (7.4%) men. The mean age of the participants was  $(31.19 \pm 6.36)$  years, and the average years of work experience was  $(8.65 \pm$

7.12) months. Regarding the duration of employment, 33.3% had worked as nurses for 6–10 years and 24.9% for more than 10 years. In terms of education, 339 (73.4%) nurses received bachelor's degree or higher. In terms of marital status, 71.9% were married. Regarding job type, 40.5% were permanent nurses. No significant difference was observed between psychological distress and sociodemographic information except for years of work experience and job type.

### **Scores and correlations between self-esteem, job insecurity and psychological distress**

Table 2 shows the descriptive results of self-esteem, psychological distress, quantitative insecurity and qualitative insecurity. The scores of self-esteem, psychological distress, quantitative insecurity and qualitative insecurity were  $28.11 \pm 3.24$ ,  $23.72 \pm 7.22$ ,  $7.78 \pm 2.50$  and  $6.81 \pm 3.01$ , respectively. A total of 462 nurses reported high levels of psychological distress, with 83.8% of sample scores being  $\geq 16$  or greater. Table 2 also presents the results of Pearson's correlation. Self-esteem was negatively correlated with quantitative insecurity ( $r = -0.278$ ,  $P < 0.01$ ), qualitative insecurity ( $r = -0.251$ ,  $P < 0.01$ ) and psychological distress ( $r = -0.374$ ,  $P < 0.01$ ). Psychological distress was positively correlated with quantitative insecurity ( $r = -0.339$ ,  $P < 0.01$ ) and qualitative insecurity ( $r = -0.282$ ,  $P < 0.01$ ).

### **Results of the hierarchical linear regression analysis**

The hierarchical linear regression analysis (Table 3) showed that the control variables (years of work experience) were not significantly associated with psychological distress in step 1 ( $R^2 = 0.001$ ). Quantitative insecurity ( $\beta = 0.306$ ,  $P < 0.001$ ) and qualitative insecurity ( $\beta = 0.236$ ,  $P < 0.001$ ) were significant positive predictors of psychological distress in step 2, explaining the 17.5% variance in psychological distress. In the third step, self-esteem ( $\beta = -0.256$ ,  $P < 0.001$ ) did not predict psychological distress, thereby accounting for the 5.7% variance in psychological distress. When self-esteem was added to the regression model, the relationship between quantitative insecurity ( $\beta = 0.306$  to  $\beta = -0.242$ ,  $P < 0.001$ ) and qualitative insecurity ( $\beta = 0.236$  to  $\beta = 0.182$ ,  $P < 0.001$ ) and psychological distress was significantly reduced. Based on the fourth step of Baron and Kenny's method, we can conclude that self-esteem partially mediated the relationship between the two dimensions of job insecurity and psychological distress.

As shown in Table 4, the results of the bootstrapping method showed that the path coefficient of the indirect effect of quantitative insecurity on psychological distress through self-esteem was 0.2432 (95% confidence interval [CI]: 0.1437, 0.3826). The path coefficient of the direct effect of quantitative insecurity on psychological distress was 0.7368 (95% CI: 0.4898, 0.9837). Meanwhile, the results of the bootstrapping method showed that the path coefficient of the indirect effect of quality insecurity through self-esteem was 0.1979 (95% CI: 0.1085, 0.3103). The path coefficient of the direct effect of qualitative insecurity on psychological distress was 0.4821 (95% CI: 0.2759, 0.6884). Thus, self-esteem was a partial mediator between quantitative insecurity and qualitative insecurity and psychological distress.

## **Discussions**

The current study is one of the first to our knowledge that examines the potential mediator of self-esteem between job insecurity and psychological distress among Chinese nurses. The main findings were as follows: the prevalence of psychological distress was 83.8%; the two dimensions of job insecurity were positively correlated with psychological distress, whereas self-esteem was negatively correlated with psychological distress; and mediation analysis showed that self-esteem was a partial mediator between the two dimensions of job insecurity and psychological distress. The present study also enriches the findings of the prior surveys<sup>[14-16]</sup> and explains why not everyone that suffers from job insecurity develops psychological distress. The prevalence of psychological distress in this study resembled previously reported values<sup>[24]</sup>. Years of work experience was highly relevant to psychological distress in this study, the longer years of work, the less psychological distress, which consisted with the findings of a previous survey<sup>[37]</sup>. In addition, job type was related to psychological distress, which was consistent with existing research results<sup>[37, 38]</sup>. A possible explanation was that contractual nurses were prone to accept contractual employment type and its instability than lifetime employment type, which might cause less psychological distress.

This research revealed that job insecurity as well as the two dimensions of job insecurity were positively related to psychological distress among nurses, which was in accordance with the finding of Kachi<sup>[41]</sup>. Studies have also demonstrated a positive correlation between job insecurity and sleep disorders, anxiety, depression, fatigue and job dissatisfaction<sup>[14, 16, 18]</sup>. In China, with the deepening of medical and health system reform, more and more nurses would encounter such a situation that worried about their job reward and future career development, which led to more psychological distress<sup>[3, 7, 9]</sup>. So, there is an urgent need for preventive interventions designed for fostering positive nurses' expectations toward specific job and job characteristics, for example, providing continuous learning and training opportunity.

The current study found that self-esteem was negatively related to psychological distress, which was also observed in previous studies<sup>[28, 24]</sup>. Feng et al showed that nurses with high positive self-image tend to have a higher career adaptability resources, and consequently, feel more enthusiastic about their job<sup>[24]</sup>. Nurses with low self-esteem displayed limited coping resources and perceived their professional environment as uncontrolled, which subsequently increased their risk for psychological distress. Simultaneously, nurses with low self-esteem usually feel incompetent and worthless, then, they would strive to manage the negative affect resulting from those beliefs in a dysfunctional way. Thus, they become even more distressed. Inversely, nurses who have a positive sense of self-esteem are more flexible, and they can accept their strengths and weaknesses. Thus, interventions should encourage nurses to maintain a positive self-esteem as a protective measure against psychological distress.

This study is especially important as it is the first empirical attempt to reveal the effect of job insecurity and mediation of self-esteem on psychological distress among Chinese nurse. That is to say, the current findings certified that high job insecurity led to lower self-esteem, thereby increasing psychological distress. These results enriched the previous findings that high working stress could influence psychological distress via self-esteem<sup>[23, 43]</sup>. Moreover, recent research suggested that context (e.g., a

supportive, cooperative work climate) could influence individual's self-esteem and the success or failure of any situation can result in fluctuations of individual's self-esteem [44, 45]. For example, stressful occupational environments with overwhelming job demands could reduce individual's competence and ability to manage a given situation, thereby resulting in altered mental health problems [23]. The current findings overlapped with the results in literature showing that self-esteem is a significant variable in developing psychological distress.

The current study had several limitations. First, due to its cross-sectional nature, a causal relationship between self-esteem, job insecurity and psychological distress cannot be obtained. Second, all data were collected using self-report questionnaires; thus, reporting bias could not be avoided. Third, the participants were recruited from a third-grade class-A tertiary hospital and the small sample size, which limited the generalizability of the results and weakened the statistical power. Future empirical longitudinal studies across hospital of different classification will be required to establish causality and distinction among variables.

## Conclusions

Job insecurity is considered a serious challenge and major concern impacts the quality of care and the stability, prosperity and professionalism of nurses in the contemporary world [19,46,47]. Given the increased prevalence of job insecurity, which influences self-esteem and psychological distress, the current findings are useful for health managers and researchers working to improve psychological health and reduce negative consequences associated with job insecurity among nurses. Understanding the underlying psychological mechanisms may facilitate prevention initiatives aimed at helping nurses experience high job insecurity and promote early screening for low self-esteem individuals. This could also prompt health managers and researchers to focus on these individuals, and offer interventions (e.g., Employee Assistance Program) in the clinical setting. Despite the high risk of job insecurity, not every nurse develops severe psychological distress. A possible explanation for this phenomenon is the power of self-esteem. Thus, interventions encouraging nurses to maintain a positive self-esteem as a protective strategy against psychological distress were warranted.

## Declarations

### Acknowledgments

We would like to thank all the participants of this study for their involvement.

### Authors' contributions

LY & YCY were involved in investigation, data curation and writing original draft. ZGY participated in the design of the study and produced the formal analysis, writing-review editing. All authors (LY, YCY and ZGY) have read and approved the manuscript.

## Funding

The study obtained no funding.

## Availability of data and materials

The datasets generated and analyzed for the current study are not publicly available due to IRB agreements but are available from the corresponding author on reasonable request.

## Ethics approval and consent to participate

The study all procedures in this study were approved by the ethics committee of Shandong Mental Health Center (2018R23) and were conducted in accordance with the ethical standards of the 1964 Helsinki declaration. All participants were informed of the purposes and procedures of the study and signed the written informed consent before the conduct of the study. During the whole study process, the privacy and anonymity of participants would be fully protected since no identifying information such as their names, addresses on any of the participants were collected. Data were summarized and reported only in the aggregate. Written permission was taken from the author of Job Insecurity Scale, Rosenberg Self-Esteem Scale (RSES) and Kessler-10 Rating Scale, respectively.

## Consent for publication

Not applicable.

## Competing interests

Authors declare no conflict of interest.

## References

1. Kunie, K., Kawakami, N., Shimazu, A., Yonekura, Y., & Miyamoto, Y. The relationship between work engagement and psychological distress of hospital nurses and the perceived communication behaviors of their nurse managers: A cross-sectional survey. *International journal of nursing studies*, 2017, 71, 115–124.
2. Molina-Praena, Jesús, Ramirez-Baena, L., Gómez-Urquiza, José, Cañadas, Gustavo, Emilia, D. L. F., et al. Levels of burnout and risk factors in medical area nurses: a meta-analytic study. *International Journal of Environmental Research and Public Health*, 2018, 15(12).
3. Wang, L, Wang, Z, Ma, Q, Fang, G, Yang, J. The development and reform of public health in china from 1949 to 2019. *Globalization and Health*, 2019, 15(1).
4. Li, H., Cheng, B., Zhu, XP. Quantification of burnout in emergency nurses: A systematic review and meta-analysis. *International emergency nursing*, 2018, 39, 46–54.

5. Egede LE, Dismuke CE. Serious psychological distress and diabetes: A review of the literature. *Current Psychiatry Reports*, 2012,14(1), 15–22.
6. Prapanjaroensin, A., Patrician, P. A., Vance, D. E. Conservation of resources theory in nurse burnout and patient safety. *Journal of advanced nursing*, 2017,73(11), 2558–2565.
7. Lambert V A., Lambert C E., Petrini M., Li X M., Zhang Y J. Predictors of physical and mental health in hospital nurses within the People's Republic of China. *Int Nurs Rev*, 2007,54(1), 85–91.
8. Chen Z Launch of the health-care reform plan in China. *Lancet*, 2009,373: 1322–132.
9. Wang JL., Okoli Chizimuzo T C., He HJ., Feng F., Li JW., Zhuang LL., Lin M. Factors associated with compassion satisfaction, burnout, and secondary traumatic stress among Chinese nurses in tertiary hospitals: A cross-sectional study., *Int J Nurs Stud*, 2019,102, 103472.
10. Landsbergis, P. A., Grzywacz, J. G., LaMontagne, A. D. Work organization, job insecurity, and occupational health disparities. *American journal of industrial medicine*, 2014, 57(5), 495–515.
11. Hellgren, J., Sverke, M., & Isaksson, K. A two-dimensional approach to job insecurity: Consequences for employee attitudes and well-being. *European Journal of Work and Organizational Psychology*, 1999, 8(2), 179–195.
12. Hans, DW. Job insecurity: review of the international literature on definitions, prevalence, antecedents and consequences. *SA Journal of Industrial Psychology*, 2005,31(4).
13. Wang, H. J., Lu, C. Q., & Siu, O. L. Job insecurity and job performance: The moderating role of organizational justice and the mediating role of work engagement. *Journal of Applied Psychology*, 2015,100(4), 1249.
14. Mauno, S., De C, N., Tolvanen, A., Kinnunen, U., Mäkikangas, A. Occupational well-being as a mediator between job insecurity and turnover intention: Findings at the individual and work department levels. *European Journal of Work and Organizational Psychology*, 2004, 23(3), 381–393.
15. De Beer, L. T., Rothmann Jr, S., & Pienaar, J. Job insecurity, career opportunities, discrimination and turnover intention in post-apartheid South Africa: examples of informative hypothesis testing. *The International Journal of Human Resource Management*, 2016, 27(4), 427–439.
16. Butterworth, P., Leach, L. S., McManus, S., & Stansfeld, S. A. Common mental disorders, unemployment and psychosocial job quality: is a poor job better than no job at all?. *Psychological medicine*, 2013,43(8), 1763–1772.
17. Shin, Y., Hur, W. M., Moon, T. W., & Lee, S. A motivational perspective on job insecurity: relationships between job insecurity, intrinsic motivation, and performance and behavioral outcomes. *International Journal of Environmental Research and Public Health*, 2009,16(10), 1812.
18. Boya Fatma Ozyaman., Demiral Yücel., Ergör Alp., Akvardar Yildiz., De Witte Hans. Effects of perceived job insecurity on perceived anxiety and depression in nurses. *Ind Health*, 2008,46(6), 613-9.
19. Saquib Juliann., Taleb Mohammed., AlMeimar Redaallah., Alhomaidan Homaidan T., Al-Mohaimed Abdulrahman., et al. Job insecurity, fear of litigation, and mental health among expatriate nurses. *Arch Environ Occup Health*, 2020,75(3), 144–151.

20. Mann, M. M., Hosman, C. M., Schaalma, H. P., De Vries, N. K. Self-esteem in a broad-spectrum approach for mental health promotion. *Health education research*, 2004,19(4), 357–372.
21. Yang, X., Lau, J. T., Wang, Z., Ma, Y. L., Lau, M. C. The mediation roles of discrepancy stress and self-esteem between masculine role discrepancy and mental health problems. *Journal of affective disorders*, 2008,235, 513–520.
22. Lee, J. S., Joo, E. J.,Choi, K. S. Perceived stress and self-esteem mediate the effects of work-related stress on depression. *Stress & Health*, 2013, 29(1), 75–81.
23. Feng DJ., Su S., Wang L., Liu F. The protective role of self-esteem, perceived social support and job satisfaction against psychological distress among Chinese nurses., *J Nurs Manag*, 2018, 26, 366–372.
24. Liu, Y., Wang, Z., Zhou, C., & Li, T. (2014). Affect and self-esteem as mediators between trait resilience and psychological adjustment. *Personality and individual differences*, 2014, 66, 92–97.
25. Sung, C., Muller, VR., Ditchman, N., Phillips, B., Chan, F. Positive coping, self-efficacy, and self-esteem as mediators between seizure severity and life satisfaction in epilepsy. *Rehabilitation Research, Policy, and Education*, 2013, 27(3), 154.
26. Servidio, R., Gentile, A., & Boca, S. The mediational role of coping strategies in the relationship between self-esteem and risk of internet addiction. *Europe's journal of psychology*, 2018,14(1), 176.
27. Wang, Z., Liu, H., Yu, H., Wu, Y., Chang, S., & Wang, L. Associations between occupational stress, burnout and well-being among manufacturing workers: mediating roles of psychological capital and self-esteem. *BMC psychiatry*, 2017,17(1), 364.
28. Li QF., Chi PL., Hall Brian J., Wu QL., Du HF. Job stress and depressive symptoms among migrant workers in Macau: A moderated mediation model of self-esteem and perceived social support., *Psych J*, 2019, 8, 307–317.
29. Jesse D Elizabeth., Kim Heejung., Herndon Cynthia. Social support and self-esteem as mediators between stress and antepartum depressive symptoms in rural pregnant women., *Res Nurs Health*, 2014, 37, 241 – 52.
30. Vispoel, W. P., Boo, J., & Bleiler, T. Computerized and paper-and-pencil versions of the Rosenberg Self-Esteem Scale: A comparison of psychometric features and respondent preferences. *Educational and psychological measurement*, 2001, 61(3), 461–474.
31. Zheng CH, Huang XH, Yang ML, Li HP, Zeng LH. Study on the relationships between nursing professional values and self-esteem, personal development competitiveness[J].*Chin J Nurs*, 2009, 44(6):485–487.
32. Zhang J, Guo F, Chen ZY, He HW, Long Y, Li Q. Relationship between social support, resilience, self-esteem and post-traumatic stress disorder in intensive care unit nurses [J].*Natl Med J China*, 2020, 100 (01):32–36.
33. Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., et al. Screening for serious mental illness in the general population. *Archives of general psychiatry*, 2003,60(2), 184–189.

34. Tian, X., Gao, Q., Li, G., Zou, G., Liu, C., Kong, L., & Li, P. Resilience is associated with low psychological distress in renal transplant recipients. *General hospital psychiatry*, 2016,39, 86–90.
35. Welsh J., Korda R J., Banks E., Strazdins L., Joshy G., Butterworth P. Identifying long-term psychological distress from single measures: evidence from a nationally representative longitudinal survey of the Australian population. *BMC Med Res Methodol*,2020, 20(1), 55.
36. Zou, G., Shen, X., Tian, X., Liu, C., Li, G., Kong, L., & Li, P. Correlates of psychological distress, burnout, and resilience among Chinese female nurses. *Industrial health*, 2016,54(5), 389–395.
37. Wang H., Wang S., Liu D. An Empirical Study on the Relationship between Job Insecurity and Work Engagement Towards Nurses in Different Forms in Tertiary Hospitals. *Chinese Hospital Management*,2016,36(3):74–76.
38. Baron, R. M., & Kenny, D. A. The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 1986,51(6), 1173.
39. Preacher, K. J., & Hayes, A. F. SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior research methods, instruments, & computers*, 2004, 36(4), 717–731.
40. Kachi Yuko., Hashimoto Hideki., Eguchi Hisashi., Gender differences in the effects of job insecurity on psychological distress in Japanese workers: a population-based panel study., *Int Arch Occup Environ Health*, 2018,91, 991–999.
41. Barnett, M. D., & Ruiz, I. A. Psychological distress and compassion fatigue among hospice nurses: The mediating role of self-esteem and negative affect. *Journal of palliative medicine*, 2018, 21(10), 1504–1506.
42. Auerbach, R. P., Abela, J. R. Z., Ho, M. H. R., Mcwhinnie, C. M., Czajkowska, Z. A prospective examination of depressive symptomology: understanding the relationship between negative events, self-esteem, and neuroticism. *Journal of Social & Clinical Psychology*, 2010,29(4), 438–461.
43. Kernis, M. H. Measuring self-esteem in context: the importance of stability of self-esteem in psychological functioning, 2005, 73(6), 1569–1605.
44. Franck, E. Raedt, R. D. Houwer, J. D. Implicit but not explicit self-esteem predicts future depressive symptomatology. *Behaviour Research and Therapy*, 2007, 45(10), 2448–2455.
45. Burke Ronald J., Singh Parbudyal. Correlates and Consequences of Nursing Staff Job Insecurity. *J Health Hum Serv Adm*, 2016, 39(3), 383–406.
46. Sverke, M., Lstad, L., Hellgren, J., Richter, A., Nswall, K. A meta-analysis of job insecurity and employee performance: testing temporal aspects, rating source, welfare regime, and union density as moderators. *International Journal of Environmental Research and Public Health*, 2019,16(14), 2536.

## Tables

**Table1 Sociodemographic information and distribution of psychological distress in categorical items (N = 462)**

Variable	n (%)	Psychological Distress (Mean ± SD)	t/F	P
Age			2.034	0.132
< 30 years	266(57.6)	24.03 ± 7.14		
31~40 years	150(32.5)	23.79 ± 7.01		
> 40 years	46(10.0)	21.72 ± 8.20		
Gender			3.835	0.051
Female	428(92.6)	23.57 ± 7.07		
male	34(7.4)	25.59 ± 8.87		
Years of working			4.217	0.006
< 3 years	108(23.4)	24.31 ± 7.19		
3 ~ 5 years	85(18.4)	23.08 ± 7.12		
6 ~ 10 years	154(33.3)	24.95 ± 7.09		
>10 years	115(24.9)	22.00 ± 7.22		
Education level			1.590	0.208
Junior school or under	123(26.6)	23.73 ± 7.59		
Bachelor's degree or above	339(73.4)	23.72 ± 7.10		
Economic conditions		P = 0.066	2.730	0.066
< 3000 ¥	102(22.1)	25.03 ± 7.97		
3000 ~ 5000 ¥	233(50.4)	23.65 ± 6.73		
> 5000 ¥	127(27.5)	22.80 ± 7.37		
Marital status			0.328	0.567
Single	117(25.3)	23.64 ± 7.29		
Married	345(74.7)	23.97 ± 7.05		
Job type			18.993	0.000
Permanent nurse	177(40.5)	24.96±8.13		
Temporary nurse	285(59.5)	22.95±6.94		

**Table 2 Mean, Standard Deviations (SD) and Correlation of Variables**

Variables	Mean ± SD	1	2	3	4
1 Self-esteem	28.11 ± 3.24	1			
2 Quantitative Insecurity	7.78 ± 2.50	-0.278**	1		
3 Quality Insecurity	6.81 ± 3.01	-0.251**	0.147**	1	
4 Psychological Distress	23.72 ± 7.22	-0.374**	0.339**	0.282**	1

\*\*  $P \leq 0.01$

**Table 3 Hierarchical Linear Regression Analysis Results**

Variable	Psychological Distress		
	Step1	Step2	Step3
<b>Block 1</b>			
Years of Working	- 0.074	- 0.075	- 0.045
Job type	- 0.009	- 0.019	- 0.023
<b>Block 2</b>			
Quantitative Insecurity		0.306***	0.242***
Qualitative Insecurity		0.236***	0.182***
<b>Block 3</b>			
Self-esteem			- 0.256***
<i>F</i>	1.269	24.386***	27.637***
<i>R</i> <sup>2</sup>	0.001	0.176	0.233
$\Delta R^2$	0.001	0.175	0.057

\*\*\* P < 0.001

**Table 4. Self-esteem mediates the relationship between the dimensions of job insecurity and psychological distress**

Independent Variable	Mediating Variable	Predictor	Pathway	Estimate	SE	95% CI	
						LL	UL
Psychological distress	Self-esteem	Self-esteem: Quantitative Insecurity	a <sub>1</sub>	-0.3604	0.0581	-0.4746	-0.2462
		Psychological distress: self-esteem	b <sub>1</sub>	-0.6749	0.0968	-0.8652	-0.4846
		Indirect effect through self-esteem	a <sub>1</sub> b <sub>1</sub>	0.2432	0.0601	0.1437	0.3826
		psychological distress: Quantitative Insecurity					
		Direct effect of Quantitative Insecurity on psychological distress	c <sub>1</sub>	0.7368	0.1257	0.4898	0.9837
		Self-esteem: Quality Insecurity	a <sub>2</sub>	-0.2706	0.0486	-0.3663	-0.1751
		Psychological distress: self-esteem	b <sub>2</sub>	-0.7201	0.0974	-0.9116	-0.5287
		Indirect effect through self-esteem	a <sub>2</sub> b <sub>2</sub>	0.1949	0.0515	0.1085	0.3103
		psychological distress: Quality Insecurity					
		Direct effect of Quality Insecurity on psychological distress	c <sub>2</sub>	0.4821	0.1050	0.2759	0.6884

Note: a<sub>1</sub> a<sub>2</sub> means “the pathway of quantitative insecurity or quality insecurity could predict self-esteem, b<sub>1</sub> b<sub>2</sub> means “the pathway of self-esteem could predict psychological distress, c<sub>1</sub> c<sub>2</sub> means “the pathway of quantitative insecurity or quality insecurity could predict psychological distress.