



# Job Satisfaction Can Mediate the Relationship between Safety-Related Stressors and Safety Behavior among Chinese Frontline Construction Workers

Yan Wang<sup>1,2\*</sup> and Jiuping Xu<sup>1,2</sup>

<sup>1</sup>Business School, Sichuan University, PR China

<sup>2</sup>Uncertainty Decision-Making Laboratory, Sichuan University, PR China

## Abstract

Unsafe behavior in the workplace is an important contributor to accidents. Although a few studies have examined the influence of safety-related stressors on safety behavior, no study has focused on the role of job satisfaction in the relationship between safety-related stressors and safety behaviors. This study examined the mediating effect of job satisfaction on the relationship between three types of safety-related stressors and two types of safety behavior among construction workers. We found evidence that only safety role ambiguity and conflict are significantly negatively correlated with job satisfaction. Job satisfaction has a significant positive correlation with both safety compliance and safety participation and can mediate the relationship between safety role ambiguity/conflict and both safety compliance and participation. Our results indicate that, in order to improve construction worker's safety behaviors, managers and organizations should identify ways to reduce safety-related stressors and improve job satisfaction.

**Keywords:** Job satisfaction; Safety-related stressors; Safety compliance; Safety participation; Construction worker

## Introduction

Although considerable improvements have been made over the years with respect to construction safety, accidents continue to occur [1]. The main causes of such accidents are faulty equipment and substandard techniques [2]. However, studies have shown that equipment operation error, which is largely dependent on human behavior, can also cause serious accidents [3,4]. Therefore, studying individual safety behavior and its predictors may help develop interventions to promote workplace safety.

Stress at work strongly impacts safety behavior and job satisfaction [5,6]. Sampson et al. [7] proposed three types of safety-related stressors: Interpersonal safety conflict, safety role ambiguity, and safety role conflict. Griffin et al. [8] proposed that safety behaviors can be stratified into safety compliance and safety participation. Few studies have found a negative correlation between safety-related stressors and safety behaviors, but the conclusions are not consistent [5,7]. Further study is needed to understand the influence of the three types of safety-related stressors on two kinds of safety behaviors. Based on the above-mentioned considerations, we hypothesize:

H1: Interpersonal safety conflict (H1a), safety role ambiguity (H1b), and safety role conflict (H1c) have a negative effect on safety compliance.

H2: Interpersonal safety conflict (H2a), safety role ambiguity (H2b), and safety role conflict (H2c) have a negative effect on safety participation.

In addition, previous literature supported significant negative relationship between work-related stress and job satisfaction [9,10]. High levels of work-related stressors can lead to a decrease in employee job satisfaction [11]. Thus, we proposed the following hypothesis:

H3: Interpersonal safety conflict (H3a), safety role ambiguity (H3b), and safety role conflict (H3c) have a negative effect on job satisfaction.

Riketta et al. [12] found that job satisfaction had a significant influence on subsequent performance, and showed that job satisfaction can be used as a predictor of safety behavior.

## OPEN ACCESS

### \*Correspondence:

Yan Wang, Business School, Sichuan University, No. 24, South Section 1, Yihuan Road, Chengdu, Sichuan, 610065, PR China, Tel: +86 28 85418191; Fax: +86 28 85415143; E-mail: wangyan1818daisy@163.com

Received Date: 01 Feb 2022

Accepted Date: 25 Feb 2022

Published Date: 11 Mar 2022

### Citation:

Wang Y, Xu J. Job Satisfaction Can Mediate the Relationship between Safety-Related Stressors and Safety Behavior among Chinese Frontline Construction Workers. *Ann Pediatr Res.* 2022; 6(1): 1064.

**Copyright** © 2022 Yan Wang. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Maintaining a positive attitude during work can affect an individual's willingness to engage in work-related safety behaviors [13]. Based on the expectation that job satisfaction positively correlates with safety behavior, we proposed the following hypothesis:

H4: Job satisfaction has a positive influence on safety compliance (H4a) and safety participation (H4b).

In addition, literatures supported that job satisfaction played a mediating role in various associations involving performance variables. Crede et al. [14] reported that job satisfaction can function as a mediator between the four types of antecedents (personality, workplace events, job characteristics, job opportunities) with workplace behaviors. Eatough et al. [15] found that job satisfaction can mediate the relationships between work role stressors and organizational citizenship behavior. Wei et al. [16] proved that job satisfaction acted as a mediator between work-family conflict and safety participation. Hence, we proposed the following hypotheses:

H5: Job satisfaction mediates the relationships of safety compliance with interpersonal safety conflict (H5a), safety role ambiguity (H5b), and safety role conflict (H5c).

H6: Job satisfaction mediates the relationships of safety participation with interpersonal safety conflict (H6a), safety role ambiguity (H6b), safety role conflict (H6c).

Therefore, we proposed a conceptual model to understand the relationships among safety-related stressors (interpersonal safety conflict, safety role ambiguity and conflict), job satisfaction, and safety behaviors (safety compliance and safety participation) among construction workers in China (Figure 1). The model stipulates that (1) safety-related stressors can have a direct impact on the safety behavior of frontline construction workers, and that (2) safety stressors can affect job satisfaction, which in turn affects the safety behavior of frontline construction workers.

## Methods

### Participants

A total of 500 questionnaires were distributed among frontline construction workers on 12 randomly selected construction sites in Chengdu, China. The survey was conducted between December 24<sup>th</sup>, 2020 and February 2<sup>nd</sup>, 2021. A total of 391 frontline construction workers participated in the questionnaire survey. After excluding 35 questionnaires with missing values, we analyzed 356 valid questionnaires from frontline construction workers in Chengdu, corresponding to a response rate of 71.2%.

### Safety-related stressors

Three safety-related stressors were assessed using a 13-item scale: Four items were associated with interpersonal safety conflict and safety role ambiguity, and five items were associated with safety role conflict [7]. Each item was rated using a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). In the current study, Cronbach's alpha was 0.898 (0.894 for interpersonal safety conflict, 0.902 for safety role ambiguity, and 0.837 for safety role conflict).

### Job satisfaction

We used a 24-item scale developed by Ni et al. [2] to assess job satisfaction based on five sub-scales: Satisfaction with pay, co-workers, leaders, work environment, and the work itself. Each measurement item was rated using a 5-point Likert scale ranging from 1 ("strongly

disagree") to 5 ("strongly agree"). This scale has been documented to have good reliability and validity [17]. In this study, Cronbach's alpha was 0.943.

### Safety behavior

Safety behaviors were measured using a 6-item scale based on Neal and Griffin [18], which included two subscales: Safety compliance and safety participation. Each item was rated using a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). In the present study, Cronbach's alpha was 0.829 (0.862 for safety compliance, and 0.876 for safety participation).

### Statistical analysis

We used SPSS 26 (IBM, Chicago, IL, USA) to assess of inattentive responding, internal consistency, descriptive statistics, and inter-scale correlations. Next, we conducted Confirmatory Factor Analyses (CFA) with our main variables using Mplus 8.5 software (Muthén & Muthén, 2020). We assessed fit using the following indicators: Comparative fit index ( $CFI \geq 0.90$ ), Tucker-Lewis Index ( $TLI \geq 0.90$ ), root mean square error of approximation ( $RMSEA \leq 0.08$ ) and standardized root mean square residual ( $SRMR \leq 0.08$ ) [19]. Additionally, we used the WLSMV estimation to estimate a structural equation model (Figure 2). These mediation effects were assessed using Delta method with 1000 bootstrapped nonparametric samplings [20].

## Results

### Demographic analysis

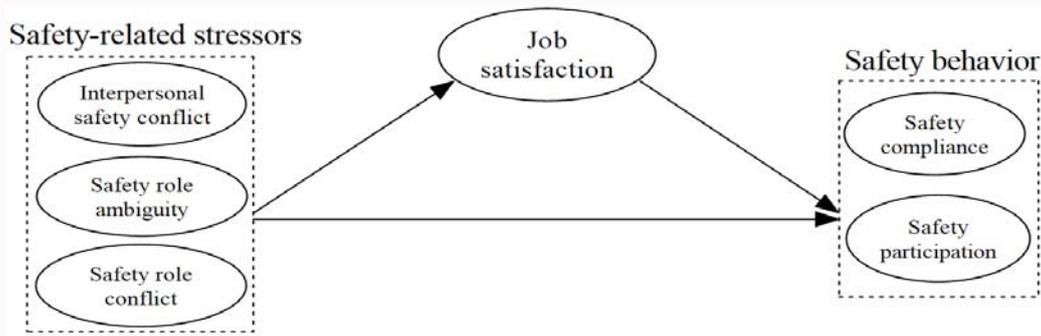
We collected demographic information from all participants, including sex, age, education level, number of working hours per day, and experience in the construction industry. A large proportion of the participants was men (299, 83.99%) and was older than 25 years (313, 87.92%). Most participants had an education below senior high school (305, 85.67%), worked >8 h per day (333, 93.54%), and had >5 years of work experience (239, 67.13%).

### Pearson's correlation coefficients

As shown Table 1, for all six variables - interpersonal safety conflict, safety role ambiguity, safety role conflict, job satisfaction, safety compliance, and safety participation - we found that any two variables are significantly correlated.

### CFA

The interpersonal safety conflict model fit well, giving ML  $\chi^2$  (2, N=356) =4.821,  $p=0.089$ ,  $CFI=0.997$ ,  $TLI=0.990$ ,  $RMSEA=0.063$  (90% CI 0-0.137), and  $SRMR=0.010$ . The safety role ambiguity model also fit well, showing ML  $\chi^2$  (2, N=356) =5.290,  $p=0.071$ ,  $CFI=0.996$ ,  $TLI=0.989$ ,  $RMSEA=0.068$  (90% CI 0-0.141), and  $SRMR=0.010$ . The safety role conflict model fit well, showing ML  $\chi^2$  (5, N=356) =4.695,  $p=0.4543$ ,  $CFI=1.000$ ,  $TLI=1.000$ ,  $RMSEA=0.000$  (90% CI 0-0.071), and  $SRMR=0.013$ . Finally, the safety compliance measurement model fit well, showing ML  $\chi^2$  (2, N=356) =1.829,  $p=0.408$ ,  $CFI=1.000$ ,  $TLI=1.000$ ,  $RMSEA=0.000$  (90% CI 0-0.102), and  $SRMR=0.008$ . The job satisfaction measurement model yielded some evidence of adequate fit, giving WLSMV  $\chi^2$  (225, N=356) =939.000,  $p<0.001$ ,  $CFI=0.929$ ,  $TLI=0.921$ ,  $RMSEA=0.094$  (90% CI 0.088-0.101), and  $SRMR=0.066$ . The safety participation measurement model also yielded evidence of adequate fit, showing ML  $\chi^2$  (0, N=356) =0.000,  $p<0.001$ ,  $CFI=1.000$ ,  $TLI=1.000$ ,  $RMSEA=0.000$  (90% CI 0.000 to 0.000), and  $SRMR=0.055$ . In short, the measurement model of all latent variables in the structural equation model fits well.



**Figure 1:** Conceptual model and hypotheses examining the mediating role of job satisfaction in the relationship between safety-related stressors and safety behaviors among construction workers.

**Table 1:** Correlations among safety-related stressors, job satisfaction and safety behaviors.

S.NO	Mean	SD	ISC	SRA	SRC	JS	SC	SP
1. ISC	3.06	1.006	1					
2. SRA	3.159	0.984	0.417 <sup>**</sup>	1				
3. SRC	2.924	0.867	0.524 <sup>**</sup>	0.436 <sup>**</sup>	1			
4. JS	3.608	0.67	-0.216 <sup>**</sup>	-0.293 <sup>**</sup>	-0.327 <sup>**</sup>	1		
5. SC	4.664	0.442	-0.239 <sup>**</sup>	-0.112 <sup>*</sup>	-0.164 <sup>**</sup>	0.123 <sup>*</sup>	1	
6. SP	4.124	0.781	-0.206 <sup>**</sup>	-0.127 <sup>*</sup>	-0.314 <sup>**</sup>	0.297 <sup>**</sup>	0.374 <sup>**</sup>	1

**Note:** SD: Standard Deviation; ISC: Interpersonal Safety Conflict; SRA: Safety Role Ambiguity; SRC: Safety Role Conflict; JS: Job Satisfaction; SC: Safety Compliance; SP: Safety Participation, \*p<0.05; \*\*p<0.01



**Figure 2:** Structural model examining the relationships among safety-related stressors, job satisfaction, and safety behaviors. Values are standardized path coefficients and standard errors (in parentheses). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

**Model testing**

The conceptual model (Figure 1) showed reasonable fit based on most of the indices: WLSMV  $\chi^2$  (840, N=356) =1668.842, p<0.001, CFI=0.950, TLI=0.947, RMSEA=0.053 (90% CI 0.049-0.056), and SRMR=0.064. Relationships among the variables were further analyzed using a structural model with standardized parameter estimates (path coefficients and standard errors) (Figure 2). We found that all three safety stressors: Interpersonal safety conflict ( $\beta = -0.263$ , p<0.001), safety role ambiguity ( $\beta = -0.151$ , p=0.015) and safety role conflict ( $\beta = -0.193$ , p=0.023) had a significant negative association with safety compliance, leading to the supporting of H1a, H1b and H1c. In contrast, only safety role conflict ( $\beta = -0.245$ , p=0.007) had a significant negative association with safety participation, supporting H2c; but interpersonal safety conflict ( $\beta = -0.073$ , p=0.411) and safety

role ambiguity ( $\beta = -0.077$ , p=0.121) had no effect, leading to the rejection of H2a and H2b. In terms of job satisfaction, interpersonal safety conflict had no effect ( $\beta = 0.039$ , p=0.642), leading to the rejection of H3a; while safety role ambiguity ( $\beta = -0.238$ , p=0.003) and safety role conflict ( $\beta = -0.309$ , p=0.002) had significant negative associations with job satisfaction, supporting H3b and H3c. Job satisfaction also had a positive effect on safety compliance ( $\beta = 0.256$ , p<0.001) and safety participation ( $\beta = 0.313$ , p<0.001), supporting H4a and H4b.

**Mediation analysis**

The mediation analysis indicated that job satisfaction was not involved in mediating the relationships of interpersonal safety conflict with both safety compliance and safety participation (Table 2),

**Table 2:** Analysis of the ability of job satisfaction to mediate relationships between safety-related stressors and safety behavior.

Mediated Relationship	$\beta$	SE	z	p
ISC -> JS -> SC	0.01	0.014	0.398	0.689
SRA -> JS -> SC	-0.061	0.02	-2.032	0.037
SRC -> JS -> SC	-0.079	0.026	-1.978	0.048
ISC -> JS -> SP	-0.012	0.02	-0.632	0.685
SRA -> JS -> SP	-0.075	0.034	-2.038	0.045
SRC -> JS -> SP	-0.097	0.036	-2.856	0.004

**Note:** ISC: Interpersonal Safety Conflict; SRA: Safety Role Ambiguity; SRC: Safety Role Conflict; JS: Job Satisfaction; SC: Safety Compliance; SP: Safety Participation; SE: Standard Error

leading to the rejection of H5a and H6a. However, job satisfaction did appear to mediate the relationships of safety role ambiguity and safety role conflict with both safety compliance and safety participation, supporting H5b, H5c, H6b and H6c.

## Discussion

This study examined the effects of safety-related stressors on safety compliance and safety participation, and the mediating effect of job satisfaction on the relationships between safety-related stressors and safety behaviors. Our results revealed that all three kinds' safety-related stressors can negatively affect safety compliance, while only safety role conflict can negatively affect safety participation. We also found that interpersonal safety conflict has no influence on job satisfaction, while safety role ambiguity and conflict have a significant negative impact on job satisfaction. There is a positive association between job satisfaction and both safety compliance and safety participation. Furthermore, job satisfaction acts as a mediator between safety role ambiguity/conflict and safety compliance/participation.

### Theoretical implications

First of all, this study helps to further understand the safety-related stressors by examining the impact of safety-related stressors and safety behaviors. The concept of safety-related stressors was proposed by Sampson et al. [7], and the influence on safety behavior not been studied clearly [5]. This research goes a step further and examines the impact of safety stressors on safety participation and compliance by using structural equation models. Our findings suggest that all three safety-related stressors negatively impact on safety compliance, while only safety role conflict can negatively affect safety participation.

Second, this is the first time explore the effect of safety-related stressors on job satisfaction. We found that safety role ambiguity and conflict had a significant negative influence on job satisfaction, while interpersonal safety conflict had no effect. One possible explanation for these results is that when workers are in conflict with a co-worker or superior, they can choose not to work with that particular person for a long time due to the high mobility of Chinese construction workers [21]. Since safety role ambiguity and conflict are associated with uncertainty in core work tasks, this can easily lead to work-related stress, which in turn contributes to low job satisfaction [5,22].

Third, to the best of our knowledge, this is the first study examining the role of job satisfaction in mediating the relationship between safety-related stressors and safety behaviors. This study showed that job satisfaction acted as a mediator in the relationship between safety role ambiguity/conflict and safety compliance/participation. These findings improve our understanding of the mechanisms through which safety behaviors can be promoted. That is, the uncertainty

in safety roles can be affected by the job satisfaction to influence both safety compliance and safety participation.

Fourth, this study has documented that job satisfaction has a significant positive impact on both safety compliance and safety participation. This result contributed to social exchange theory research from the "attitude-behavior" perspective and reveal that high levels of job satisfaction can promote safety behaviors among workers. Based on this point, workers regard job satisfaction as a positive result of their organization's social exchange relationship, and reward them with positive work behaviors such as safety compliance and safety participation.

### Practical implications

Based on our findings, managers and organizations can be decreasing safety stressors and increasing job satisfaction to improve the Chinese frontline construction workers' safety behavior.

In view of the fact that all the three safety stressors have a negative effect on safety compliance, only safety role ambiguity has a negative effect on safety participation. It seems that safety stressors are more likely to affect safety compliance, that because safety compliance is considered to be an in-role behavior [23], which is mandatory that every worker should comply with it. When employees are in conflict with a colleague, they may continue to be angry with that person [24], making it difficult for them to listen to the safety suggestions provided by that particular colleague, thus resulting in noncompliance with safety regulations [25,26]. Safety role ambiguity and conflict refer to the uncertainties associated with safety roles due to the lack of safety-related knowledge among construction workers [27], as well as the lack of clarity among the managers regarding division of labor [28]. This result in a situation where it is difficult for construction workers to determine which safety tasks should be completed first. In order to ensure that workers strictly abide by safety rules and regulations, managers should take all possible measures to reduce safety stressors.

Interpersonal safety conflicts involve interactions with co-workers or superiors, reflecting the social context at work. Such conflict can be avoided by leaving that particular construction project [29,30]. In China, most construction workers are rural workers who are flexible about their job and location: This has contributed to increased job mobility among these workers [31], which in turn leads to fragile employer-employee relationships. When interpersonal conflicts occur, construction workers can choose to leave for another project, and do not have to reluctantly abide by rules with which they disagree. Therefore, in order to increase safety compliance, managers should provide contracts for each construction worker; this will help reduce the job mobility of arbitrarily inducing workers to leave the employer due to external circumstances or personal factors. Project managers should also pay close attention to the emotional needs of workers and provide suitable solutions to improve their attitudes after the occurrence of conflict situations, thereby reducing safety-related accidents. Managers should provide an employee-friendly atmosphere or create an open working environment, so that employees and colleagues/leaders can freely communicate work-related issues, including specific safety issues.

Safety role ambiguity and conflict, in contrast to interpersonal safety conflicts, do not arise from the social context but are associated with core work tasks. They occur due to the lack of safe operation knowledge among construction workers and imperfect safety management systems of managers [32]. Typically, Chinese

construction workers are not educated beyond senior high school, so they may find it difficult to understand complex work demand and objectives [33]. What's more, due to the high mobility of Chinese construction workers, construction enterprise has little investment in safety training for workers. In addition, there may be a large number of sub-contractors assigning tasks at multiple hierarchies even a small project in China [28,34], which results in workers who may be managed by two or more superiors in addition to their direct supervisors. These factors can cause uncertainty among Chinese frontline construction workers, especially with respect to safety tasks. Therefore, safety training is critical in the Chinese construction industry [35]. At the end of the safety training, managers can potentially conduct a safety knowledge examination and reward those who perform well in this examination. It is also necessary to establish comprehensive safety management systems in all construction sites: for example, before workers come to the construction site, all sub-contractors should have a meeting and clarify the responsibilities and obligations of each group of workers. This will help streamline work-related processes, reduce ambiguity, and improve safety behaviors.

Furthermore, interventions conducted to improve safety behavior can aim to enhance job satisfaction among workers. In China, construction workers consist mainly of poorly educated and inexperienced migrant workers from the countryside [35,36]. This was the case in the present study as well, in which most of the sample had an education below senior high school. This might lead to lacking sufficient knowledge, learning ability and learning awareness [32]. Therefore, project managers should carry out safety training courses to improve the safety knowledge of construction workers. Money is the main motivation for Chinese construction workers to leave their hometowns to work in the construction industry. Thus, in order to strengthen job satisfaction and achieve goals even in difficult situations, managers should consider improving workers' awareness of how goal achievement can contribute to increasing their income. Job satisfaction can also be improved by identifying role models who actively maintain workplace safety and participate in safety activities [37]. Rewarding an employee's sense of participation and providing timely praise are important ways in which managers can improve job satisfaction [38,39]. Therefore, managers should give workers the opportunity to voice their suggestions in the process of communication between co-workers and supervisors, and they should give timely praise when workers put forward valuable suggestions for improving their work [40-42].

### Limitations and future research

Although this study has contributed to further understanding of safety-related stressors and safety behaviors, our findings must be considered with caution in the light of several limitations. We chose to study the effects of three specific safety-related stressors [7]. Further research should analyze other safety-related stressors. Second, future work should also verify our results regarding the impacts of interpersonal safety conflict and safety role ambiguity on safety compliance. Third, this study is a cross-sectional study, and more longitudinal studies are needed in the future. In the end, our data came from a single large city in China, so further studies should explore to what extent our findings are generalizable to other geographic areas and other high-risk industries.

### Conclusion

In the present study, we developed a structural model to explore the ability of safety-related stressors and job satisfaction to predict

safety behavior. We found that all three types of safety stressors have a negative effect on safety compliance, while only safety role conflict has a negative impact on safety participation. Conversely, job satisfaction has a positive effect on both safety compliance and safety participation. We also found that improved job satisfaction can lead to increased safety behavior *via* improvements in safety role ambiguity and conflict. Based on our results, we suggest that managers should identify effective ways to reduce safety-related stressors and increase job satisfaction among construction workers.

### References

- Guo BH, Yiu TW. Developing leading indicators to monitor the safety conditions of construction projects. *J Manag Eng.* 2016;32(1):04015016.
- Ni G, Zhu Y, Zhang Z, Qiao Y, Li H, Xu N, et al. Influencing mechanism of job satisfaction on safety behavior of new generation of construction workers based on Chinese context: The mediating roles of work engagement and safety knowledge sharing. *Int J Environ Res Public Health.* 2020;17(22):8361.
- Soltanmohammadlou N, Sadeghi S, Hon CK, Mokhtarpour-Khanghah F. Real-time locating systems and safety in construction sites: A literature review. *Safety Science.* 2019;117:229-42.
- Curcuruto M, Conchie SM, Mariani MG, Violante FS. The role of prosocial and proactive safety behaviors in predicting safety performance. *Safety Science.* 2015;80:317-23.
- Wang D, Wang X, Xia N. How safety-related stress affects workers' safety behavior: The moderating role of psychological capital. *Safety Science.* 2018;103:247-59.
- Ajayi S. Effect of stress on employee performance and job satisfaction: A case study of Nigerian banking industry. 2018.
- Sampson JM, DeArmond S, Chen PY. Role of safety stressors and social support on safety performance. *Safety Science.* 2014;64:137-145.
- Griffin MA, Neal A. Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge and motivation. *J Occup Health Psychol.* 2000;5(3):347.
- Nabirye RC, Brown KC, Pryor ER, Maples EH. Occupational stress, job satisfaction and job performance among hospital nurses in Kampala, Uganda. *J Nurs Manag.* 2011;19(6):760-8.
- Li L, Hu H, Zhou H, He C, Fan L, Liu X, et al. Work stress, work motivation and their effects on job satisfaction in community health workers: A cross-sectional survey in China. *BMJ Open.* 2014;4(6):e004897.
- Fairbrother K, Warn J. Workplace dimensions, stress and job satisfaction. *J Manag Psychol.* 2003;18(1):8-21.
- Riketta M. The causal relation between job attitudes and performance: A meta-analysis of panel studies. *J Appl Psychol.* 2008;93(2):472-81.
- Wright TA, Staw BM. Affect and favorable work outcomes: Two longitudinal tests of the happy-productive worker thesis. *J Org Behav.* 1999;20(1):1-23.
- Crede M, Chernyshenko OS, Stark S, Dalal RS, Bashshur M. Job satisfaction as mediator: An assessment of job satisfaction's position within the nomological network. *J Occup Organ Psychol.* 2007;80(3):515-38.
- Eatough EM, Chang CH, Miloslavic SA, Johnson RE. Relationships of role stressors with organizational citizenship behavior: A meta-analysis. *J Appl Psychol.* 2011;96(3):619-32.
- Wei W, Guo M, Ye L, Liao G, Yang Z. Work-family conflict and safety participation of high-speed railway drivers: Job satisfaction as a mediator. *Accid Anal Prev.* 2016;95(Pt A):97-103.
- Lundberg U. Stress, subjective and objective health. *Int J Soc Welf.* 2006;15:S41-8.

18. Neal A, Griffin MA. A study of the lagged relationships among safety climate, safety motivation, safety behavior, and accidents at the individual and group levels. *J Appl Psychol*. 2006;91(4):946-53.
19. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary J*. 1999;6(1):1-55.
20. MacKinnon DP, Fairchild AJ. Current directions in mediation analysis. *Curr Dir Psychol Sci*. 2009;18(1):16-20.
21. Jide S, Xincheng W, Liangfa S. Research on the mobility behaviour of Chinese construction workers based on evolutionary game theory. *Economic Research-Ekonomska Istraživanja*. 2018;31(1):1-14.
22. Mansoor M, Fida S, Nasir S, Ahmad Z. The impact of job stress on employee job satisfaction a study on telecommunication sector of Pakistan. *J Business Stud Quart*. 2011;2(3):50-6.
23. He C, Jia G, McCabe B, Chen Y, Sun J. Impact of psychological capital on construction worker safety behavior: Communication competence as a mediator. *J Safety Res*. 2019;71:231-41.
24. Kemp E, Kopp SW, Kemp EC Jr. Take this job and shove it: Examining the influence of role stressors and emotional exhaustion on organizational commitment and identification in professional truck drivers. *J Business Logistics*. 2013;34(1):33-45.
25. Williams F. Interpersonal conflict: The importance of clarifying manifest conflict behavior. *Int J Bus Human Technol*. 2011;1(3):148-60.
26. Moeller C, Kwantes CT. Too much of a good thing? Emotional intelligence and interpersonal conflict behaviors. *J Soc Psychol*. 2015;155(4):314-24.
27. Deng F, Liu G, Jin Z. Factors formulating the competitiveness of the Chinese construction industry: Empirical investigation. *J Manag Eng*. 2013;29(4):435-45.
28. Zhang SB, Fu YF, Gao Y, Zheng XD. Influence of trust and contract on dispute negotiation behavioral strategy in construction subcontracting. *J Manag Eng*. 2016;32(4):04016001.
29. Kumar M. Inimitable issues of construction workers: Case study. *Br J Eco Finance Manag Sci*. 2013;7(2):42-53.
30. Yu QZ, Ding LY, Zhou C, Luo HB. Analysis of factors influencing safety management for metro construction in China. *Accid Anal Prev*. 2014;68:131-8.
31. Bai N, Li J. Liquidity employment of migrant workers. *Management World*. 2009;7:70-6.
32. Leung MY, Chan YS, Yuen KW. Impacts of stressors and stress on the injury incidents of construction workers in Hong Kong. *J Constr Eng Manag*. 2010;136(10):1093-1103.
33. Choudhry RM, Fang D. Why operatives engage in unsafe work behavior: Investigating factors on construction sites. *Safety Science*. 2008;46(4):566-84.
34. Wang J, Yuan H. Factors affecting contractors' risk attitudes in construction projects: Case study from China. *Int J Projec Manag*. 2011;29(2):209-19.
35. Zheng L, Xiang H, Song X, Wang Z. Nonfatal unintentional injuries and related factors among male construction workers in central China. *Am J Indust Med*. 2010;53(6):588-95.
36. Zhang SJ, Chen YQ, Sun H. Emotional intelligence, conflict management styles, and innovation performance: An empirical study of Chinese employees. *Int J Conflict Manag*. 2015;26(4):450-78.
37. Luthans F, Avolio BJ. The "point" of positive organizational behavior. *J Org Behav*. 2009;30(2):291-307.
38. Mira S, Pestonjee DM. Job involvement, sense of participation and job satisfaction: A study in banking industry. IIMA. 1990.
39. Khowaja K, Merchant RJ, Hirani D. Registered nurses perception of work satisfaction at a Tertiary Care University Hospital. *J Nurs Manag*. 2005;13(1):32-9.
40. Muthen LK, Muthen BO. *Mplus user's guide* (8.5<sup>th</sup> Ed.). Los Angeles, California: Muthen & Muthen. 2020.
41. Reese CD, Eidson JV. *Handbook of OSHA construction safety and health*. CRC press. 2006.
42. Zhang P, Li N, Jiang Z, Fang D, Anumba CJ. An agent-based modeling approach for understanding the effect of worker-management interactions on construction workers' safety-related behaviors. *Autom Construct*. 2019;97:29-43.