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Analysis of Relationship Between Job Stress and Fatigue According to The Type A/B Behavior Pattern of Physical Therapists

Stress and fatigue are general physical aspects of our daily lives. It has been shown that physical therapists have different levels of job stress and fatigue according to the type A/B behavior patterns. This study collected data from 212 physical therapists between October 28 and November 23, 2016 using an anonymous, self-administered questionnaire. The study results showed the proportion of physical therapists with the Type A behavior patterns(TABP) was 18% greater than that of physical therapists with the Type B behavior patterns(TBBP). In this study, physical therapists with TABP were compared with physical therapists with TBBP. The results indicated that physical therapists with TABP were more inclined to experience higher levels of overall job stress and fatigue from the following stress factors: physical environment, job requirement, and job autonomy. Therefore, the stronger the tendency toward TABP, the stronger the feeling of job stress and fatigue from physical environment, job requirement, and job autonomy. Those with a tendency toward TBBP showed positive correlations between job requirement and the total job stress score; thus, the stronger the tendency toward TBBP, the stronger the feeling of overall job stress and fatigue from job requirement.
This study suggests that it is necessary to manage the job stress and fatigue of physical therapists with both TABP and TBBP and to manage the job stress and fatigue of physical therapists with the type A behavioral pattern.

Key words: *Fatigue, Job Stress, Physical Therapist, Type A behavior pattern, Type B behavior pattern*

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INTRODUCTION

Excessive job stress of hospital workers negatively affects both mental factors, such as mental health and self-esteem[1], and physical factors, such as physical fatigue and musculoskeletal symptoms[2,3]. Among hospital workers in South Korea, physical therapists are in an occupational field with high job-related stress[4]; the field of physical therapy is comprised of 33,403 professional workers based on data from the 2016 third quarter medical service/healthcare manpower reports[5].

Through reviewing current studies on basic data related to the jobs of physical therapists, it can be seen that while a few studies on job stress, job satisfaction, turnover intentions, and musculoskeletal disorders have been reported[3,4], no study identified the correlation between job stress and fatigue levels by figuring out the psychological characteristics of physical therapists based on their behavior patterns.

Sociopsychologically, people with TABP are known to show personality traits such as extreme aggressiveness, temporal pressure, easily rising hostility, and competitive desire for achievement[6]. On the contrary, people with TBBP are typically less competitive and more relaxed[6].

These type A/B behavior patterns of individuals are important factors that affect job-related stress and fatigue levels[7,8]. In particular, in the case of nurses that work in the field of medical services and healthcare, personnel with TABP were reported to show higher fatigue levels and poorer health conditions when compared with TBBP, which is similar to physical therapists[8].

Therefore, this study aims to provide basic data for improving job management for physical therapists by analyzing the difference and correlation between job stress and fatigue levels according to type A/B behavior patterns of physical therapists.

METHODS

Subjects

The purpose of this study was to analyze the job stress and fatigue levels and the correlations between them according to A/B type behavior patterns in physical therapists working at medical care institutions with at least 150 beds in the Seoul and Gyeonggi areas[9]. The data for this study was collected from October 28, 2016 to November 23 of the same year through an anonymous self-administered questionnaire method that was completed by sending questionnaires and instructions by mail to the physiotherapy departments of the relevant medical care institutions.

A total of 230 copies of the questionnaires and instructions were mailed to the physiotherapy departments of 11 medical care institutions, and 225 copies of the questionnaires were returned. A total of 212 copies of the questionnaires were used as study data, excluding 13 copies that could not be utilized as data because replies to the content of the questionnaires were insufficient.

Research Methods

Type A/B behavior pattern

The behavior patterns of physical therapists were measured using a Korean version of the Framingham A type behavior pattern developed by Haynes et al.[10], which was used in a study conducted by Jeong[11]. This measuring tool consists of a total of 10 questionnaire questions with Likert 4-point scales, and the sums of the scores of individual questions were used.

The physical therapists with high scores based on median values were classified into TABP, and those with low scores were classified into TBBP. In this study, the reliability of Cronbach's α value was .714.

Job stress

Job stress was measured using the Korean job stress measuring tool[12] in the questionnaire. Questions corresponding to general characteristics in the content of the questionnaire were revised and supplemented to fit the characteristics of this study before they were used. The measuring tool consisted of 43 questions over eight sections that utilized Likert 4-point scales. When calculating the scores, questions to which responses with higher scores meant higher job stress levels were given a score of 1-4 points, and those to which responses with lower scores meant lower job stress levels were given scores as 4-1 points. The scores of individual areas were converted based on a full score of 100 points[12] before they were used as data.

Fatigue

Fatigue levels were measured using the Chang's questionnaire[13] that was made by restructuring the Fatigue Assessment Inventory(FAI) developed by Schwartz et al.[14] with the Multidimensional Fatigue Scale(MFS) in Korean. This measuring tool consisted of a total of 19 questions regarding fatigue levels felt over the last two weeks using Likert 7-point scales. Higher response scores meant higher levels of subjectively reported fatigue. In this study, the reliability of Cronbach's α value of MFS was .932.

Data analysis

The data from all questionnaires collected in this study were analyzed using the statistical processing program SPSS WIN(ver 21.0). The means and standard deviations of the general characteristics, type A/B behavior patterns, job stress, and fatigue levels of physical therapists were calculated using descriptive statistics. The differences in job stress and fatigue levels of physical therapists between behavior patterns were analyzed using independent t-tests, and the correlations between job stress and fatigue levels by behavior pattern were analyzed using Pearson's correlation coefficients. The significance level α was set to .05 for the analyses.

RESULTS

General characteristic of subjects according to the type A/B behavior pattern

With regard to genders among the general characteristics of the physical therapists, the ratio of males was relatively higher in the cases of TABP, while the ratio of females was relatively higher in the cases of TBBP. With regard to the behavior patterns of physical therapists, the number of physical therapists with TABP was shown to be relatively larger, as the number of TABP was 125 (59.0%), while that of TBBP was 87(41.0%).

Physical therapists showed high rates of being unmarried, regardless of their behavior pattern; as for average salary, 1.50－2.00 million won was the highest rate among physical therapists with either behavior pattern. As for alcohol consumption, TABP showed a relatively higher frequency—one to two times per week(41.6%) was the most frequent response in the case of TABP—while two to three times per week(36.8%) was the most frequent response for TBBP. As for cigarette smoking, while physical therapists with either type A/B behavior patterns showed high non-smoker ratios, TBBP showed a relatively lower smoking rate. As for total working years, the responses of 2－5 years and 6－9 years were shown to be high among physical therapists, regardless of their behavior pattern. Regarding turnover, the rate of turnover for TABP was shown to be higher than that of TBBP〈Table 1〉.

Different of the type A/B behavior pattern and job stress

In the case of physical environment, job requirement, and job autonomy among job stress factors, TABP was shown to be under significantly more stress than TBBP ($p<.05$)〈Table 2〉.

Different of the type A/B behavior pattern and fatigue

With regard to the level of self-awareness of fatigue, TABP(88.04±18.71) was shown to feel more fatigue than TBBP(77.67±19.89) ($p<.01$)〈Table 3〉.

Correlation analysis of the type A/B behavior pattern and General characteristic of subjects

Among the general characteristics of physical therapists, the average salary, total working years, alcohol consumption, and turnover rates were shown to have no particular correlation with type A/B behavior patterns〈Table 4〉.

Table 1. General characteristic of subjects according to the type A/B behavior pattern

Variable		Type A		Type B	
		N	%	N	%
Gender	Male	70	56.0	37	42.5
	Female	55	44.0	50	57.5
	Total	125	59.0	87	41.0
Marriage	Unmarried	106	84.8	68	78.2
	Married	19	15.2	18	20.7
	divorce	0	0.0	1	1.1
Average salary (million)	〈1.5	8	6.4	4	4.6
	1.5–2.0	62	49.6	36	41.4
	2.0–2.5	38	30.4	32	36.8
	2.5–3.0	5	4.0	8	9.2
	3.0≦	12	9.6	7	8.0
Alcohol drinking	No	28	22.4	28	32.2
	2–3(month)	37	29.6	32	36.8
	1–2(week)	52	41.6	25	28.7
	3–4(week)	7	5.6	2	2.3
	daily(week)	1	0.8	0	0.0
Cigarette smoking	No	83	66.4	73	83.9
	Smoking cessation	21	16.8	3	3.4
	YES	21	16.8	11	12.6
Total working years	≦1	31	24.8	13	14.9
	2–5	59	47.2	37	42.5
	6–9	25	20.0	25	28.7
	10–14	9	7.2	10	11.5
	15≦	1	0.8	2	2.3
Turnover (time)	No	73	58.4	42	48.3
	Yes	52	41.6	45	51.7
	1	28	22.4	20	23.0
	2	7	5.6	10	11.5
	3	12	12	10	11.5
	4	4	3.2	3	3.4
	5≦	1	0.8	2	2.3

Correlation analysis of the type A/B behavior pattern and job stress

TABP showed positive correlations with the stress of physical environment, job requirement, job autonomy and total job stress scores, and TABP had a negative correlation with relationship conflicts. Therefore, physical therapists with stronger tendencies toward TBBP showed higher correlations with the job stress factors—physical environment, job requirement, job autonomy, and total job stress scores($p<.05$). TBBP showed positive correlations with the stress of job requirement and total job stress scores. Therefore, physical therapists with stronger tendencies toward TBBP showed significantly higher correlations with stress of job requirement and total job stress scores($p<.05$)〈Table 4〉.

Table 2. Different of the type A/B behavior pattern and job stress

(Unit: Score)

Variable	General characteristics	
	Type A	Type B
Physical environment	39.82±15.01	34.99±15.20*
Job requirement	46.66±14.30	40.99±12.59*
Job autonomy	55.89±11.38	51.11±10.04*
Relationship conflict	34.86±13.02	36.39±12.19
Job instability	40.00±14.76	36.84±13.94
Structure and organization	48.15±13.71	48.54±13.14
Inappropriate compensation	42.71±15.30	45.78±15.13
Workplace culture	37.60±15.35	38.02±14.69
Total score	43.21±8.24	41.58±8.35

Mean±SD
*p<.05, **p<.01

Table 3. Different of the type A/B behavior pattern and fatigue

(Unit: Score)

Variable	General characteristics	
	Type A	Type B
fatigue	88.04±18.71	77.67±19.89**

Mean±SD
*p<.05, **p<.01

Correlation analysis of the type A/B behavior pattern and fatigue

Physical therapists with either type A/B behavior patterns showed positive correlations with fatigue levels. Therefore, stronger type A/B behavior patterns showed significantly higher fatigue levels($p<.01$)〈Table 4〉.

Table 4. Correlation analysis of the type A/B behavior pattern and job stress

Variable		Type A	Type B
General characteristic	Average salary	.044(.625)	.006(.960)
	Total working years	.093(.300)	.051(.638)
	Alcohol drinking	.046(.607)	.181(.093)
	Turnover(time)	−.009(.919)	.124(.251)
Job Stress	Physical environment	.245(.006**)	.168(.120)
	Job requirement	.324(.000**)	.263(.014*)
	Job autonomy	.203(.023*)	.200(.063)
	Relationship conflict	−.186(.038*)	−.112(.303)
	Job instability	.085(.345)	.204(.058)
	Structure and organization	.087(.333)	−.057(.598)
	Inappropriate compensation	−.098(.275)	−.101(.354)
	Workplace culture	−.001(.989)	−.011(.916)
	Total score	.138(.124)	.103(.340)
Fatigue	Fatigue	.254(.004**)	.351(.001**)

r(p)
*p<.05, **p<.01

DISCUSSION

In this study, there were 18% more physical therapists expressing TABP(125, 59.0%) than TBBP(87, 41.0%). Based on this study, the fact that the rate of personnel with tendencies towards TABP is greater in the field of physical therapy is newly presented. In the case of nurses8,15)—which have a similar job type and account for a large number of medical service/healthcare personnel—behavior patterns may vary depending on the characteristics of the professional field and working environment.

Regarding gender, whereas the number of males was relatively higher in the case of TABP, the number of females was relatively higher in the case of TBBP.

Regarding extreme aggressiveness, temporal pressure, and competitive desire for achievement, such characteristics more frequently appeared in the case of TABP6), which can be interpreted as

appearing more frequently in male physical therapists.

With regard to differences in job stress between type A/B behavior patterns, therapists with tendencies toward TABP were shown to be relatively more stressed in relation to physical environment, job requirement, job autonomy, job instability, and total job stress score, and physical therapists with TBBP were shown to be more stressed in relation to relationship conflicts, total job stress score, inappropriate compensation, and workplace culture. In particular, the fact that therapists with tendencies toward TABP are statistically significantly more stressed in relation to physical environment, job requirement, and job autonomy is newly presented through this study.

In previous studies on physical therapists' job stress conducted by Wang and Kim4), the total job stress score was shown to be 43.94±7.57 points, and physical therapists were shown to be the most severely stressed over job autonomy. The results of the previous studies were similar to the total job stress score of TABP in this study and were consistent with this study in relation to stress regarding job autonomy. Since job stress in relation to job autonomy, job systems, compensation, and workplace culture are important factors to physical therapists that affect their turnover intentions4), intensive management that can reduce stress felt by those with TABP tendencies regarding job autonomy is an important matter to organization managers.

In addition, since stress experience causes structural and functional changes to the brain[16] and changes in the immunoglobulin levels of white blood cells related to immunity[17], stress management is important for physical health management too.

In this study, the fatigue level of physical therapists with TABP was found to be statistically significantly higher than that of the physical therapists with TBBP, which was consistent with the behavior patterns of nurses[8].

In addition, physical therapists are part of an occupational group that has many musculoskeletal diseases[3] due to excessive physical activities that are part of working with patients' on physical exercise, and they are subject to many stresses due to those physical burdens[18].

The competitive desire for achievement of those expressing TABP[6] may be a factor for greater feelings of fatigue, along with physical burdens of physical therapists. In this study, the correlations between type A/B behavior patterns and job stress/fatigue levels were studied further.

First, type A/B behavior patterns showed correlation with job stress, in which stronger tendencies toward TABP were associated with significantly higher stress related to physical environment, job requirement, job autonomy, and total job stress scores, while stronger tendencies toward TBBP were associated with significantly higher stress related to job requirement and total job stress scores($p<.05$). These results indicated that physical therapists' stronger tendencies toward either type A or B behavior patterns are associated with higher job stress levels.

Physical activity is a very important element for improving mental health[19].

Physical activity and exercise have positive effects on stress management[20,21] and are effective for the improvement of anxiety symptoms of those that have been diagnosed with anxiety or stress-related disorders[22]. Regarding the effects of exercise presented by previous studies[20, 21,22], exercise is recommended to physical therapists under severe job stress. The results are consistent with the results of studies on nurses, which are a similar occupational type[15] in which nurses showed higher levels of stress and fatigue when their tendency toward TABP was stronger.

Physical therapists' job stress is correlated with empowerment and job involvement[23]. With regard to empowerment, when individuals have greater compensation and influence on their jobs, their job commitment and organizational commitment are higher[24].

However, on the contrary, high job stress reduces empowerment[25]. For efficient organization management, organization managers should find appropriate levels of job autonomy and compensation that fit individuals' abilities in consideration of physical therapists' type A/B behavior patterns.

Second, with regard to the correlations between type A/B behavior patterns and fatigue levels, when type A/B behavior patterns become stronger, fatigue levels become significantly higher($p<.01$). These results are consistent with the results of studies of nurses[9] in which TABP was significantly positively correlated with subjective symptoms of fatigue.

The limitations of this study include the fact that the comparison/discussion and results of this study cannot be broadly interpreted due to the lack of previous studies related to physical therapists'

behavior patterns, as well as the fact that the results cannot be generalized to physical therapists in various regions throughout the country because this study was a cross-sectional study conducted in a certain area.

This study is meaningful in that it presented new basic data for efficient job management of physical therapists by presenting the characteristics of job stress and fatigue levels of physical therapists with type A/B behavior patterns and the correlations between job stress and fatigue levels.

CONCLUSIONS

Although stress and fatigue are typical feelings of daily life, in the case of physical therapists, the job stress and fatigue levels felt by those with tendencies towards TABP are different from those felt by physical therapists with TBBP. Through the results of this study, it can be seen that both physical therapists with TABP and TBBP should manage job stress and fatigue and that the management of job stress and fatigue by physical therapists with TABP is more necessary in industrial fields.

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