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Differences of Emotional Intelligence, Self-Effectiveness and Job Stress Levels by ambulance worker Personal Characteristics

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Abstract

Background/Objectives: As the field activity of the fire fighter is increased increasing the exposure to the traumatic event, the development of effective program to reduce the job stress is needed.

Methods/Statistical analysis: The present study investigated levels of emotional intelligence, self-efficacy, and job stress by personal characteristics, working environment of ambulance workers, and grasped their correlations. A survey of ambulance workers in service at fire stations in the northern Gyeonggi province was conducted from Feb. 22 to Mar. 31, 2019 and 160 questionnaires were analyzed. Collected data were subjected to frequency analysis, t-test, and ANOVA using SPSS software 12.0 program.

Findings: Emotional intelligence showed a score of 63 out of 80 points. Emotional intelligence of females was higher than that of males. That of workers not younger than 35 years was higher than that of workers younger than 30 years. That of fire engineers or fire lieutenants was shown to be higher than that of firefighters. Job stress of females was higher than that of males. That of EMT level 2 qualification holders or workers who took the training course was shown to be higher than that of EMT level 1 qualification holders. That when less than three workers were mobilized was shown to be higher than that when three workers and more were mobilized. Self-efficacy showed a positive correlation with emotional intelligence but a negative correlation with job stress. Emotional intelligence showed a negative correlation with job stress. The higher the emotional intelligence, the higher the self-efficacy. The higher the emotional intelligence and self-efficacy, the lower the job stress.

Improvements/Applications: To reduce the job stress, the health should be improved and the field response capability should be enhanced by establishing the strategy to enhance the emotional intelligence.

Keywords: *Emotional Intelligence, Self-effectiveness, Job Stress, Health Promotion, Health Condition*

Introduction

The fire fighter encounters many direct traumatic events in various accident sites that he(she) is in fear of physical injury or life. Since the accident such as industrial accident, building collapse, natural disaster, etc. is rapidly increased by the diversification of social environment, the disaster management system is needed. As of 2018, the activity of 119 Rescue Center was 2,788,101 cases and occupies more than 68% out of 4,066,201 mobilization cases of fire fighting. Fire-fighting officer carries out the job hard to bear physically and mentally and belongs to stress high risk group due to frequent exposure to the traumatic event, irregular shift and standby for mobilization, health risk and physical

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hazard, insufficient manpower, tragic accident, etc.

Emotional intelligence[1] is the positive emotional propensity and understands the feeling of not only himself (herself) but also other surrounding people exactly and is the ability to utilize and regulate his/her own feelings[2]. According to Shin[3] , the emotional intelligence regulates the self-expression based on the recognition of one's own emotion, is the ability to establish relationship with others effectively and positively, and the changes of the emotional intelligence has effect on the self-efficacy.

Han[4] said that as the individual having high positive emotional propensity has relatively excellent positive problem solving ability and makes effort to solve the problem actively, the stress level was very low.

Self-efficacy means the conviction that one can do a certain work. It can be defined as judgment on one's own ability to organize and perform a series of behavioral processes required to achieve the job assigned to the person[5]. Gist and Mitchell[6] have stated that persons with a high level of self-efficacy can effectively perform their jobs and make continuous efforts for the goals without giving up. Job stress can be said to be the level at which one personally perceives psychological and physical adverse effects caused by business ability and environment of an organization member due to requirements of individuals and difference in opinions depending on the job. It means psychological and emotional tension level of perceiving the imbalance in the relation between an individual and the job environment[7].

The factors having effect on the job stress are personal characteristics, social support, job characteristics, personal health condition, working environment and organization characteristics and there are lots of researches for them but the research on the mental health of fire fighter has been made mainly on the post-traumatic stress disorder.

The purpose of this study is to provide the basic data for effective job stress reduction by identifying the effect of the emotional intelligent perceived by the fire fighter on the self-efficacy and job stress and the mediating effect of self-efficacy.

Materials and Method

1. Experimental tools

1) **Emotional Intelligence**

For emotional intelligence, WLEIS (Wong and Law Emotional Intelligence Scale) was used. WLEIS is a tool developed by Wong and Law[2] and adapted by Lim[8]. The tool is comprised of 16 questions belonging to four sub-categories: four questions related to one's own emotional understanding, four questions related to other's emotional understanding, four questions related to utilization of emotion, and four questions related to adjustment of emotion. Its total score ranges from 16 to 80 and, with higher score indicating higher level of emotional intelligence.

2) Self-Efficacy

Self-efficacy means the conviction that one can successfully perform a particular behavior in a particular situation[5]. Personal Efficacy Beliefs Scale developed by Riggs and Knight[9] was used after translation. It is made up of 20 questions related to perception of one's own emotion, perception of other's emotion, adjustment of one's own emotion, and utilization of emotion. The higher the score, the higher the self-efficacy.

3) Job Stress

To measure job stress, Job Content Questionnaire (JCQ) prepared by adapting job stress tool developed by Karasek et al[10] to fit the Korean environment of which the validity was verified was used. This tool has a total of 14 questions: five questions for job requirements, three questions related to the authority to make decisions and job autonomy, and six questions related to availability of skill. Its score ranges from 0 to 42, with higher score indicating higher job stress.

2. Data Collection and Analysis

A survey of ambulance workers in service at the fire stations in the northern Gyeonggi province was conducted from Feb. 22 to Mar. 31, 2019. A total of 160 questionnaires were analyzed. Collected date were subjected to frequency analysis, t-test, and ANOVA using SPSS software 12.0 program.

Results and Discussion

Demographic characteristics of study subjects are summarized in Table 1. Regarding gender, there were 115 (71.9 %) males and 45 (28.1 %) females. As for age, the number of workers not younger than 30 years was 109 (68.1 %) and the number of workers younger than

30 years was 51 (31.9 %). Regarding education level, the number of graduates from a 4-year college or higher level was 88 (55 %) and the number of graduates from a 2-year college was 68 (42.5). Regarding qualification levels, the number of EMT (emergency medical technician) level 1 qualification holders was 96 (60.0 %), the number of nurses was 37 (23.1 %), and the number of EMT level 2 qualification holders was 24 (15 %). Regarding service career, the number of workers with service career between 1 and 3 years was 52 (32.5 %) and the number of workers with service career between 3 and 5 years was 43 (26.9 %). For salary, 103 (64.4 %) workers were receiving a monthly payment between 3 and 4 million won. As for rank, 140 (87.5 %) workers were fire engineers or firefighters. For marriage status, 87 (54.4 %) workers were unmarried. Regarding the number of workers mobilized, 138 (72.8 %) workers were mobilized in a group of four workers or more. Regarding exercise and hobbies, 146 (76.4 %) workers were found to exercise regularly and 139 workers (72.8 %) were enjoying hobbies [Table 1].

Table 1. General characteristics of the subjects(N=160)

Variables	**Categories**	**n**	**%**
Gender	Male	115	71.9
	Female	45	28.1
Age	24 ~ 29a	51	31.9
	30 ~ 34b	69	43.1
	>35c	40	25.0
Education level	High school	4	2.5
	College	68	42.5
	University	83	51.9
	Over graduate school	5	3.2
Certification	EMT level 1a	96	60.0
	EMT level 2b	24	15.0
	Nurse c	37	23.1
	Education d	3	1.9
Work period (year)	<1a	17	10.6
	1 ~ <3b	52	32.5
	3 ~ <5c	43	26.9
	5 ~ <8d	33	20.6
	≥8f	15	9.4
Monthly income (Korean won)	<3,000,000	23	14.4
	3,000,000 ~ <3,500,000	62	38.8
	3,500,000 ~ <4,000,000	41	25.6
	≥4,000,000	34	21.2
Class	Fire fighter a	67	41.9
	Senior fire fighter b	73	45.6
	Fire sergeant	16	10.0
	Fire lieutenant	4	2.5
Marital status	Married	73	45.6
	Single	87	54.4
Number of people	<3a	16	8.3
	3-4b	37	19.4
	>4c	138	72.3
Regular exercise	Yes.	45	23.6
	No.	146	76.4
Hobby	Yes.	139	72.8
	No.	52	27.2

Regarding emotional intelligence by gender, females showed higher values than males (p = .043). For job stress, females had higher job stress than males (p = .045). Although self-efficacy and job stress of females were higher than those of males, differences between the two were not statistically significant. Emotional intelligence of workers not younger than 35 years was found to be higher than that of workers younger than 30 years (p = .041). Job stress of workers younger than 30 years was higher than that of workers not younger than 35 years (p = .047). However, self-efficacy did not show any statistically significant difference among age groups. According to education level, self-efficacy of graduates from a college or a graduate school was higher than that of high school graduates (p = .049).

By qualification level, job stress of EMT level 1 qualification holders was found to be lower than that of EMT level 2 qualification holders and those who took the training course (p=.007). By service period, self-efficacy of workers with service career between 5 and 8 years was higher than that of workers with a service career of 8 years or longer (p = .045). Emotional intelligence was higher when service career was longer. Job stress of workers with service career shorter than 3 years was shown to be higher (p = .028).

Regarding emotional intelligence of workers of each rank, the emotional intelligence of fire engineers was found to be higher than that of fire lieutenants or fire captains (p = .050). Self-efficacy of fire engineers and fire lieutenants was found to be higher than that of firefighters (p = .048). Job stress was shown to be higher when less than three workers were mobilized than that when three or more workers were mobilized (p = .033). Emotional intelligence had a score of 63 out of 80 points. Self-efficacy had a score of 57 out of 100 points and job stress had a score of 38 out of 42 points [Table 2].

We intended to look into traumatic events caused by repeated exposure to diverse rescue sites[10], including psychological stress where dangerous situation should be immediately coped with and psychological difference felt in a working environment different from general working circumstances.

The overall job stress level of subjects had a score of 38 points, similar to the result of Yoon et al[11]. Although the result by gender was shown to be similar to that of preceding studies[12,13], some studies have reported different results.

Table 2. Emotional intelligence, self-efficacy, and job stress of the subjects according to general characteristics(N=160)

Variables	Categories	Self-efficacy		Emotional intelligence		Job stress	
		M±SD	p	M±SD	p	M±SD	p
Gender	Male	63.26±6.25	.108	51.76±0.38	.043	37.37±0.53	.288
	Female	65.57±7.31		56.88±0.34		38.23±0.43	
Age	24 ~ 29[a]	63.21±6.13	.362	56.68±0.51	.041 c>a	39.45±0.45	.047 c>a
	30 ~ 34[b]	64.53±6.69		57.81±0.56		38.34±0.27	
	>35[c]	62.76±1.12		58.84±0.65		37.21±0.69	
Education level	High school[a]	60.41±5.08	.049 a<cd	55.65±0.43	.522	39.20±0.58	.341
	College[b]	63.77±7.34		57.78±0.46		38.22±0.60	
	University[c]	65.02±5.41		57.88±0.51		39.32±0.53	
	Over graduate school[d]	65.77±6.21		57.77±0.44		39.31±0.33	
Certification	EMT level 1[a]	65.53±6.35	.318	57.89±0.35	.441	39.12±0.35	.007 bd>a
	EMT level 2[b]	63.37±6.21		56.77±0.42		42.41±0.54	
	Nurse[c]	62.74±6.77		57.79±0.37		40.23±0.59	
	Education[d]	64.20±9.17		55.73±0.38		42.43±0.37	

Work period (year)	<1[a]	62.5±5.79	.045 d>f	56.71±0.44	.487	39.35±0.56	.028 ab>f
	1 ~ <3[b]	63.72±7.23		56.72±0.72		39.30±0.26	
	3 ~ <5[c]	63.0±5.60		57.84±0.90		38.17±0.34	
	5 ~ <8[d]	66.77±6.71		58.89±0.62		36.18±0.65	
	≥8[f]	61.24±7.21		58.85±0.71		35.09±0.67	
Monthly income (Korean Won)	<3,000,000	62.27±7.50	.973	56.73±0.39	.687	39.32±0.39	.471
	3,000,000 ~ <3,500,000	63.14±6.06		56.83±0.36		38.28±0.46	
	3,500,000 ~ <4,000,000	62.72±5.92		56.88±0.49		38.22±0.68	
	≥4,000,000	62.71±7.98		57.73±0.76		38.24±0.32	
Class	Fire fighter[a]	62.11±7.28	.050 b<e	54.71±0.55	.048 a<bc	40.55±0.25	.003 a>ce
	Senior fire fighter[b]	64.48±6.17		58.83±0.46		38.31±0.39	
	Fire sergeant[c]	61.12±7.77		58.88±0.43		37.05±0.24	
	Fire lieutenant	59.17±6.83		55.92±0.55		36.16±0.97	
Marital status	Married	65.31±5.21	.984	57.90±0.40	.297	38.25±0.20	.232
	Single	64.73±7.77		56.70±0.56		39.32±0.37	
Number of people	<3[a]	62.41±9.21	.394	57.79±0.42	.247	41.42±0.28	.033 a>bc
	3-4[b]	65.54±7.56		59.08±0.28		36.38±0.66	
	>4[c]	64.42±7.74		57.86±0.61		37.17±0.64	
Regular exercise	Yes.	64.77±7.21	.420	58.85±0.54	.311	39.11±0.45	.211
	No.	63.21±6.99		57.81±0.46		41.29±0.45	

Yoon et al[10] have also reported that the younger the worker, the lower the specialty education level, the shorter the service period, and when the rank of the worker is firefighter and the worker is unmarried, the higher the job stress. However, some studies have also shown that the longer the service period, the higher the job stress[15-17].

Emotional intelligence of females was higher than that of male. That of workers not younger than 35 years was higher than that of workers younger than 30 years.

Self-efficacy showed a positive correlation with emotional intelligence (r = 0.462, *p* = .000). supporting previous result showing that the higher the emotional intelligence, the higher the self-efficacy[18, 19]. Self-efficacy and job stress showed a negative correlation (r = -0.119, *p* = .042). Emotional intelligence showed a negative correlation with job stress (r = -0.173, *p* = .018) [Table 3].

Table 3. Correlation coefficients between related variables(N=160)

Variable	Self-efficacy	Emotional intelligence	Job stress
Self-efficacy	1	.462(0.000)	-.119(.042)
Emotional intelligence	.462(0.000)	1	-.173(.018)
Job stress	-.119(.042)	-.173(.018)	1

Based on the above study result, emotional intelligence and self-efficacy were confirmed to have an effect on job stress. Accordingly, a program that increases emotional intelligence and self-efficacy should be developed. Physical and mental health of ambulance workers should be improved by establishing a strategy to enhance emotional intelligence and self-efficacy to

reduce job stress.

Conclusion

Emotional intelligence of females was higher than that of males.

Self-efficacy showed a positive correlation with emotional intelligence but a negative correlation with job stress. Emotional intelligence showed a negative correlation with job stress. The higher the emotional intelligence, the higher the self-efficacy. The higher the emotional intelligence and self-efficacy, the lower the job stress.

Based on above mentioned results, the emotional intelligence has effect on the job stress. Therefore, to reduce the job stress, the health should be improved and the field response capability should be enhanced by establishing the strategy to enhance the emotional intelligence.

Ethical Clearance: Not required

Source of Funding: Self

Conflict of Interest: Nil

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