

Research on the relationship between challenging-hindrance stress and employee health based on cross-sectional data by structural equation modeling

Weishan Luo¹, Huachun Zeng², Ying Jiang², and Guobin Dai^{2,*}

¹ Biquan Academy, Xiangtan University, Xiangtan, China

² Business School, Central South University, Changsha, China

Abstract. Innovations in economic development have highlighted the role of talent, and focusing on employees' work stress and its impact on employees' health contributes to the continued development of employees and companies. This article aims to propose the work stress-employee health model and hypotheses under the moderation of perceived organizational support (POS) and self-efficacy. We select appropriate scales; collected 428 responses from questionnaire survey and explored the different effects of challenging/hindrane stress (CS/HS) on the employee's physical/mental health, and the mechanism of POS and self-efficacy. The results indicated that: (1) CS has a significant positive impact on employees' mental health; (2) HS has a significant negative impact on employees' physical and mental health; (3) POS and self-efficacy have moderating effect on the relationship between CS and employees' mental health, HS and employees' physical and mental health.

1 Introduction

In today's environment of advocating economic innovation, on the one hand, human resources play an increasingly powerful role in the development of enterprises and society. Therefore, paying attention to the pressure of employees and the impact of work pressure on employees' health is of great significance. On the other hand, the development requirements of economic innovation have put forward higher work requirements for enterprises and their employees, and in the face of high work requirements, employees' work stress naturally increases^[1]. Therefore, it is very important and necessary to explore the mechanism of the impact of work stress on employees' health.

Work stress can not only affect the mental health of employees, but also have a direct impact on the physical health^[2]. More and more employees say that they are under considerable stress at work. Work stress such as heavy workload, unclear responsibilities, and chaotic organizational structure will cause serious negative effects on employees' mental and physical health^[3]. At the end of the last century, most studies focused on the negative effects of work stress on employees' health, and seldom considered the positive effects of work stress. However, just as the phrase "stress generates motivation", whether all work stress has only negative impact on employees' physical and mental health, the answers given by existing research are not completely consistent, and there is no consensus on the relationship between work stress and employees' health in academia^[4-5]. With the gradual deepening and expansion of work stress

research, how to distinguish different work stress from the attributes of "positive" and "negative", reduce the negative impact of work stress on employees' physical and mental health, and strengthen the positive impact of work stress with positive attributes on the physical and mental health of employees is very necessary.

On the basis of Cavanaugh's challenging-hindrane binary stress model^[6], many scholars have studied the results of binary stress such as job performance and job satisfaction^[7-8], but studies on the effects of binary stress on employees' health are relatively rare. Therefore, this paper will explore the effect of binary stress on employees' physical-mental health.

2 Literature review and hypotheses development

2.1. Literature review

Employee health refers to the personal health in organizations, mainly manifested in the subjective satisfaction and objective health of employees^[9]; Work stress refers to factors that cause abnormal mental, physiological, and behavioral performance between members of the organization, and have an impact on the work^[10]. Cavanaugh divided work stress into challenging and HS based on the positive and negative properties of work stress^[6]. Self-efficacy refers to how confident people are that they can use all their skills to accomplish a task^[11]. POS is a general belief in that how

* Corresponding author: daiguobin@csu.edu.cn

organizations value employees' contributions and care for their interests^[12].

2.2 Hypotheses development

Because of the "positive" attribute of CS, employees often show positive work attitude and behavior, and their physical and mental state is positively affected, while the "negative" attribute of hindrance stress makes employees' physical and mental state be suppressed. Thus, we put forward the following hypothesis:

H1a/b: CS has a positive effect on employees' physical/mental health.

H2a/b: HS has a negative effect on employees' physical/mental health.

Employees with high POS return the organization's superior pay or other material and spiritual support through the completion of challenging and high-level work tasks and this social exchange process is easier for employees to produce positive feelings for the organization, which is beneficial to the physical and mental health of employees. Self-efficacy-aware employees are more confident and optimistic when faced with challenging work tasks, which not only provides emotional resources, but also helps them stay in good physical condition. The hypotheses are thus made:

H1c/e: POS has a significant positive moderating effect on the relationship between CS and employee's physical/mental health.

H1d/f: Self-efficacy has a significant positive moderating effect on the relationship between CS and employee's physical/mental health.

H2c/e: POS has a significant negative moderating effect on the relationship between CS and employee's physical/mental health.

H2d/f: Self-efficacy has a significant negative moderating effect on the relationship between HS and employee's physical/mental health.

3 Method

Challenging and Hindrance Stress. The 11-items CS-HS questionnaire developed by Cavanaugh and others in 2000 was used, which was scored by the Likert 5-point scoring method. In this study, the coefficient α of CS and HS scales were 0.889 and 0.894, respectively.

Employee health. Combined with the symptom self-assessment scale (SQL-90) and general health questionnaire (GHQ-20), a total of 23 questions were used. The questionnaire was scored by Likert 5-points. In this study, the coefficient α of the physical and mental health scales were 0.924 and 0.919, respectively.

Perceived organization support. The POS questionnaire was adapted from the POS questionnaire by Eisenberger, with a total of 8 items, using the Likert 5-point scoring method. In this study, the coefficient α was 0.935.

Self-efficacy was measured by the general self-efficacy scale Chinese edition, revised by German clinical and health psychologist Ralf Schwarzer et al.,

with a total of 7 items, using the Likert 5-point scoring method. In this study, the coefficient α was 0.908.

Control variables. The control variables in this study include the gender, age and management level of the employee.

In this study, data were collected by questionnaire research and online distribution of questionnaires. The respondents were staff members of different positions in different industries. A total of 428 valid questionnaires were received, excluding 41 responses from school or un-formal staff, as well as 10 responses with less than 120 seconds answering time. The effective rate is 89.35 percent.

4 Results

4.1 Main effect test

Through AMOS22.0, structural equation model was used to verify the model hypothesis. After the model fitting and correction, the fitting evaluation indexes are all within the acceptable range.

Table 1. Fitting index of structural equation model.

Index	CMIN/DF	GFI	NFI	AGFI	TLI
Standard	≤ 5	≥ 0.9	≥ 0.9	≥ 0.8	≥ 0.9
Results	1.557	0.906	0.903	0.893	0.960

Table 2. Fitting index of structural equation model.

Index	CFI	RMSEA	SRMR	IFI
Standard	≥ 0.9	≤ 0.08	≤ 0.08	≥ 0.9
Results	0.963	0.036	0.056	0.963

AMOS standardized path coefficient is shown in Figure 1. CS has no significant positive effect on physical health ($\beta = 0.1$, $P > 0.05$), hypothesis 1a is not valid; CS has significant positive effect on mental health ($\beta = 0.343$, $P < 0.001$); hypothesis 1b is valid. The results show that the HS has a significant negative effect on physical health ($\beta = -0.496$, $P < 0.001$), hypothesis 2A holds; the HS has a significant negative effect on mental health ($\beta = -0.361$, $P < 0.001$); hypothesis 2B holds.

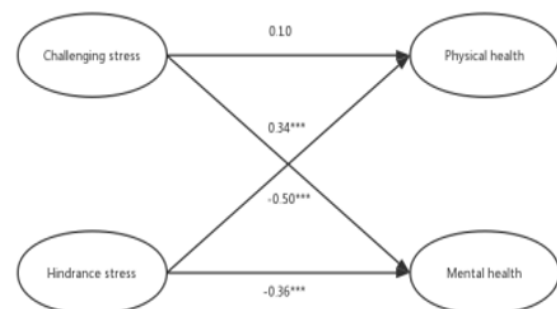


Fig. 1. Path coefficient of structural equation model.

4.2 Moderating effect test

4.2.1 Moderating effect of POS and self-efficacy on the relationship between CS and mental health of employees.

POS has a positive moderating role in the impact of CS on mental health ($\beta = 0.154$, $P < 0.001$). Hypothesis 1E is true. Self-efficacy has a positive moderating role in the impact of CS on mental health ($\beta = 0.287$, $P < 0.001$), and hypothesis 1F is true.

Table 3. Moderating effect of POS on the relationship between CS and mental health of employees.

Variable	Mental health		
	Model1	Model2	Model 3
Gender	-0.059	-0.019	-0.010
Age	0.049	0.029	0.024
Management level	0.110*	0.130**	0.123**
CS		0.404***	0.359***
POS		0.148**	0.172***
CS×POS			0.154***
F	3.411*	27.716***	25.820***
ΔR2	0.024	0.019	0.022

Table 4. Moderating effect of self-efficacy on the relationship between CS and mental health of employees.

Variable	Mental health		
	Model4	Model5	Model6
Gender	-0.059	-0.027	-0.010
Age	0.049	0.027	0.021
Management level	0.110*	0.129**	0.117**
CS		0.400***	0.306***
Self-efficacy		0.103*	0.160**
CS×Self-efficacy			0.287***
F	3.411*	26.032***	31.643***
ΔR2	0.024	0.008	0.075

4.2.2 Moderating effect of POS and self-efficacy on the relationship between HS and employee physical health.

POS had a negative moderating role in the effect of HS on physical health ($\beta = -0.104$, $P < 0.05$), and hypothesis 2C was true. Self-efficacy had a negative moderating effect on the effect of HS on physical health ($\beta = -0.110$, $P < 0.01$), and the hypothesis 2 D was true.

Table 5. Moderating effect of POS on the relationship between HS and physical health.

Variable	Physical health		
	Model1	Model2	Model 3
Gender	-0.025	-0.010	-0.010
Age	-0.054	-0.071	-0.064
Management level	0.191***	0.185***	0.175***
HS		-0.445***	-0.44***
POS		0.095*	0.108*

HS×POS			-0.104*
F	4.714**	31.515***	27.624***
ΔR2	0.032	0.008	0.011

Table 6. Moderating effect of self-efficacy on the relationship between HS and physical health.

Variable	Physical health		
	Model4	Model5	Model6
Gender	-0.025	-0.012	-0.014
Age	-0.054	-0.071	-0.066
Management level	0.191***	0.182***	0.167***
HS		-0.435***	-0.422***
Self-efficacy		0.147**	0.166***
HS×Self-efficacy			-0.110**
F	4.714**	33.425***	29.389***
ΔR2	0.032	0.019	0.012

4.2.3 Moderating effect of POS and self-efficacy on the relationship between HS and mental health of employees

POS had a negative moderating effect on the effect of HS on mental health ($\beta = -0.116$, $P < 0.01$). Hypothesis 2E was true. Self-efficacy had a negative moderating effect on the effect of HS on mental health ($\beta = -0.233$, $P < 0.001$), and hypothesis 2F was true.

Table 7. Moderating effect of POS on the relationship between HS and mental health of employees.

Variable	Mental health		
	Model1	Model2	Model 3
Gender	-0.059	-0.042	-0.042
Age	0.049	0.034	0.041
Management level	0.110*	0.104*	0.093*
HS		-0.399***	-0.394***
POS		0.125**	0.140**
HS×POS			-0.116**
F	3.411*	26.274***	23.466***
ΔR2	0.024	0.013	0.013

Table 8. Moderating effect of self-efficacy on the relationship between HS and mental health of employees.

Variable	Mental health		
	Model4	Model5	Model6
Gender	-0.059	-0.045	-0.049
Age	0.049	0.033	0.045
Management level	0.110*	0.100*	0.069
HS		-0.388***	-0.362***
Self-efficacy		0.187***	0.227***
HS×Self-efficacy			-0.233***
F	3.411*	28.955***	31.127***
ΔR2	0.031	0.052	0.031

5 Discussion

CS can bring rewards and benefits for employees' work performance and personal development and will have a positive impact on employees' health. The CS felt by employees does not lead bad psychological state to employees, but more work motivation to enhance the control of the work, so it will promote the mental health of employees. CS has no significant effect on employees' physical health. The possible reason is that heavy responsibilities and workload can stimulate employees' progress, but on the other hand, it can also lead to overwork. Long term physical loss and fatigue can offset the positive impact of "positive" connotation of CS on physical condition. HS not only leads to depression, inferiority, anxiety and other negative emotions, but also leads to physical tension and fatigue, which has a negative impact on the physical and mental health of employees.

This study found that POS and self-efficacy play a moderating role in the relationship between CS and mental health, HS and physical health, and HS and mental health. Combined with the theory of POS, POS, as a positive social support resource, shows the support and care of the organization for the work and life of employees, promotes the growth and progress of employees, and is also conducive to the physical and mental health of employees. The negative impact on employees' self-efficacy and mental health can be alleviated. Self-efficacy can enhance the positive impact of CS on the mental health of employees and alleviate the negative impact of HS on the mental health of employees.

This is a strong practical inspiration for enterprises in the era of economic innovation. Enterprise development is inseparable from employees. Only when employees are regarded as valuable resources, care for them, support them and recognize their work, employees are more able to cope with the work pressure and maintain personal physical and mental health. The innovative development of the economy today has put forward higher requirements for the work of enterprises and employees. Under the high work requirements, employees can easily feel the work pressure. If employees perceive a high level of organizational support, employees are more likely to effectively complete their work tasks and goals and create good performance for enterprises^[13].

6 Conclusion

This paper focuses on the theoretical relationship among work stress, physical and mental health, organizational support and self-efficacy. By using structural equation model, hierarchical linear regression and other methods to analyze the data, this paper makes a response to the theoretical relationship between the above variables: challenging stress has a significant positive impact on employees' mental health, organizational support and self-efficacy have a positive moderating role in it, but no significant impact on employees' physical health;

Hindrance stress has a significant negative impact on physical and mental health of employees, and organizational support and self-efficacy have a buffer effect. This result leads us to think about talent management in the environment of economic innovation. Innovation in the sense of economics is more the result of entrepreneurial activities. Entrepreneurs use their insight and personality charm to attract excellent technical talents, so that the accumulation of rich and novel knowledge becomes one of the important sources of enterprise economic innovation^[14]. The competitive stress brought by economic innovation is also easy to destroy the physical and mental health of employees^[15]. Therefore, enterprises should pay attention to the stress of employees, use the positive nature of challenging stress to improve their self-efficacy and organizational support, and promote their mental health; It is necessary to alleviate the hindrance stress in time to avoid adverse effects on employees' self-efficacy, organizational support and physical and mental health, so that employees can invest in the enterprise's innovative construction with healthy body and full spirit.

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