



# Study on the Source of Stress Among Blue-collar Employees in Beijing Yizhuang Foreign Enterprise

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## To cite this article:

Jieyu Xiao, Mingxun Shu, Yongkai Song, Yusi Liu, Wen Liu, Jin Li, Zhihong Li. Study on the Source of Stress Among Blue-collar Employees in Beijing Yizhuang Foreign Enterprise. *Journal of Human Resource Management*. Vol. 9, No. 1, 2021, pp. 26-32. doi: 10.11648/j.jhrm.20210901.14

**Received:** February 4, 2021; **Accepted:** March 19, 2021; **Published:** April 16, 2021

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**Abstract:** With the rapid development of economic production, the number of blue-collar employees continues to grow, and the problems of blue-collar employees have become increasingly prominent. This paper takes the blue-collar employees of foreign enterprise in Yizhuang Economic Development Zone, Daxing District, Beijing as a sample to analyze the sources of stress. Because the questionnaire involves a lot of directions, the main methods of this study are principal component analysis and factor analysis. It is found that the main factors of stress for blue-collar employees in Yizhuang Economic Development Zone, Daxing District, Beijing are: "physical health", "living environment", "enterprises internal environment", "family relationship environment", "employees personal development and expectation", "interpersonal relationship" and "family development expectations (housing)". At the same time, the study puts forward some constructive suggestions on the problem of stress sources. In the aspect of relieving pressure, the company should design the reasonable salary and performance system, arrange the work task reasonably, increase the training of psychological counseling to relieve the pressure of blue-collar workers. Individual blue-collar workers should learn time management, self-regulation when faced with stress, communication and help seeking. The government should strengthen the safeguard measures for blue-collar workers, strengthen market supervision, improve the relevant labor market policies, strengthen the employment guidance for the unemployed, implement compulsory education, and gradually improve the education level of blue-collar workers.

**Keywords:** Blue-collar Employees, Stress, Factor Analysis

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## 1. Introduction

### 1.1. Research Background

Beijing Economic and Technological Development Zone is located in the Yizhuang area in the southeast of Beijing. It was approved by the State Council on August 25, 1994 as the only state-level economic and technological development zone in Beijing. At present, the area of the development zone is determined to be 46.8 square kilometers. By 2012, there are more than 3000 enterprises from more than 30 countries and regions in the world. The total investment of enterprises in the region exceeds 15 billion dollars, of which the total investment of foreign-invested enterprises accounts for more

than 70% of the total investment of the whole region. In particular, the four leading industries of the Beijing Economic and Technological Development Zone are electronic information, biomedicine, equipment manufacturing and automobile manufacturing. these four industries completed a total industrial output value of 95.3 billion yuan.

The four major industries in Beijing Economic and technological Development Zone are also developing rapidly. Accompanying this is the continuous increase in the number of blue-collar employees, and the problems of blue-collar employees have become increasingly prominent. Following the "overworked death" of Huawei employees and the incident of Foxconn employees jumping from the building, the work pressure of corporate employees has become the focus of social attention. In particular, like Yizhuang Development

Zone, which has a large number of blue-collar employees, their stress should be urgently needed to study!

## 1.2. Literature Review

According to the data, the number of published papers on pressure research increased steadily from 2018 to 2021, and the number of relevant papers reached the maximum in 2020. The increasing number of published papers also indicated that scholars were attaching increasing importance to the research on pressure, and the research results had made some progress.

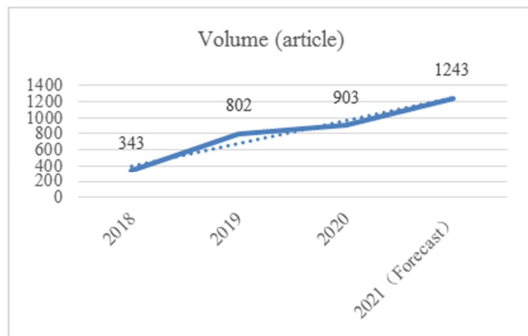


Figure 1. Academic output and citation trend chart in recent three years.

Questionnaire interview and experiment are the main methods used in the research on employee stress in the literature of the past five years. The Zhao Bin Yang Wenfan (2019) in the study of [1] the most typical application of questionnaire, the questionnaire data collected from 613 employees, using a variety of analytic method for processing and analysis and summarized the path of the generation mechanism of innovation behavior and Paul Brockman, Juan Luo, LiminXu (2020) [2] in the study of the experimental method is the most widely used short selling pressure through the analysis of the control variable method and the experience of the relationship between employee relations improve.

Scholars at home and abroad and sources of stress analysis of the enterprise staff mainly from two aspects of the employee's physiological and psychological factors research staff of physiological factors, most of scholars from the employee's work time quota, etc., including wei-min Chen jing-jing fan (2019) [3] to employee generalization of physiological factors mainly from the nature by the education degree of gender unit working years, etc, analyzes the causes of employee pressure source. The research of Fan Xiaoqian, Yu Bin and Cao Qian (2020)[4] focuses on the detailed explanation of employees' working hours, which complements the former's lack of time pressure while the psychological influence is mainly reflected in communication and entertainment. Dorin-Gheorghe Triff [5]'s research on the interpersonal communication of employees in a detailed analysis of communication pressure. Liu Bo and Zhao Jinjin (2019) [6] proposed the alleviating effect of strong expectations on employees' pressure in his research. In addition, other scholars put forward different opinions on the sources of stress from the aspects of employees' entertainment and leisure. Li Zhanqian (2019) [7] showed in his study that

excessive and unreasonable use of social media has a negative impact on employees' work performance.

In view of the above two sources of pressure, scholars have summarized two solutions: one is to solve the problem from the perspective of enterprises and leaders. Wang Shuanglong (2018) [8] proposed in his research that the time allocation of time-oriented leaders has a regulating effect on employee stress. In the study of In-Joparka Peter Beomcheol Kimb, Yang Haia and Liang Donga [9] et al. mentioned that trust between superiors and colleagues is also an important link to relieve pressure. The second is to rely on staff self-regulation. Li Zhicheng, Wang Zhen, Zhu Zhenbing and Zhan Xiaojun (2018) [10] proposed the correlation between conscientiousness and workplace stress. Carita Hakansson, Gunvor Gard and Agneta Lindegard [11] showed in their research that employees' healthy self-evaluation and self-expectation can relieve their own pressure. In the study of Chiu-Yen Wu, Hsiu-Fang Lee, C. W. Chang, Hui-Chu Chiang, Yu-Hsia Tsai, and Hsueh-Erh Liu [12] et al., it was also proposed that proper relaxation and massage for oneself could also relieve pressure.

In view of the employees working pressure for the key to the development of enterprise performance and organizational impact, nearly three years, with the rise and development of each enterprise within the territory, scholars at home and abroad based on enterprise development present situation, gradually in-depth research, concept and action mechanism of pressure also gradually formed a unified theoretical framework - pressure theory of static and dynamic theory, the measurement and evaluation of pressure measure. It is an urgent problem that how to make reasonable policy adjustment according to the current source of employee pressure, improve the physiological and psychological conditions of employees, and keep the vitality and vitality of enterprises in the new era.

## 2. Questionnaire Survey and Analysis on the Sources of Blue-Collar Stress in Yizhuang Foreign Enterprises

Since the questionnaire involves many directions and the questions are more complicated, in order to find the main stress source, principal component analysis, factor analysis and the reliability test of the questionnaire are used. Principal component analysis is to study the strong correlation between the collected variables. If the data is directly used for analysis, the model will become very complex, and it will bring multicollinearity and other problems. In this way, several independent principal component variables can be integrated, and new variables replace the previous variables for analysis. Factor analysis method is to find out several internal independent factors, which can be easily analyzed through dimensionality reduction [1].

This study selected three representative foreign-funded enterprises to distribute questionnaires. A total of 150 questionnaires were distributed, and 150 were recovered. The

recovery rate was as high as 100%, of which 141 were valid questionnaires, and the effective recovery rate was 94%.

### 2.1. Questionnaire Model Design

The questionnaire uses a combination of descriptive analysis method combined with explanatory analysis method, and uses descriptive statistics to describe the working environment, physical fitness, family environment, social environment, interpersonal relationship, and management role of the respondents, as shown in Figure 1. Using three primary indicators (Figure 2) and nine secondary indicators (Figure 3), thirty targeted questions were put forward to explore the stress factors of Yizhuang blue collar employees.

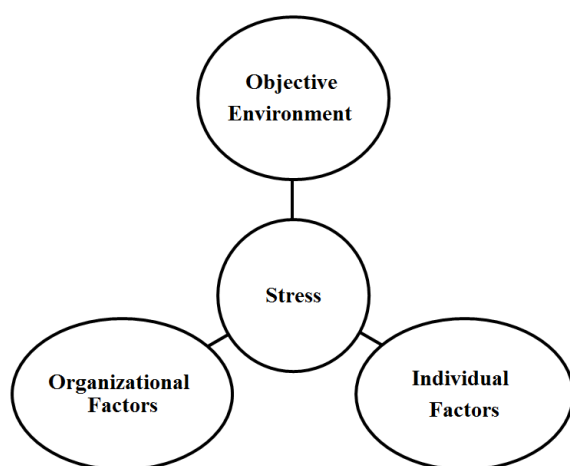


Figure 2. Indicators.

### 2.2. Reliability Analysis of Questionnaire

SPSS20.0 software was used to analyze the reliability of the data.

According to the analysis results of Tables 1 and 2, the reliability of this questionnaire is above 0.9, reaching 0.920, which indicates that the reliability of this questionnaire is very high.

Table 1. Reliability analysis of questionnaire.

		N	%
Cases	Effective	141	100.0
	Excluded <sup>a</sup>	0	.0
	Total	141	100.0

Delete in this program based on the list of all variables.

### 2.3. Descriptive Analysis

In this questionnaire, the score of question 7 is the lowest, which proves that blue-collar employees are the least optimistic about the purchase of houses. At the same time, they have low scores on salary working hours. But in question 4, we can see that the family atmosphere of blue-collar employees is very harmonious.

In the questionnaire, employees are asked to choose 30 test questions according to their current situation. The questionnaire adopts a five-level system, very disagree,

disagree, general, agree, very agree. We give it a score from 1-5, it is a reverse problem. The higher the score, the lower stress, a score of 60 or less indicates very stress, 61-90 indicates severe stress, 91-120 indicates mild stress, more than 120 indicates stress does not occur. The results showed that the average stress score of blue-collar employees in Yizhuang foreign enterprise was 91.94. It can be seen that the stress faced by employees is mild but within the stricter boundaries. However, the standard deviation of employee employeesstress is 15.81, the minimum value is 56, the maximum value is 140. It shows that the stress scores of employees are scattered.

Table 2. Statistical of questionnaire reliability.

Cronbach's Alpha	Based on the standardization of Cronbachs Alpha	Number of items
.919	.920	30

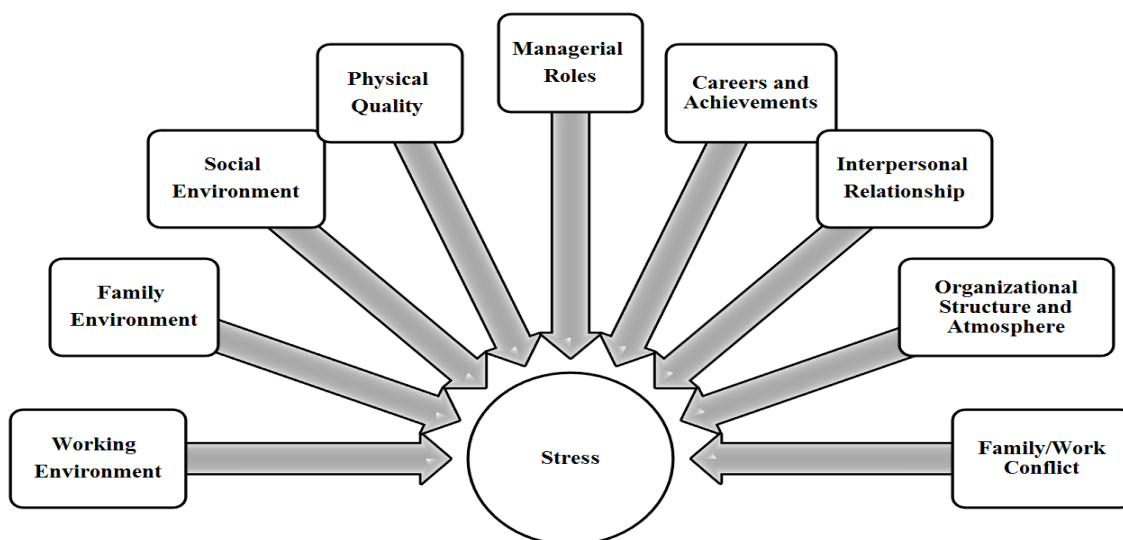


Figure 3. Secondary indicators.

According to the analysis results of Table 3, 44% of the blue-collar employees are under serious stress, 51.1% of the employees are under mild stress. It can be seen that the scores are normally distributed. Although the average score is slightly under stressed, there are still close to 50% of the employees are under employees stress.

**Table 3.** Frequency Distribution of Stress Score for Blue-collar Employees.

Score	Frequency	Percentage
60 and below	2	1.4
61-90	62	44.0
91-120	72	51.1
120 or more	5	3.5
Total	141	100.0

## 2.4. Factor Analysis of Stress Source

### 2.4.1. KOM and Bartlett Inspection Results

As shown in Table 4, the value of KOM this questionnaire is 0.842, which indicates that it is very suitable for factor analysis. Bartlett test is to see whether the data come from the population of multivariate normal distribution. The value of sig. in this test is 0.000 and less than 1% to reach significance, which indicates that the correlation matrix has common factors and is suitable for factor analysis.

**Table 4.** KOM Inspection and Bartlett Inspection.

Kaiser-Meyer-Olkin measure of sampling adequacy.		.842
Bartlett Sphericity Test	Approximate chi-square	2468.695
	df	435
	Sig.	.000

### 2.4.2. Factor Extraction and Factor Loading Matrix After Orthogonal Rotation

The factor analysis of the stress source can be seen from Table 5, there are a total of 7 eigenvalues greater than 1, so the cumulative contribution rate of 7 common factors is 68.445, which indicates that 7 common factors can generalize 30 problems and 6 indexes. Therefore, it is considered that the purpose of simplification has been achieved.

**Table 5.** Total variance analysis of stress source for blue collar employees.

Factor sequence	Eigenvalues	Contribution %	Cumulative %
Factor 1	9.611	32.038	32.038
Factor 2	3.254	10.847	42.884
Factor 3	1.833	6.110	48.995
Factor 4	1.708	5.695	54.689
Factor 5	1.504	5.013	59.703
Factor 6	1.459	4.864	64.566
Factor 7	1.164	3.879	68.445

It can be seen from Table 6 that according to the load distribution of common factors and the significance of high complex variables, the meanings of seven common factors are explained and named. They described the results as follows:

Factor 1 contains 1 item: "Physical health".

Factor 2 contains 1 item: "Interpersonal Relationship".

Factor 3 contains 1 project: "Enterprise Internal Environment".

Factor 4 contains 2 items: "Social environment" and "Salary level" can be interpreted as "Living environment".

Factor 5 contains 1 item: "Family Relationship Environment".

Factor 6 contains 1 project: "Personal Development and Expectations of Employees".

Factor 7 contains 1 item: "Family Development Expectations".

## 3. Research on the Stress Source of Blue Collar in Yizhuang Foreign Enterprises

First, the blue-collar employees in Beijing Yizhuang foreign enterprises generally face relatively mild stress. According to the data analysis of the questionnaire, the average score of blue-collar employees is 91.94 between mild and severe stress, and nearly 50% of blue-collar employees have more serious stress. At the same time, when conducting questionnaire surveys and interviews, we learned that fatigue and worries about the future are common things for blue-collar employees.

Second, there are seven main sources of stress for blue-collar employees in Beijing Yizhuang foreign enterprises, which are health, living environment, internal environment, family relationship environment, personal development and expectation, interpersonal relationship and family development expectation (housing problem).

Third, these two stress sources of "physical health and housing problems" have become the biggest influencing factors of blue-collar stress on Yizhuang foreign enterprises.

From the questionnaire statistics, the health problem has become a concern and not optimistic for the employees of Yizhuang foreign enterprises. Because of sitting in the work station for a long time and rigid processing process, many blue-collar employees suffer from occupational diseases, inner irritability, and other problems.

The lowest score in the questionnaire is the purchase of houses. Because of the continuous improvement of China's real estate industry and the rising price of buildings in China, many office employees have become house slaves for a lifetime. Especially as low-income blue-collar employees is even more difficult. Renting life has also become the choice of blue-collar employees, but the rental conditions are poor, group rent is serious, employees often feel the stress of life. By studying the articles of other scholars, housing issues have also become the focus of their research.

Fourth, the working environment also has a significant impact on the stress of blue collar in Yizhuang foreign enterprises. First of all, the bad working environment makes the employees psychological and mental stressed. Long hours of work and not leaving the work station make the employees become lonely and rarely communicate with others. The closed production workshop makes the employees have little contact with the society. Less communication with family. The scores of the survey questions with their families are very low.

**Table 6.** Rotation Factor Matrix.

Question type	Factors						
	1	2	3	4	5	6	7
You often feel relaxed	.758	.098	.176	.113	.063	.320	.114
You don't always lose your temper	.721	-.099	.304	.190	.030	.230	-.114
You feel in good health	.812	.091	.048	.094	.072	.115	-.047
You have no occupational disease	.506	.474	-.121	.199	.234	-.093	-.127
You get along well with your colleagues	.016	.770	.223	.021	.138	-.190	.039
You will communicate with your colleagues about troubles or happiness	.002	.764	.185	-.045	.075	.165	.138
You work with colleagues efficiently and happily	.040	.788	.306	-.027	.018	.321	.031
You get along well with the leader	.083	.354	.614	.151	.238	.352	-.227
Leadership management is human	.228	.272	.702	.033	.300	.155	-.065
The departments get along well with each other	.228	.441	.693	.042	.165	.030	.168
Companies often organize activities that you like	.211	.030	.522	.338	.188	.001	.006
The salary can meet the basic expenses of the family	.289	.022	.146	.585	.204	.268	.182
The government can provide the public services you need	.082	-.090	.082	.775	.105	.060	-.033
You have time for family vacation	.252	-.013	.488	.563	.049	.243	.091
Your family is supportive of your current job	.064	.088	.261	.004	.789	.102	-.128
Your family is satisfied with your work	.194	.123	.244	.175	.765	.123	.008
You are satisfied with your present position and salary	.163	-.268	.239	.347	.173	.555	.162
You think there will be a promotion in your future	.266	.022	.096	.001	.152	.820	-.042
You have good job opportunities	.224	.128	.057	.445	.106	.619	.073
Buying a house is not too difficult for you	-.112	.154	.066	.480	-.211	.100	.609

Through interviews, we know that most employees see their parents or loved ones and children less than three times a year, and the time is very short. This forms a huge contradiction and conflict between working time and living time. This is also a unique source of stress for blue-collar employees.

Fifth, low salary has become a problem for blue-collar employees. Low-skilled jobs makes enterprises exhaust the labor of employees, and high-intensity work makes employees feel extremely mismatch between salary and work. At the same time, due to the demanding salary performance structure, the employee's salary becomes extremely inflexible. It is necessary to complete the responsible performance, and work hard for the poor commission on the basis of it. However, the salary package has not changed significantly and is pitiful. Sixth, in the whole questionnaire, the personal development expectations are not very optimistic. The scores answered by blue-collar employees show that they are not very confident in their future development and tend to be inferior. Think that their work has no future and they can not continue to promote and complete the work. Psychologically speaking, this is also a kind of stress. On the one hand, because of the low academic qualifications of blue-collar employees, many enterprises have the first threshold that prevents these employees from being rejected. Secondly, blue-collar employees have no special skills. More than half of the employees have a high school degree or less. Only junior college employees may learn some knowledge during school, but due to a variety of reasons they can not find a suitable job in their hometown.

## 4. Analysis on the Countermeasures Against Blue Collar Stress in Yizhuang Foreign Enterprise

### 4.1. Organizational Level

The company should design a reasonable salary and

performance structure based on the actual workload of blue-collar employees, design a scientific and reasonable performance system by increasing basic salary, and improve the subjective initiative and work efficiency of blue-collar employees with a fair and moderately competitive incentive mechanism.

The company should arrange work tasks reasonably, and the superior leaders should arrange the workload of the subordinate employees appropriately, and do not arrange overloaded work. Leaders should enhance the planning and scientific nature of the work, carry out a clear division of labor for each position, and provide scientific and reasonable guidance to improve the proficiency and skill of employees. The company should adjust the number of workers in a timely manner according to the output to reduce the occurrence of overwork by employees. Through the rotation system, the rest time of blue-collar employees and the time spent with their families to take care of their children and the elderly should be increased.

The company should regularly organize blue-collar employees to conduct vocational skills training and psychological stress reduction training. Stress reduction training can relieve stress, and job skill training can improve work skills. Companies should regularly organize some blue-collar employees' team building activities or company annual meetings, on the one hand to enhance the team awareness of blue-collar employees, on the other hand to enhance the employees' sense of belonging to the company.

The company must create a harmonious and positive corporate culture, a fair and cooperative work spirit, reduce friction between employees, and ease the pressure on employees caused by interpersonal relationships. When blue-collar employees are seeking to reduce stress, they are more to seek support from others, to get more help from others, and to recognize and positively evaluate their own work, which will enable them to face problems and difficulties more calmly.

The company organizes physical examinations for blue-collar employees from time to time to ensure that employees work in good health. Enterprises do a good job in the management of canteens, so that employees can increase their sense of satisfaction in life to reduce work pressure and improve their satisfaction with the enterprise.

Enterprises should pay attention to the creation of a relaxed and comfortable working environment, such as soft lighting, appropriate table and chair design, indoor plant greening, and relaxing background music.

#### **4.2. Individual Level**

Blue-collar employees should strive to improve their professional level, usually read more books related to their work, and constantly expand their professional knowledge. Blue-collar employees need to broaden their horizons, not only to understand the cutting-edge knowledge of the industry, deepen their own knowledge, but also to extensively dabble in industry information.

Blue-collar employees must learn time management and arrange their work tasks reasonably. Employees need to improve their work skills to improve work efficiency, which can not only increase production, increase salary and benefits, thereby increasing job satisfaction.

Blue-collar employees must learn to self-regulate when they are under pressure. Employees should cultivate their own hobbies, participate in their favorite sports, and watch their favorite books and TV programs. Blue-collar employees should learn to relax themselves, and they can choose to travel, take vacations, and so on. Blue-collar employees must learn to learn from each other's strengths and not regret their small mistakes. Blue-collar employees must learn to cultivate their own common sense, not to worry about gains and losses, and not to pay too much attention to the apparent fairness.

Blue-collar employees must learn communication skills and get along well with their superiors, colleagues, and their families. Employees should be good at sharing happy and troublesome things with others. When encountering stress and troubles, take the initiative to seek help.

Blue-collar employees must set up lofty ideals and don't give up their pursuit of a better life and career development because of the current situation.

#### **4.3. Government Level**

The government should add blue-collar employees to the low-cost housing and affordable housing system, and at the same time strengthen the livelihood security of migrants, so as to reduce the living expenses of blue-collar employees.

The government should strengthen market supervision and improve relevant policies on the labor market. The government should increase the guidance opinions of blue-collar employees, improve the long-term mechanism of the company's salary increase, and standardize the payment of labor and social security by enterprises.

All local governments should strengthen employment guidance for the unemployed, and provide scientific support

for a large number of rural unemployed people. The talent service center should also screen companies and provide legal and reasonable jobs for unemployed people.

From the questionnaire statistics, the vast majority of blue-collar employees have low academic qualifications, and few employees have received professional education. The government must undertake the important task of cultivating blue-collar employees. On the one hand, the government must implement compulsory education and gradually extend it to high school or even higher.

The government should strengthen publicity and education, on the one hand, publicizing legal employment, on the other hand, publicizing how workers protect their rights and interests, and improve the self-protection awareness of blue-collar employees. The government must actively implement measures to benefit the people, legal aid, and improve labor rights protection channels.

## **Acknowledgements**

This research is supported by the Influencing Factors and Paths of Improving the Efficiency of Public Cultural Service from the Perspective of Human Resources of Project Funding (Project Number: 19010582001/007).

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