

Correlation Analysis between Job Stress and Job Satisfaction of Building Construction Field Managers

An, Sung-Hoon¹

Zhang, Zhen¹

Lee, Ung-Kyun^{2*}

Department of Architectural Engineering, Daegu University, Gyeongsan-Si, Gyeongsangbuk-Do, 706-140, Korea ¹

School of Architecture, Kwandong University, Gangneung-Si, Gangwon-Do, 210-701, Korea ²

Abstract

The success of a construction project hinges on the effective and efficient management of human resources. The stress of human resources is directly related with work performance, and as such, should be managed to improve work performance. This study examined the correlation between job stress and job satisfaction among building construction project managers. A questionnaire to measure work performance was created by referring to the Korean Occupational Stress Questionnaire Short Form developed by the Korean Occupational Safety & Health Agency, as well as a previous study. The mean job satisfaction score of field managers was 3.6, which suggests that they are generally satisfied in their current job environment. A Pearson's correlation analysis showed that the field managers that were satisfied with their job had less job stress. These results could be used for the effective management of construction site managers and to improve their job performance in the field.

Keywords : job stress, job satisfaction, correlation analysis

1. Introduction

1.1 Research background and objective

To ensure a successful a construction project, field managers must systematically manage multiple factors, including construction duration and cost, quality, and safety. However, to complete a construction project successfully, not only the management factors but also the managers themselves should be considered. It is no exaggeration to say that the success of a construction project hinges on how effectively the field managers are managed[1].

To perform a construction project successfully, the working environment must be a place where

field managers can work to their full capacity. But field managers in construction are usually under a heavy workload[2]. As well, field managers deal with a high amount of mental and physical stress because they need to work on holidays, come early to the site, and deal with any safety accidents[3]. The excessive workload and high stress reduce the job satisfaction level of field managers, and this is confirmed by the fact that there has been a gradual increase in workers changing jobs at construction companies[4].

An appropriate level of stress helps improve the work efficiency of field managers, while an excessive level of job stress can have an adverse effect on job performance[5]. In addition, when the job satisfaction is low among workers, it was found to have a negative impact on the work performance[6]. Therefore, to improve the job performance of field managers at construction sites, job stress

Received : May 2, 2013

Revision received : May 21, 2013

Accepted : May 22, 2013

* Corresponding author : Lee, Ung-Kyun

[Tel: 82-33-649-7548, E-mail: uklee@kd.ac.kr]

©2013 The Korea Institute of Building Construction, All rights reserved.

and job satisfaction need to be studied.

Job stress in the construction field has been actively studied in Korea[5,7,8,9,10,11,12], and so has job satisfaction[6,13,14,15]. In addition, the relation between job stress and job satisfaction among construction workers has been also investigated[16,17]. However, the correlation between job stress and satisfaction for construction field managers has not yet been examined.

Therefore, this study aims to analyze the correlation between job stress and job satisfaction of field managers working at domestic construction sites.

1.2 Research scope and methodology

The scope of this study is limited to field managers of construction projects who work for the top 30 construction companies in Korea, as the job stress and job satisfaction of field managers who work for mid- and small-sized construction companies may be different from those of the managers for large construction companies due to differences in working conditions, including salary and wages, and the possibility of promotion.

To investigate the job stress and job satisfaction of field managers of a construction project, the methods of measuring job stress and job satisfaction were first selected. Job stress and job satisfaction were measured through a questionnaire. The most appropriate questions were selected for the questionnaire after reviewing questionnaires in previous studies. The data was collected from February, 2013 to March, 2013. Of 113 questionnaires collected, a total of 109 questionnaires were analyzed after excluding those with unsatisfactory or missing responses. The average years of work experience of the field managers who participated in the survey was found to be 9.15. The statistical program, SPSS, was used to analyze the correlation between job stress and satisfaction.

2. Discussion of the relationship between job stress and job satisfaction

It is difficult to define job stress in a clear-cut way, but workers are under job stress when a worker feels it is difficult to handle the working environment with their personal ability or when the company does not provide a working environment that is suitable for the worker's personal motivation or capability[16]. There are many different definitions of job satisfaction, but to be as specific as possible, job satisfaction is a positive emotional state or pleasure coming out of an evaluation of job performance or of the job itself, which can be referred as an emotional response, a level of pleasure coming from a job[18].

Job stress and job satisfaction are related with the state of feeling in the course of job performance, and the two factors are directly related with each other. Traditionally, job stress has been viewed as having a negative relationship with job satisfaction; however, job stress is considered as a challenge, and there is a perspective that views a certain level of job stress as being positive for job satisfaction[11]. Job stress and job satisfaction are correlated with each other positively or negatively, and many studies have been conducted to understand the correlation between job stress and job satisfaction[16,17].

However, the correlation between job stress and job satisfaction may vary depending on one's personal disposition regarding the working environment, so it is difficult to apply the results of a study on workers to field managers. For this reason, this study is differentiated from the previous studies in the correlation analysis between job stress and job satisfaction of field managers.

3. Measurement of job stress and job satisfaction

3.1 Measurement of job stress

The job stress of field managers in a construction project can be measured through the factors that have an impact on the job stress[12]. There are so many previous studies to mention how to measure job stress through influencing factors on job stress. However, in this study the Occupational Stress Scale for Korean Employees developed by the Korean Occupational Safety and Health Agency(KOSHA) was used to measure job stress of field managers in a construction project[19] because the scale was developed fit for Korean employees by a team of KOSHA after reviewing many occupational stress scale instruments developed, and the scale has been validated as an occupational stress scale through many cases.

There are two versions of the Occupational Stress Scale for Korean Employees: Standard(43 questions) and Abbreviated(24 questions). The abbreviated version was used for this study since the standard version has too many questions so that the respondents expressed a little burdensome to fill out the questionnaire.

The abbreviated version of measuring job stress consists of 24 questions in 7 categories(job demand, job control, interpersonal conflict, job instability, organizational system, inappropriate compensation, organizational climate). The job demand category includes the following statements: 'I am always under pressure to meet my deadlines,' 'The workload has been significantly increased,' 'I can get sufficient rest during work,' and 'I have to deal with a couple of jobs at the same time.' The category of job control includes the statements: 'I need to be creative to perform my job,' 'I need a high level of skill and knowledge to perform my job,' 'I am empowered to determine the working

time and job performance, and I can make a decision at my discretion,' and 'I can determine my workload and change my work schedule at my discretion.' The category of interpersonal conflict includes the following statements: 'I can get some help from my boss to finish my work,' 'I can get some help from my colleagues to finish my work,' 'There are people at work who can understand me and my situation whenever I have difficulty with my job.' The category of job instability is comprised of the statements: 'Our company is unstable, and the future of my job is insecure,' and 'There was an undesirable change in my working condition (e.g. layoff) or I expect such a change.' The category of organizational system includes the statements: 'Our company has a fair and reasonable system for work performance appraisal and personnel (promotion, department placement, etc.),' 'Our company has a good supporting system including staff, space, facility and training if necessary,' 'Our company has an efficient system that enables cooperation between departments without conflict,' and 'I can find an opportunity and path to reflect my ideas.' The category of inappropriate compensation includes the statements: 'Considering my efforts and performance, my remuneration is appropriate,' 'Considering that my situation is expected to become more favorable, I do my job without feeling burdened,' and 'I am given opportunities to develop and show my ability.' The category of occupational climate consists of the statements: 'I feel uneasy at office dinners,' 'I am given work instructions with no consistent criteria,' 'The working atmosphere is authoritative and vertical,' and 'I get discriminated against sexually.'

3.2 Measurement of job satisfaction

The job satisfaction of field managers in a construction project can be measured through the composition factors of the job satisfaction. The job sat-

isfaction was measured in different diverse manners in related previous studies. However, we adopted Lee's scale[20] for job satisfaction because he proposed the scale after reviewing the job previous studies on job satisfaction done not only in Korea but also in other countries. For the scale Lee extracted 10 factors considered having the highest validation based on the research criteria of the Society for Human Resources Management (SHRM)of the U.S, and five tools for measuring job satisfaction in the widest use both in Korea and in other countries.

The scale developed by Lee[20] has 6 questions for paid and non-paid employees and 4 questions for paid employees only. All of the 10 questions were used in this study because the subjects of this study, namely field managers, are all paid employees. The 10 questions consist of salary/income, job stability, job contents, job environment, communication and relationship, boss' supervision, comradeship, company policy, welfare facility, and job satisfaction.

4. Effect of job stress on job satisfaction

4.1 Verification of reliability and validity of the variables

To measure the job stress and job satisfaction in 7 categories, the questionnaire was comprised of diverse questions. Therefore, the reliability must be analyzed using Chronbach's Alpha to verify the consistency of the questions in each category, and a factor analysis should be performed to determine whether the questions are fit for each category. However, the reliability and validity were not verified because the scales used in this study have already been verified in previous studies[17,20]. In addition, the questions should be identical to com-

pare the job stress measured in this study with the score of Korean standard occupational stress.

4.2 Analysis of job stress of field managers

The job stress of field managers in a construction project was measured through a survey. As aforementioned, the abbreviated version of the "Occupational Stress Scale for Korean Employees" (24 questions) developed by KOSHA was used in this study. The survey results were turned into scores using Equation(1)[19].

$$\frac{(\text{sum of score-number of question})}{(\text{highest score-number of question})} \times 100 \text{ --- (1)}$$

The job stress scores of field managers shown in Table 1 were compared with the average job stress scores of Korean men and Korean women announced by KOSHA. The result of the entire field managers was compared with that of the average score of Korean men because 90.83% of all the respondents (99 people of a total of 109 people) were men. It reflects the reality that the position of field managers at construction sites is still man dominated.

The job stress of the field managers was shown lower compared with that of the average of Korean men. To be more specific, the job stress was shown much lower than average scores of Korean men in all the categories(job control, interpersonal conflict, job instability, organizational system, inappropriate, compensation, organizational climate) except the category of job demand. In particular, the job stress was shown lowest in the category of job control, which is believed because they have high authority in their job including working time and workload, and they get less stressed.

In the categories of interpersonal conflict, job instability, organizational system, inappropriate compensation and organizational climate the job

Table 1. Comparison with Korean workers standards

Factors	Korean standard (man) (A)	Korean standard (woman) (B)	Field manager (both) (C)	Field manager (man) (D)	Field manager (woman) (E)	C-A	D-A	E-B	D-E
Job demand	52.40	56.73	53.87	54.38	48.77	1.47	1.98	-7.96	5.61
Job control	53.70	60.20	38.61	38.59	38.77	-15.09	-15.11	-21.43	-0.18
Interpersonal conflict	41.20	39.65	32.34	32.07	35.00	-8.86	-9.13	-4.65	-2.93
Job instability	50.13	44.31	41.06	40.53	46.25	-9.07	-9.6	1.94	-5.72
Organizational system	52.78	53.86	44.06	43.33	51.27	-8.72	-9.45	-2.59	-7.94
Inappropriate compensation	52.11	54.02	42.20	41.75	46.66	-9.91	-10.36	-7.36	-4.91
Organizational climate	40.95	45.06	35.97	35.44	41.26	-4.98	-5.51	-3.8	-5.82
Average	49.03	50.59	41.14	40.85	43.98	-7.89	-8.18	-6.61	-3.13

stress of field managers was shown much lower than the average of Korean men, which is believed because the field managers work for the top 30 construction companies in Korea, and they are overall satisfied with their job.

However, the job stress of female field managers was shown lower than the average of Korean women but slightly higher than male field managers. It can be interpreted that female managers may feel job intensity slightly higher than male managers. However, female managers were only 10 people and it is hard to generalize the result.

4.3 Analysis of job satisfaction of field managers

The job satisfaction of field managers was measured by survey. The 5-point Likert scale (very satisfied-5, very dissatisfied-1) was used to evaluate job satisfaction in this study. The result of job satisfaction was 3.6 on average, which means that the field managers in construction projects are overall satisfied with their job (See Table 2). To be more specific, the score in the comradeship was 3.91, followed by communication/relationship with 3.78, job satisfaction with 3.68 and job environment with 3.65 in that order. On the other hand, the score of welfare policy and company policy was 3.25, the lowest of all.

Table 2. Results of job satisfaction

Elements	Score of job satisfaction degree		
	Both(n=109)	Man(n=99)	Woman(n=10)
Salary or wages	3.61	3.67	3.00
Job stability	3.68	3.71	3.40
Job contents	3.61	3.62	3.60
Job environment	3.65	3.66	3.60
Communication and relationship	3.78	3.79	3.70
Boss' supervision	3.59	3.63	3.20
Comradeship	3.91	3.90	4.00
Company policy	3.37	3.38	3.20
Welfare facility	3.25	3.27	3.00
Job satisfaction	3.57	3.58	3.50
Average	3.60	3.62	3.42

Through the results, field managers working for large construction companies have higher job satisfaction in terms of job environment compared with those in small- and medium-sized companies. However, the satisfaction was not high in the factors such as working on holidays and coming to the site early, common in the construction industry. The satisfaction was not high either in the company policy including layoff due to economic downturn in the construction industry.

4.4 Correlation between job stress and job satisfaction

To analyze the correlation between the job stress and job satisfaction of field managers in construction projects, 7 factors for job stress and job satisfaction were set as variables and then the correlation analysis was performed using SPSS. Through the result

of correlation analysis, of 7 factors for job stress, 6 factors were found to have a statistical significance in correlation except job demand. The 6 factors (job control, interpersonal conflict, job instability, organizational system, inappropriate compensation, organizational climate) had a negative correlation, which means that the higher the job satisfaction the lower the job stress.

In interpersonal conflict, organizational system and inappropriate compensation, Pearson coefficient was shown to be -0.6 or higher, which indicates that they have a high negative correlation with job satisfaction(See Table 3). When they get more stressed from their boss or colleagues, when they feel harder to get promoted or get some help from other department, or when they think they get lower rewards, the job satisfaction is shown lower.

The lower the job satisfaction, the more negative effect it has on the job performance[6]. Therefore, when the job stress is more relieved, the job satisfaction can be raised, which can have a positive effect on the job performance, accordingly. In particular, the job stress related with interpersonal conflict, organization system, and inappropriate

compensation was shown to have a high correlation with job satisfaction, and it should be prioritized in management.

5. Conclusion

The job stress and job satisfaction of field managers of construction projects at large construction companies were measured. The results showed that the job stress of field managers in construction projects was lower than the average for Korean men. The stress of field managers was found to be lower in the area of job control because they have a higher level of authority in their job and can adjust their schedule and workload at their discretion. For this reason, they may get less stressed out.

The job satisfaction of field managers was shown to be higher than average overall because the field managers investigated in this study who work for large construction companies are satisfied with their job to some degree.

Through the correlation analysis between job stress and job satisfaction, it was found that job stress has a negative correlation with job

Table 3. Correlation analysis of variables

Variables		Job demand	Job control	Interpersonal conflict	Job instability	Organizational system	Inappropriate compensation	Organizational climate	Job satisfaction
Job demand	Pearson's coefficient (p-value)	1							
Job control	Pearson's coefficient (p-value)	-0.064 (0.506)	1						
Interpersonal conflict	Pearson's coefficient (p-value)	0.060 (0.535)	0.182 (0.059)	1					
Job instability	Pearson's coefficient (p-value)	0.174 (0.070)	-0.038 (0.692)	0.311* (0.001)	1				
Organizational system	Pearson's coefficient (p-value)	0.082 (0.394)	0.144 (0.135)	0.450* (0.000)	0.246* (0.010)	1			
Inappropriate compensation	Pearson's coefficient (p-value)	-0.033 (0.734)	0.206* (0.032)	0.446* (0.000)	0.185 (0.054)	0.572* (0.000)	1		
Organizational climate	Pearson's coefficient (p-value)	0.174 (0.071)	0.203* (0.034)	0.500* (0.000)	0.349* (0.000)	0.332* (0.000)	0.254* (0.008)	1	
Job satisfaction	Pearson's coefficient (p-value)	0.033 (0.736)	-0.225* (0.018)	-0.592* (0.000)	-0.336* (0.000)	-0.621* (0.000)	-0.621* (0.000)	-0.430* (0.000)	1

* Correlation is significant at the 0.05 level (2-tailed).

satisfaction. In particular, in interpersonal conflict, organizational system, and inappropriate compensation, the negative correlation between job stress and job satisfaction was shown to be much higher. Therefore, to increase job satisfaction, the job stress related with interpersonal conflict, organizational system, and inappropriate compensation should be reduced.

This study was focused on field managers working for large construction companies, and the research findings could not be applied to every field manager. Therefore, the correlation between job stress and job satisfaction of field managers working for small-to-medium-sized companies should be studied. In addition, the correlation between job stress and job performance needs to be directly analyzed in future research. It is expected that this data will be of great help in the field to increase job performance and manage construction sites.

Acknowledgement

This research was supported by Basic Science Research Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Education, Science and Technology(2011-0021835).

References

1. An SH. A Study on the construction manager's leadership styles based on condition of building projects. *Journal of the Architectural Institute of Korea (Structure & Construction Section)*, 2009 Apr;25(4):231-8.
2. Park KH, Son CB. Analyzing the Level and Influence Factors for Work Performance of Field Managers in General Construction Companies. *Korean Journal of Construction Engineering and Management*, 2010 May;11(3):115-24.
3. Lee DY, Kim WJ, Yi YS. A Study on the Evaluation of Job Stresses for Managers in the Construction Industry. *Journal of the Korean Society of Safety*, 2007 Jun;22(3):39-44.
4. Lee HS, Jin FJ, Park MS. A Study on Factors Influencing Turnover Intention of New Employees in Construction Company. *Korean Journal of Construction Engineering and Management*, 2012 Mar;13(2):137-46.
5. Leung MY, Chan YS, Olomolaiye P. Impact of Stress on the Performance of Construction Project Managers. *Journal of Construction Engineering and Management*, 2008 Aug;134(8):644-52.
6. Leung M-Y, Chen D, Yu J. Demystifying Moderate Variables of the Interrelationships among Affective Commitment, Job Performance, and Job Satisfaction of Construction Professionals. *Journal of Construction Engineering and Management*, 2008 Dec;134(12):963-71.
7. Park JK. The Stress Influences on the Job Attitudes toward the Employees of Construction Industries [dissertation]. [Busan (Korea)]: Dong-Eui University; 2007. 148 p.
8. Jeong TH. The Study of an Analysis on Job Stress of Affecting Safety and Management Performance for workers in the Construction Industry [dissertation]. [Gwangju (Korea)]: Chosun University; 2009. 111 p.
9. Love PED, Edwards DJ, Irani Z. Work Stress, Support, and Mental Health in Construction. *Journal of Construction Engineering and Management*, 2010 Jun;136(6):650-8.
10. Eom JH. A Study on the Stress Control of Construction Workers [master's thesis]. [Seoul (Korea)]: Seoul National University of Technology; 2003. 79 p.
11. Choi HJ, Kwon HG. The Stress Influences on the Job Attitudes toward the Employees of Construction Industries. *Korean Journal of Business Administration*, 2008 Aug;21(4):1723-49.
12. Leung MY, Chan YS, Yu J. Integrated Model for the Stressors and Stresses of Construction Project Managers in Hong Kong. *Journal of Construction Engineering and Management*, 2009 Feb;135(2):126-34.
13. Dabke S, Salem O, Genaidy A, Daraiseh N. Job Satisfaction of Women in Construction Trades. *Journal of Construction Engineering and Management*, 2008 Mar;134(3):205-16.
14. Chileshe N, Haupt TC. The effect of age on the job satisfaction of construction workers. *Journal of Engineering, Design and Technology*, 2010 Jan;8(1):107-18.
15. Lee DS. An Empirical Study on the Determinants of Job Satisfaction of Civil Engineering Employees: Case Study of "A" Company [master's thesis]. [Seoul (Korea)]: Seoul National University of Technology; 2010. 85 p.
16. Ha HW. Effect of Construction employee's stress for Job satisfaction -Small and medium sized construction

-
- companies in Seoul-Incheon- [master's thesis]. [Seoul (Korea)]: Chung-Ang University; 2011. 108 p.
17. Kim SS. The Study on the Effect of Construction Employees's Stress Affect Job Satisfaction [master's thesis]. [Gwangju (Korea)]: Chosun University; 2012. 98 p.
 18. Sun JW, Oh BS, Hwang DS, Kim JY. An Introduction to Job Stress. Paju (Korea): Korean Studies Information; 2010. p. 32-3.
 19. Sun JW, Oh BS, Hwang DS, Kim JY. A Measurement of Job Stress. Paju (Korea): Korean Studies Information; 2010. p. 43-8.
 20. Lee YM. Job Satisfaction and Measures. Seoul (Korea): Kyungmoonsa; 2011. 268 p.