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Effecting Mechanism of Work Stress on the R and D Employees' Job Burnout in the High-tech Enterprises

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Abstract: As a kind of extreme phenomenon of negative stress, job burnout is eroding the physical and psychological health of the R and D employees in the high-tech enterprises. The empirical results show that the R and D employees in the high-tech enterprises remain some degree of job burnout. The level of the R and D employees' job burnout is remarkably different in the demographic variables, such as the length of service and their position. Pay-reward imbalance, unfair appraisal, incompetence, lack of work autonomy and career development are the main work stressors experienced by the R and D Employees which have significant positive correlation with job burnout. To some extent, organizational support has affected the level of the R and D employees' job burnout. So, the managers may effectively reduce the level of the R and D employees' job burnout by establishing a fair appraisal system, improving the R and D employees' reward, helping the R and D employees to grow professionally and providing support to the R and D employees.

Key words: Job burnout, work stress, organizational support, high-tech enterprises, R and D employees

INTRODUCTION

Since the 21st century, the high-tech industries which are represented by information technology and biotechnology develop rapidly, greatly driving the reform of global economy and forming the trend of the world of technological innovation. Compared with the traditional enterprises, the products of the high-tech enterprises update quickly, their processes are complex, the technology monopoly advantages are difficult to maintain, their uncertainty is strengthen and the competition between enterprises is fierce. In this case, if the high-tech enterprises want to gain or maintain a leading position in the industry, they only can depend on the professionals who have highly innovative consciousness. Therefore, as the major force of technology innovation, the influence of the R and D employees to the competitive advantage of the high-tech enterprise grows steadily, they are the most active core resources in the enterprise.

Now most of the high-tech enterprises attach great importance to the acquisition and development of the talents, the enterprises' internal resources invest more in the R and D activities and human capital servicing for them. At the same time of maintaining high competitiveness, however, it means that the R and D employees need to work under high stress. Overloaded work, increasingly knowledge deficiency and rapidly changing technological innovation often keep the R and D employees awake at night with worry. In recent years, a number of survey data show, the high-tech industry is one of industries where its employees bear the largest stress. Stress is not necessarily need to shy away. In fact, the appropriate stress has positive role to explore the potential of employees, improve their performance. But if the stress cannot be relieved for a long time, individual balance will be broken and they will gradually produce physical and psychological fatigue, decline in ability and lose job enthusiasm. This is the phenomenon of job burnout.

Job burnout is a psychological jargon which is put forward by American psychologist Freudenberger (1974). It is used to describe an extreme phenomenon of the negative stress. According to a survey carried out by Hudson, an UK company, there has 59% of the IT staff appearing job burnout symptoms in the United States (Hadfield, 2005). Job burnout has brought great negative impact to the high-tech enterprises and the problems of the R and D employees' physical and mental health are becoming a "serious problem" which harasses the managers. Therefore, it makes sense to analyze the status of the R and D employees' job burnout and discuses the environmental and individual factors which trigger job burnout.

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LITERATURE REVIEW

The studies of job burnout began in the western countries and it has a history of nearly 40 years. Freudenberger (1974) put forward the concept of job burnout firstly and he considers that job burnout is a series of negative emotional states such as emotional exhaustion, exhausted, disengagement from work, indifference to people which happen in the field of aid. Maslach and Jackson (1981) divide job burnout into three dimensions: Emotional exhaustion, depersonalization and reduced personal accomplishment which are widely used by scholars in the subsequent studies. Throughout the definition of job burnout, it can be roughly summed up as two aspects of static and dynamic. Static definition focuses on the symptoms of job burnout and its influence factors, such as the opinion of Cordes and Dougherty (1993); Dynamic definition focuses on the formation and development process of job burnout, for example, Cherniss (1980) puts forward three stages of dynamic development. In related concepts of job burnout, work stress and job burnout are most easily confused. Dunham (1992) considers that job burnout is an extreme form of work stress. That is, understanding from the developmental stage of work stress (alert stage, resist stage and failure stage), job burnout is the last stage of work stress and it is the product of work stress.

The studies about the antecedent variables of job burnout are important content. The factors that cause job burnout include three major types: Job organization and individual. The factors of job and organization are most easy to control and hence most scholars focus on them. In terms of job factors, previous studies have focused on workload, job control, role stress and job characteristics, etc. A study on job burnout of American technical staff in IT enterprises carried by Moore (2000) shows, workload is the most contribution to job burnout, insufficient personnel and lack of resources are the main causes of work overload and job burnout. In terms of job characteristics, Schaufeli and Enzmann (1998) on American and Dutch teachers, medical staff and social workers finds that the staff of the same field in two countries exist the similar levels of job burnout. Leiter and Robichaud (1997) find that there is a close relationship between job control and emotional exhaustion in the study of military space technical staff, people who has high control to job requirements and environmental resources experiences less emotional exhaustion.

The studies on organizational factors mainly involve organizational justice and external support, etc., Maslach and Leiter (1997) suggest people who feels lower degree of fairness is more prone to job burnout. But some scholars put forward that the sense of fairness has moderate correlation with job burnout but not significant for the forecast of personal accomplishment. External support comes from leaders, colleagues, family, friends and many other sources. A lot of evidences show that the lack of social support is closely related to job burnout, among them, the lack of support from the managers is particularly serious (Li *et al*., 2005).

Throughout most of the existing research results, the concept of job burnout has been expanded from the earliest field of aid to a wider range of professional fields; the studies on the pre-variables of job burnout extend from personal factors to environmental factors such as job and organizational factors. Now, however, when the scholars discuss the influences of job burnout, they ignore how much the pre-variables affect job burnout and how to change about the prediction of pre-variables to job burnout. At the same time, there are conflicting conclusions in the empirical research results of some variables, for example, there are still no clear evidences about the hypothesis that how organizational support influences on job burnout.

STUDY DESIGN

Research questions and hypothesis: Compared with the employees in the other professional fields, the R and D employees in high-tech enterprises have their own distinctive features. Looking from the industrial character, information technology changes rapidly, each of the R and D employees has to think about the problem how to update their knowledge. It will bring greater stress whether they keep learning or give up learning. From the job content, since the high-tech products need to constantly innovation, most of the high-tech enterprises are in the running of high tempo, the R and D employees tend to bear heavy workload and they need to use their vast resources to cope with it which make them burnout. From the individual situation, most of the R and D employees in the high-tech enterprises received a good education. They have higher expectations, hope to have more autonomy and development space. But the domestic enterprises lack of attention to the employees' authorization and their career development. This kind of huge dropping variance brings huge psychological stress to the employees.

All of these situations determine that the status of the R and D employees' job burnout in high-tech enterprises and its influencing factors have unique features. Through to investigate the phenomenon of the R and D employees' job burnout in high-tech enterprises, the study will explore the level of the R and D employees' job burnout, as well as the related influence factors causing job burnout. To achieve research objectives, the study puts forward the following hypothesis:

- **Hypothesis 1:** The level of the R and D employees' job burnout is high and there were significant differences in demographic variables. The longer length of service, the level of burnout is higher. The R and D employees with different position have significant differences in the level of burnout
- **Hypothesis 2:** The variables of work stressors such as pay-reward ratio, requirements of the job and career development have significant effect on the R and D employees' job burnout
- **Hypothesis 3:** Organizational support plays significant adjusting role between the R and D employees' work stress and job burnout

Research object: The target of the investigation is the R and D employees in the high-tech enterprises. Among them, the high-tech enterprises refer to the enterprises within the scope of "The State's Key Support High-Tech Fields" which continue the activities of research and development and the transformation of technical results, form core independent intellectual property and carry out the business activities. The R and D employees in high-tech enterprises refer to the knowledge workers who master and apply knowledge, engage in the high-tech research, high-tech product development and the job of technology innovation, etc.

Design of scales and analysis of reliability and validity: Quoting from the opinion of Maslach and Jackson (1981). The study defined job burnout as a negative state of individual emotion due to work stress. The study referenced MBI Scale compiled by Maslach and Leiter (1997) and combined with the characteristics of the R and D employees in high-tech enterprises. Project analysis of the scale shows that the CR values of each item and the correlation coefficients of the items and scale reach significant level. The principal component analysis with varimax rotation was used for exploratory factor analysis. After deleting 6 items which factor loadings are lower than 0.50, the study extracted 3 factors finally and named them as emotional exhaustion, depersonalization and reduced personal accomplishment. The accumulation variance contribution of 3 factors reaches to 69.2%. The overall internal consistency reliability of the scale is 0.88 and the internal consistency reliability of 3 dimensions are 0.91, 0.86 and 0.90.

In terms of work stress, the study mainly discusses the environment and job factors which cause the R and D employees' job burnout. Work stress scale was designed on the basis of Occupational Stress Indicator developed by Cooper *et al.* (1978) the studies of other scholars and the results of on-the-spot interviews. Two items were deleted since their CR values were not significant during project analysis. The correlation coefficients of items and scale reach significant level. KMO value of Scale is 0.68; Bartlett's Test result is significant. the study removed 6 items according the above criteria in factor analysis and acquired 5 dimensions: Pay-reward ratio, appraisal fairness, work autonomy, requirement of the job and career development. The accumulation variance contribution of 5 factors reaches to 72.6%. The overall internal consistency reliability of the scale is 0.89 and the internal consistency reliability of 5 dimensions are 0.92, 0.84, 0.68, 0.75 and 0.66.

Organizational support is the perception of various kinds of support provided by the organization and their colleagues of the R and D employees. Organizational support scale was designed on the basis of the concept of organizational support defined by Eisenberger *et al.* (2001) Project analysis of the scale shows that the CR values of each item and the correlation coefficients of the items and scale reach significant level. KMO value of Scale is 0.74, Bartlett's Test results is significant. The study removed 4 items according the above criteria in factor analysis and acquired 3 dimensions: Material support, emotional support and colleagues support. The accumulation variance contribution of 3 factors reaches to 72.6%. The overall internal consistency reliability of the scale is 0.81 and the internal consistency reliability of 5 dimensions are 0.78, 0.76 and 0.84.

Data collection and sorting: The questionnaires were filled out online mainly, others were sent by email. The samples came from Beijing, Hangzhou, Shenzhen, Xiamen and other large and medium-sized cities. The study sent 400 questionnaires and 200 online invitations. Up to February 20, 2013, the study collected 489 questionnaires, recovery rate was 81.5%. During data collating the study weed out 32 invalid questionnaires and obtained 457 valid questionnaires finally, the effective rate is 93.5%. The average age of respondents is 31.6, among them, the male employees are 62.6%, the female employees are 37.4%, the employees of bachelor degree or above are 90.2%, the R and D assistants are 34.6%, the R and D engineers are 56.5% and the project managers are 8.9%.

RESULTS ANALYSIS

Descriptive statistics of the research variables: The findings shows, the mean of the R and D employees' job burnout in high-tech enterprises is 2.87, close to the value of 3. Combining with the investigation results of other scholars, the study shows there is a certain degree of job burnout among the R and D employees in high-tech

enterprises. In the three dimensions of job burnout, the mean of emotional exhaustion is 3.04, the mean of depersonalization is 2.92 and the above two are higher than the mean of job burnout. The mean of reduced personal accomplishment is 2.64, significantly lower than the other two dimensions.

In terms of work stress, the mean of the R and D employees' work stress is 3.26, significantly higher than the median. It shows that the level of the R and D employees' work stress is above average. In each dimension of work stress, the means of pay-reward ratio and appraisal fairness are highest, closely followed by the mean of requirement of the job which is still higher than the median. The mean of work autonomy and career development are significantly lower than the other dimensions.

Statistical results also show that the mean of the R and D employees' perceived organizational support is 3.00 which is at middle level. Among them, the level of emotional support from leadership and support from colleagues is higher; their means are more than the median. Material support from organization is significantly lower than other two dimensions and it is far lower than the median. The means and standard deviations of job burnout, work stress and organizational support are shown in Table 1.

Differences of job burnout in the demographic variables: Basing on T test and single factor variance analysis, the study finds that there are significant differences on the length of service in each dimension of the R and D employees' job burnout and significant differences on work position in the dimension of emotional exhaustion, as shown in Table 2 and 3. Further analysis finds that the R and D employees whose length of service are above nine years face the most severe emotional exhaustion, depersonalization and reduced personal accomplishment. On the dimensions of emotional exhaustion and depersonalization, the level of job burnout experienced by the R and D employees increases by age; on the dimension of personal accomplishment, it decreases by age and then increases after a certain year. The influence of work position to the R and D employees' job burnout mainly shows in emotional exhaustion. The project managers experience more emotional exhaustion than the ordinary R and D employees. In addition, the study doesn't find that there are significant differences on gender, marriage and education.

Correlation analysis and regression analysis of work stress and job burnout: To test the relationship between all kinds of work stressors and job burnout of the R and D employees, the study carries out the correlation analysis on each dimension of work stress and job

Table 1: Overall level of the research variables (N = 457)

Research variables	Mean	Standard deviation
Job burnout		
Emotional exhaustion	3.04	1.04
Depersonalization	2.92	0.89
Reduced personal accomplishment	2.64	1.12
Overall level	2.87	1.06
Work stress		
Pay-reward ratio	3.75	1.14
Appraisal fairness	3.62	1.02
Work autonomy	2.81	1.22
Requirement of the job	3.24	1.41
Career development	2.9	1.09
Overall level	3.26	1.05
Organizational support		
Material support	2.63	1.10
Emotional support	3.22	0.92
Colleagues support	3.16	1.34
Overall level	3.00	1.08

Table 2: Influence of length of service on job burnout (N = 457)

Parameters	Under 2 years	3-5 years	6-8 years	More than 9 years	F
Emotional exhaustion	2.56±0.78	2.86±0.63	2.79±0.72	3.19±0.71	2.36*
Depersonalization	2.52±0.82	2.66±0.82	2.75±0.67	3.39±0.92	3.14*
Reduced personal accomplishment	2.41±0.63	2.17±0.71	1.84±0.58	2.58±0.74	5.43**
Job burnout	2.50±0.74	2.51±0.72	2.43±0.64	3.01±0.75	2.34*

**p<0.05;*P<0.1

Table 3: Influence of work position on job burnout (N = 457)

Parameters	R and D assistants	R and D engineers	Project managers	Others	F
Emotional exhaustion	2.62±0.81	2.62±0.56	3.20±0.71	2.67±0.62	6.01**
Depersonalization	2.41±0.88	2.60±0.78	2.82±0.92	2.71±0.81	0.56
Reduced personal accomplishment	2.23±0.72	2.31±0.65	2.12±0.63	2.21±0.64	0.31
Job burnout	2.41±0.75	2.47±0.70	2.72±0.73	2.51±0.71	0.72

Table 4: Correlation analysis between work stress and job burnout (N = 457)

Parameters	Pay-reward ratio	Appraisal fairness	Work autonomy	Requirement of the job	Career development	Work stress
Emotional exhaustion	0.61**	0.31**	0.52**	0.43**	0.54**	0.67**
Depersonalization	0.54**	0.64**	0.58**	0.67**	0.46**	0.52**
Reduced personal accomplishment	-0.12	-0.09	0.08	0.01	0.55**	-0.04
Job burnout	0.52**	0.41**	0.51**	0.52**	0.61**	0.53**

burnout. It can be seen from Table 4, work stress and its various dimensions are significantly correlated with job burnout and the relationship between them is a moderate positive correlation. In the three dimensions of job burnout, emotional exhaustion and depersonalization have significant positive correlation with work stress and its various dimensions, but the dimension of reduced personal accomplishment has only significant positive correlation with career development. That is, when the R and D employees face with the stress such as pay-reward imbalance, unfair appraisal and lack of autonomy etc., they will be exhausted and far away from work. But when they encounter the bottleneck of career development, their personal accomplishment will decline.

In order to further study the influence and predictability of work stress on the R and D employees' job burnout, using stepwise multiple regression analysis, taking three dimensions of job burnout as dependent variables, respectively and taking each dimension of work stress as explanatory variables, the study have confirmed the theoretical assumptions.

Regression analysis results are shown in Table 5, there are four significantly predictive variables for the R and D employees' emotional exhaustion in the variables of work stressor and they are pay-reward ratio, career development, appraisal fairness and work autonomy. The multiple correlation coefficient of four predictor variables and the dependent variable of emotional exhaustion is 0.69. F value of regression model integrity test is 40.72, reaching significant level. Four predictor variables can effectively explain 56.6% variance of emotional exhaustion. In four predictor variables, pay-reward ratio is the most salient variable which explains 34.2% variance respectively. The beta value of four predictive variables is positive, meaning that they can be used as a positive predictor of emotional exhaustion. The variable of requirement of the job is not classified to the regression model, indicating the variable has a very slight influence on emotional exhaustion. According to the result of regression analysis, the study can draw a standard regression model: Emotional exhaustion = 0.58×pay-reward ratio+0.36×career development+0.41×appraisal fairness+0.27×work autonomy.

Among the variables of work stressor, appraisal fairness, requirement of the job and career development are good predictors of the R and D employees' depersonalization. The multiple correlation coefficient of three predictor variables and the dependent variable of depersonalization is 0.79. Three predictor variables can effectively explain 58.1% variance of depersonalization. Three predictor variables are significant at the 0.001 level and the beta value is positive, indicating that these variables can be as a positive predictor of depersonalization. In three predictor variables, appraisal fairness is the most salient variable which explains 41.3% variance respectively. The variables of pay-reward ratio and work autonomy are not classified to the regression model, indicating the two variables have very slight influences on depersonalization. According to the result of regression analysis, the study can draw a standard regression model: Depersonalization = 0.43×appraisal fairness+0.36×requirement of the job+0.22×career development.

Career development and appraisal fairness are good predictors of the R and D employees' reduced personal accomplishment. The multiple correlation coefficient is 0.61. Two predictor variables can effectively explain 33.6% variance of reduced personal accomplishment. In two predictor variables, career development is the most salient variable which explains 27.2% variance, respectively. The other variables are not classified to the regression model, indicating they have very slight influences on the variable of the R and D employees' reduced personal accomplishment. According to the result of regression analysis, the study can draw a standard regression model: Reduced personal accomplishment = 0.56×career development+0.31×appraisal fairness.

Analysis on adjusting effect of organizational support between work stress and job burnout: In order to verify the adjusting effect of perceived organizational support to the R and D employees' work stress and job burnout, the study adopts two-factor variance analysis method to analyze the interaction effect of them. From Table 6, it can be seen that in the dimension of emotional exhaustion, perceived organizational support shows obviously

Table 5: Stepwise multiple regression analysis (N = 457)

Dimension of Job burnout	Input variables	Correlation coefficient	Coefficient of determination	F-value	B	Beta (β)
Emotional exhaustion	Pay-reward ratio	0.56[a]	0.342	69.12***	0.56	0.58
	Career development	0.62[b]	0.464	51.37***	0.31	0.36
	Appraisal fairness	0.70[c]	0.502	43.52***	0.39	0.41
	Work autonomy	0.69[d]	0.566	40.72***	0.28	0.27
Depersonalization	Appraisal fairness	0.61[a]	0.413	87.15***	0.41	0.43
	Requirement of the job	0.75[b]	0.524	79.63***	0.36	0.36
	Career development	0.79[c]	0.581	68.50***	0.27	0.22
Reduced personal accomplishment	Career development	0.53[a]	0.272	48.10***	0.63	0.56
	Appraisal fairness	0.61[b]	0.336	33.48***	0.32	0.31

Table 6: Adjustment effect of organizational support between work stress and job burnout (N = 457)

Interaction factor	Emotional exhaustion	Depersonalization	Reduced personal accomplishment
Pay-reward ratio×organizational support	11.25***	3.55	0.36
Appraisal fairness×organizational support	7.26**	1.45	5.12*
Work autonomy×organizational support	0.87	0.53	7.28*
Requirement of the job×organizational support	0.42	0.28	10.45**
Career development×organizational support	0.26	2.34	0.33
Work stress×organizational support	16.32***	1.16	3.37

Data in the table is the F-value

adjusting effect on pay-reward ratio and appraisal fairness. In the dimension of reduced personal accomplishment, perceived organizational support shows obviously adjusting effect on appraisal fairness, work autonomy and requirement of the job. Perceived organizational support doesn't have significant interaction between work stress and depersonalization. In other words, when the R and D employees face with imbalance on pay-reward and unfair appraisal, the higher perceived organizational support can significantly reduce the level of emotional exhaustion. When they face with unfair appraisal, lack of work autonomy or ability to work, the support from organization and colleagues can significantly increase their personal accomplishment.

CONCLUSION AND SUGGESTIONS

Research conclusions: Through the questionnaires and combining with the in-depth interviews to the R and D employees in the high-tech enterprises, the study gets the following conclusions:

- There is a certain degree of job burnout among the R and D employees in the high-tech enterprises. Specifically, the R and D employees experience a high emotional exhaustion in the work and have a depersonalization to some extent, personal accomplishment remain at a higher level. Statistical results also show that the level of work stress among the R and D employees is above average and perceived organizational support is at middle level. The R and D employees with different length of service and work position have certain difference on job burnout. The R and D employees whose length of service are above nine years encounter the most severe job burnout and the project managers experience more emotional exhaustion than the ordinary R and D employees. In addition, the study doesn't find that there are significant differences on gender, marriage and education of the R and D employees. Hypothesis 1 is confirmed partly
- Work stress and its various dimensions are significantly correlated with job burnout. In the three dimensions of job burnout, emotional exhaustion and depersonalization have significant positive correlation with work stress and its various dimensions but the dimension of reduced personal accomplishment has only significant positive correlation with career development. Among the variables of work stressor, pay-reward ratio is the most salient variable to emotional exhaustion, appraisal fairness is the most salient variable to depersonalization and career development is the most salient variable to reduced personal accomplishment. Hypothesis 2 is confirmed
- Perceived organizational support of the R and D employees affects their job burnout to a certain extent. Specifically, in the dimension of emotional exhaustion, perceived organizational support has adjusting effect on pay-reward ratio and appraisal fairness. In the dimension of reduced personal accomplishment, perceived organizational support has adjusting effect on appraisal fairness, work autonomy and requirement of the job. And perceived organizational support doesn't have significant interaction between work stress and depersonalization. Hypothesis 3 is confirmed

Management suggestions: In view of the above empirical results, the study put forward some suggestions to alleviate the R and D employees' job burnout.

Establish a fair appraisal system: At present the appraisal system in the most of high-tech enterprises is mainly based on the result assessment which is easy to ignore the performance during the work. The survey finds some R and D employees consider the assessment standards of the company is too fuzzy which can't objectively evaluate the performance of the R and D employees and this will affect the R and D employees' psychological sense of fairness and their career development. Therefore, the managers may adopt the mode of process and ability assessment according to the work characteristics of the

R and D employees, evaluate the work process of the R and D employees timely and objectively and encourage them to learn and improve themselves.

Improve the R and D employees' salary: The survey finds that there exist unfair phenomenons on reward among the R and D employees in the high-tech enterprises. Therefore, the managers need to adjust the salary structure of the R and D employees in time, combine the R and D employees' salary with their performance and improve the R and D employees' enthusiasm and initiative. In addition, through understanding of the R and D employees' needs and concerns, the managers need to improve the R and D employees' welfare treatment on the base of taking cost factors into account. By meeting the needs of most of the R and D employees, the managers may improve the R and D employees' salary satisfaction.

Promote the growth of the R and D employees: In order to solve the stress of the R and D employees on career development and technology changes systematically, the managers need to reexamine their training philosophy, deal with employees' promotion in a developing view and promote the growth of the employees fully. On the one hand, the managers need to help the employees make career planning, confirm their career goal and formulate corresponding tactics. On the other hand, the managers need to provide training programs to the R and D employees basing on the organization's goals, help them improve their ability to flow into the future position.

Set up the support system: When the R and D employees encounter job burnout, effective organizational support can mitigate the level of burnout and the empirical results support this idea. Therefore, the managers can establish a strong employee support system which makes them to perceive the support from the organization, supervisors and colleagues. It can effectively alleviate the employees' shock from various stressors and reduce their sabotage and turnover. In various environment variables associate d with employees, the managers may develop a number of organizational support strategies, including improving the working environment, enhancing the leadership of managers, building a harmonious interpersonal relationship and establishing the mutual union, etc.

Shortage and outlook: The study carries out an empirical research on the situation of the R and D employees' job burnout and its influencing factors in the high-tech enterprises which has certain innovation in the research content. But because of the limitation of research conditions and time, the study has the following shortcomings.

The cities involved during sample selection are less and the sample size is limited. Although the study involves many enterprises, it is still lack of certain representativeness nationwide.

The study belongs to the cross-sectional study which can only explain the relationship of work stress, organizational support and the R and D employees' job burnout from the perspective of the static and it is unconvincing as to the causal relation analysis.

The study fails to analysis how the different personality traits affect the R and D employees' job burnout when discussing the influence factors of job burnout and regards them as control variables.

Future study may broaden the scope of sampling, add the quantity of samples, perform the follow-up studies to detect the change of the R and D employees' job burnout in the different periods, expand the research variables and carry out empirical research from the organization, job, person factors and other aspects.

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