

Comparison of Work-Related Stress between Emergency Medicine and Internal Medicine Doctors: A Single Center Cross-Sectional Study

Acil Tıp ile İç Hastalıkları Hekimleri arasındaki İş ile İlgili Stres Durumunun Karşılaştırılması: Tek Merkezli Kesitsel Çalışma

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Ethics Committee Approval: This study was approved by the Istanbul Medeniyet University Goztepe Training and Research Hospital Ethic Committee for Clinical Studies (22 March 2016, 2016/0067).

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ABSTRACT

Objective: In this study we aimed to examine and compare the stress levels and the factors affecting stress levels of physicians working in Emergency Medicine (EM) and Internal Medicine (IM) Departments.

Method: This is a cross-sectional study performed in a research and training hospital. The study population consisted of 39 physicians. Professional Life Stress Scale (PLSS), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI) and Acceptance and Action Questionnaire-II (AAQ-II) were used.

Results: Thirty-nine physicians (female 56.4%; mean age 32.6±6.8 years) included in analysis. They were from EM (n=19; 48.7%), and IM (n=20; 51.3%). Twenty-six (66.7%) participants had a score of 16-30 points indicating a moderate degree of stress in their professional life. The BAI and BDI scores of the participants ranged from 0 to 36 (mean, 8.4±8.9) and 0 to 29 (mean, 7.6±5.9), respectively, which indicated that the participants were below the psychopathological limits in terms of anxiety and depressive symptoms. AAQ-II scores were found to be significantly lower in emergency physicians (p=0.049) indicating that they had a lower level of experiential avoidance than others. Also, AAQ-II scores were found significantly lower in those who had children (p=0.028).

Conclusion: Working in EM departments for longer periods is associated with higher stress levels while increases the ability to cope with stress. Our study shows that having children is related with decrease in experiential avoidance, hence higher levels of psychological flexibility. Any significant differences were not found between the groups in terms of PLSS, BAI and BDI scores.

Keywords: Work-related stress, anxiety, psychological flexibility, physician, emergency

ÖZ

Amaç: Bu çalışmada, Acil Tıp ile İç Hastalıkları bölümlerinde çalışan hekimlerin psikolojik iyilik halleri ile stres düzeylerinin incelenerek karşılaştırılması amaçlanmıştır.

Yöntem: Bu araştırma, bir eğitim ve araştırma hastanesinde yapılan kesitsel bir çalışmadır. Çalışmaya 39 hekim katıldı. Ölçeklendirmelerden Profesyonel Yaşam Stres Ölçeği (PYSÖ), Beck Anksiyete Envanteri (BAE), Beck Depresyon Envanteri (BDE) ve Kabul Eylem Formu-II (KEF-II) kullanıldı.

Bulgular: Analize dahil edilen 39 hekimden (%56,4'ü kadın, ortalama yaş: 32,6±6,8) 19'u (%48,7) acil ve 20'si (%51,3) iç hastalıkları branşındaydı. Katılımcıların %66,7'sinde (N=26) PYSÖ 16-30 puan aralığında hesaplanmıştır ki bu değer aralığı meslek yaşamlarında orta düzeyde strese olduklarını göstermektedir. BAE ve BDE skorları sırasıyla 0-36 (ortalama, 8,4±8,9) ve 0-29 (ortalama, 7,6±5,9) arasında değişmekteydi. Ortalama puanlar üzerinden baktığımızda bu değerler katılımcıların anksiyete ve depresif semptomlar açısından psikopatolojik sınırın altında olduklarını işaret etmektedir. Acil uzmanlarında KEF-II skorlarının anlamlı olarak düşük bulunması (p=0,049) yaşantısal kaçınmanın sadece bu grupta düşük olduğunu göstermektedir. Ayrıca çocuk sahibi olanların KEF-II skorlarının düşük olduğu saptanmıştır (p=0,028).

Sonuç: Uzun süreli acilde çalışmak, strese başa çıkma yeteneğini artırırken, daha yüksek stres seviyelerine neden olmaktadır. Çalışmamızda çocuk sahibi olmanın yaşantısal kaçınmada azalma ve psikolojik esneklikte artma ile birlikte olduğu görülmüştür. Bununla birlikte, gruplar arasında PYSÖ, BAE ve BDE skorları açısından anlamlı bir fark bulunmamıştır.

Anahtar kelimeler: İş stresi, anksiyete, psikolojik esneklik, hekim, acil

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INTRODUCTION

Stress can be expressed as an emotional experience that one cannot overcome the stressor with his/her ability so as to find individual or social solutions to problems encountered during his/her life. Stress is a psychological condition that affects the individual's physiological and psychological well-being and negatively affects his/her behaviors, productivity and relationships with other people¹. A modest stress might be performance enhancing; while stress that is too intense to cope with might have negative effects on the individual and his/her work performance². Burnout and stress are widespread problems experienced by healthcare workers³. Exposure to stress factors in the workplace has been associated with a number of adverse physical and mental health problems⁴. Chronic job stress in emergency health care workers is associated with occupational dissatisfaction, physical fatigue, burnout and posttraumatic stress symptoms⁵⁻⁸.

Stress in critical situations that can be observed in patient care in emergency department workers is defined as situations in which emergency service personnel may produce extraordinary strong emotional reactions that may be encountered in many events effecting their professional skills at or after the scene⁹. For every operational person, stress in addition to affecting the individual's health, well-being and success in the job, may also reduce the quality of patient care even results in avoidance or cessation of work^{10,11}. Occupational dissatisfaction and burnout syndromes are more common among healthcare workers, especially among staff in health care departments where they work in direct contact with patients¹². For this reason, we included the emergency physicians and internal medicine physicians who were in contact with patient groups that had relatively higher expectations from treatment. The present study aimed to examine and compare the stress levels with psychological well-being of physicians working in Emergency Medicine (EM) and Internal Medicine (IM) Departments. In addition, the

factors affecting stress levels were assessed.

MATERIALS and METHODS

This study was approved by the Istanbul Medeniyet University Goztepe Training and Research Hospital Ethic Committee for Clinical Studies (22 March 2016, 2016/0067).

Participants

All the physicians working in Departments of both Emergency Medicine (EM) and Internal Medicine (IM) were contacted personally. Information sheets and consent forms were given to them individually. All face-to-face interviews were conducted in a quiet room to help filling in the questionnaires. All the residents and specialists accepted to participate in the study. The population of the study consisted of 39 physicians. Nine EM specialists, 10 EM residents were working in EM, and 10 IM specialists and 10 IM residents were working in IM.

Questionnaires

Sociodemographic data form: A semi-structured questionnaire was designed by the researchers considering the situations that might affect stress levels such as age, gender, marital status, number of children and factors that may affect working conditions such as number of night shifts, skipping meals, working environment status, hygienic conditions of the toilets and safety security.

Professional Life Stress Scale (PLSS) developed by David Fontana consists of 22 questions. It includes many different variables such as personality perception of others, optimistic life, individual and professional satisfaction, harmony with the professional condition, and so forth. The total score is 60 and is classified as follows: 0-15: Stress is not a problem in one's life; 16-30: Moderate stress which can be sensibly reduced; 31-45: Stress is obviously a problem and needs treatment; 46-60: stress is a significant problem and intervention is being required¹³.

Beck Anxiety Inventory (BAI): BAI is a 21-item, self-report scale and each item is rated on a 4-point scale between 0 and 3¹⁴. The validity and reliability study of the Turkish version was performed by Ulusoy et al.¹⁵ BAI scores indicate various degrees of severity as follows: 0-9 points no/minimal anxiety; 10-16 points, mild anxiety, 17-29 points, moderate anxiety, and 30-63 points, severe anxiety.

Beck Depression Inventory (BDI): The BDI is a 21-item, self-report scale which is widely used indicator of severity of depression with a sensitivity and specificity of 81% and 92%, respectively¹⁶. Each item rates symptom severity on a 4-point scale between 0 and 3. Total BDI scores vary between 0 and 63 and higher scores point to an increase in depressive mood. According to BDI scores, 0-13 indicates minimal depression, 14-19 indicates mild depression, 20-28 points indicates moderate depression, 29-63 indicates severe depression. The reliability and validity study of Turkish version was performed by Hisli¹⁷.

Acceptance and Action Questionnaire-II (AAQ-II): AAQ-II is a 7-item, self-report scale that has been developed for assessing the experiential avoidance and psychological inflexibility levels. The responses to items were scored from 1 (never true) to 7 (always true) points. Higher scores received from the scale show higher levels of psychological inflexibility, thus increase in experiential avoidance. The validity and reliability study of its Turkish version was performed by Yavuz et al.¹⁸.

Statistical analysis

Data analysis was performed by using the IBM SPSS Statistics for Windows version 25 (IBM Corp., Armonk, NY, USA). Descriptive values of the obtained data were given as percentages and quartiles for categorical variables and as mean and standard deviation for numerical variables. The agreement of the scale scores to the normal distribution was examined by Kolmogorov-Smirnov test. Since the scale scores did not show normal distribution, Mann-

Whitney U test or Kruskal-Wallis test were used for group comparisons. Results that were found to be significant according to Kruskal-Wallis test were examined by post-hoc Dunn test. The results were evaluated within confidence interval of 95% and at a level of statistical significance of $p < 0.05$.

RESULTS

A total of 39 physicians participated in the study. Thirty-nine physicians included in the analysis,

Table 1. Sociodemographic characteristics of the participants.

	Emergency Medicine Doctors	Internal Medicine Doctors	p
Characteristics	(n=19)	(n=20)	
Age, year*	33.2±6.8	32±6.2	0.604
Gender ^a			
Female	11 (57.9%)	11 (55%)	0.860
Male	8 (42.1%)	9 (45%)	
Marital status ^a			
Married	9 (47.4%)	10 (50%)	0.820
Single	10 (52.6%)	10 (50%)	
Number of child(ren) ^a			
No child	12 (63.2%)	13 (65%)	0.163
1 child	4 (21.1%)	6 (30%)	
≥2 children	3 (15.8%)	1 (5%)	
Number of night shifts*	8.7±3.6	6.8±4.2	<0.01
Distance between home and work ^a			
Close	19 (100%)	19 (95%)	0.106
Distant	0	1 (5%)	
Physical condition of working environment ^a			
Perfect	1 (5.2%)	2 (10%)	0.563
Sufficient	11 (57.9%)	8 (40%)	
Poor	7 (36.9%)	10 (50%)	
Safety & Security ^a			
Very safe	1 (5.2%)	2 (10%)	0.505
Sufficient	9 (47.4%)	7 (35%)	
Bad	9 (47.4%)	11 (55%)	
Condition of the toilets ^a			
Perfect	2 (10.5%)	1 (5%)	0.301
Sufficient	12 (63.2%)	8 (40%)	
Bad	5 (26.3%)	11 (55%)	
Skipping the meal time ^a			
Often	10 (52.6%)	10 (50%)	0.027
Sometimes	3 (15.8%)	8 (40%)	
Rarely	6 (31.6%)	2 (10%)	

^aCategorical variables were expressed as absolute values and percentages.

*Data are presented as mean±standard deviation, where appropriate.

were either from EM (n=19; 48.7%), or from IM (n=20; 51.3%). There were 17 (43.6%) males and 22 (56.4%) females with a mean age of 32.6 ± 6.8 years (range, 24-50 years). Considering the conditions of working environment and also socio demographic features there were no significant differences between two groups except number of night shifts and skipping the mealtime during work hours. While EM physicians had night shifts more frequently than IM physicians, by contrast IM physicians had skipped their mealtime more often than EM doctors. The sociodemographic characteristics and the factors that might affect the stress level of the participants are demonstrated in Table 1.

The PLSS scores of the participants ranged from 7 to 37 (mean 19.2 ± 6.9). While 11 (28.2%) participants had a score of 0-15 points which indicated that stress was not a problem in their life, 26 (66.7%) participants had a score of 16-30 points indicating a moderate range of stress in their professional lives. Only 2 (5.1%) physicians had

a PLSS score of more than 30 points indicating that stress was plainly problem and need for curative action was apparent. The BAI and BDI scores of the participants ranged from 0 to 36 (mean, 8.4 ± 8.9) and 0 to 29 (mean, 7.6 ± 5.9), respectively. AAQ-II scores, indicative of psychological inflexibility levels of the participants ranged from 7 to 39 (mean, 19.3 ± 6.9).

When the professions were compared in terms of scale scores, only AAQ-II scores were found significantly lower in emergency medicine specialists than the others ($p=0.049$). On the contrary, there were no differences between EM and IM groups. Besides, no significant differences had been found between the professions in terms of PLSS, BAI and BDI scores (Table 2,3).

When the genders and the marital statuses were compared in terms of scale scores, it was determined that there was no significant difference between the gender, marital statuses in all scale scores. When the status of having children was

Table 2. AAQ-II scores of the participants according to their positions in departments.

					Percentiles			
	Position	N	Mean	Std. Deviation	25	Median	75	p
Acceptance and Action	IM Specialists	10	17.4	8.0	11	14	23.5	0.049*
	IM Residents	10	20.5	8.2	16.75	18	22	
Questionnaire-II	EM Specialist	9	12.4	3.2	10	12	14.5	
	EM Resident	10	19.4	8.8	11.75	19	25.25	

IM: Internal Medicine, EM: Emergency Medicine

*There was significant statistical differences between EM Specialists and the other groups.

Table 3. The scores of the participants according to their departments.

					Percentiles			
	Department	N	Mean	SD	25	Median	75	p
Beck Anxiety Inventory	Internal Medicine	20	9.3	9.7	3	6.5	12.75	0.461
	Emergency Medicines	19	7.5	8.2	0	5	10	
Beck Depression Inventory	Internal Medicine	20	7.2	5.3	3.25	6	10.75	0.667
	Emergency Medicine	19	8.0	6.5	4	7	11	
Acceptance and Action Questionnaire-II	Internal Medicine	20	19.0	8.0	12.25	18	20.5	0.258
	Emergency Medicine	19	16.1	7.5	11	13	20	
Professional Life Stress Scale	Internal Medicine	20	19.3	6.5	15.25	19.5	23.75	0.813
	Emergency Medicine	19	19.3	7.4	14	16	24	

Table 4. Descriptive statistics of the scale scores according to the number of child.

	Number of child	N	Mean	Std. Deviation	Percentiles			p
					25	Median	75	
Beck Anxiety Inventory	Childless	25	10.4	10.0	3	7	18	0.246
	Single child	10	5.1	5.4	1.5	4.5	6	
	≥2 children	4	4.25	4.0	.5	4	8.25	
Beck Depression Inventory	Childless	25	8.9	6.4	5	7	12	0.152
	Single child	10	5.5	4.2	1.75	5	8.75	
	≥2 children	4	4	4.1	.25	4	7.75	
Acceptance and Action Questionnaire-II	Childless	25	19.96	8.5	13.5	18	27	0.028
	Single child	10	14.1	3.8	11	12.5	18.25	
	≥2 children	4	11.25	1.7	9.5	11.5	12.75	
Professional Life Stress Scale	Childless	25	21.68	6.5	16	22	26	0.019
	Single child	10	15.8	5.7	11.75	16	21.5	
	≥2 children	4	13	4.2	8.75	13.5	16.75	

compared in terms of scale scores, the AAQ-II score of those with more than 2 children was significantly lower than those with no children ($p=0.028$). In addition, the PLSS scores of those with more than 2 children or one child were significantly lower than those without children ($p=0.019$). No significant difference was found between the number of children in terms of other scale scores (Table 4).

The relationship between scale scores and age, weekly working hours and monthly night shifts is

Table 5. Relation of the scale scores with each other and with age, weekly working hours, and number of monthly night shifts.

		BDI	PLSS	Age	Weekly Working Hours	Number of Night Shifts
BAI	r	.561	.608	-.280	.140	.105
	P	.000	.000	.084	.395	.524
	N	39	39	39	39	39
BDI	r		.754	-.283	.064	.215
	P		.000	.081	.698	.190
	N		39	39	39	39
AAQ-II	r		.532	-.447	.069	.047
	P		.000	.004	.674	.776
	N		39	39	39	39
PLSS	r			-.314	.002	.151
	P			.050	.989	.360
	N			39	39	39

BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory; AAQ-II: Acceptance and Action Questionnaire-II; PLSS: Professional Life Stress Scale

given in Table 5. When Table 5 is examined, it is seen that the significant relationships are stained in dark color and there is a significant negative relationship between age, AAQ-II and PLSS scores (ρ : -0.447; $p=0.004$ and ρ : -0.314; $p=0.05$, respectively).

DISCUSSION

Participating physicians in both emergency and internal departments had a moderate level of stress according to PLSS scores. According to PLSS scores, stress did not cause a problem in the lives of 28.2% of the participants, whereas stress was seen as a moderate problem in the lives of 66.7% of the participants. For only 5% of the participants, stress is obviously a problem and intervention is required in our study. In a recent study performed using PLSS scores, non-problematic (37.1%), moderate (52.1%) and severe (10%) levels of stress were revealed in health care workers¹⁹. In another study conducted with nurses using PLSS scores, these rates were reported as 46%, 51% and 3% consecutively²⁰. The fact that the participants exhibiting moderate stress in our study was higher than the other studies can be explained by two factors: One of these factors may be the small number of participants as stated in the limitations of the study. Another factor may be that the participants assessed in our study were physicians

unlike other studies. Because, as shown in the literature, burnout and perceived stress are more prevalent in physicians working alone in decision-making position than in nurses working in groups not involved in decision-making process^{19,21}.

Especially AAQ-II scores were significantly lower in emergency physicians which indicates they had a lower level of experiential avoidance (EA) and higher level of psychological flexibility (PF) than the others. EA has been broadly defined as attempts to avoid thoughts, feelings, memories, physical sensations, and other internal experience even though they will harm the psychological well-being of the individual in the long run. Low level of EA shows that these participants are less engaged with negative internal processes than the individuals in the high level of EA group. It has been shown that AAQ-II which is the most important measurement tool of PF predicts a wide range of quality of life outcomes (e.g., depression, anxiety, general mental health, job satisfaction, future work absence, future job performance and perceived stress). In the light of this finding, we would expect to see a similar difference in professional stress levels between the two groups but we could not find a significant difference between the two groups in the terms of work-related stress. One explanation of this result may be the small number of participants in the study. Another factor may be the measurement properties of AAQ-II. Similar to our findings, in an interventional study conducted with professionals working in social organizations, positive improvement in stress and PF levels after intervention could not be demonstrated based on AAQ-II scale scores²². Although AAQ-II is widely used as a scale that reflects PF alone, some studies have claimed that AAQ-II failed to foresee PF, and other processes predicting PF should also be evaluated^{23,24}. We believe that the results of our study will contribute to the ongoing discussions on AAQ-II.

However, in this study, there were no difference in BAI, BDI and PLSS scores between residents

and physicians working in EM and IM. Professional knowledge and skills of residents are incomplete and job-control is not enough as the required expertise period has not yet been completed. In this sense, residents need assistance that will guide and support them to develop and increase their professionalism. Previous studies have pointed that seniority, working with consultants, and feeling appreciated in work place are factors in resident's satisfaction or burnout status^{25,26}. EM physicians who already might have suffered from some degree of sleep deprivation, experience stress from patients who require excessive focus and rapid decision-making in both critical and noncritical conditions^{25,27}.

When PLSS levels were compared by gender; it was noticed that male/female ratio was equal to 1 in moderate stress group. Accordingly, women and men are equally stressed in terms of professional difficulties. Although the number of participants was lesser and not statistically significant, it was noteworthy that apparent stress group consisted of only 2 women. When AAQ-II scores of emergency physicians were significantly lower due to their different tasks they assumed, it was found that emergency physicians had lower levels of experiential avoidance and higher level of PF levels compared to internist. Another interesting result was detected in the relationship between PLSS and PF. It was shown that PF scores were higher and PLSS scores were lower in study participants with children. Similar results are emphasized in the literature on the relationship between professional burnout and having children²⁸⁻³⁰. Considering that PLSS and occupational burnout are similar phenomena, it can be said that the results of our study are consistent with the literature.

In our study, it was shown that there was a positive linear relationship between depression and anxiety levels and PLSS. Similarly, a positive linear correlation was found between the increase in AAQ scores, which is one of the strong predictors

of PF, and PLSS. The PLSS scores of the group with higher AAQ-II scores, i.e. lower PF, reached 20.8, indicating a moderate level of stress in a hard working person, and attempts to reduce stress according to the scale were found to exert beneficial effects. The mean PLSS score was 14.1 in the group with AAQ-II scores were below the average, which was interpreted as the level of stress that did not cause a problem in professional life. Correlation analysis and independent samples T-test demonstrated a linear correlation between PF and PLSS. Although there are few studies examining the relationship between PF and stress brought about by business life, it has been shown that approaches that increase PF level decrease the stress level in the work environment as revealed in interventional studies^{31,32}.

The results of regression analysis show that the increase in depression and anxiety levels aggravates professional life stress. However, in the analysis, it is seen that AAQ-II, which is one of the best expressions of PF, is not a predictive factor in PLSS. In our study, PF was evaluated with AAQ-II scale only. Studies with other scales evaluating other parameters of PF, such as contact values, self-perception, and AAQ-II, which mostly indicate experiential avoidance, will reveal the relationship between PF and PLSS³³.

CONCLUSION

This study shows that emergency department employees are less engaged with their negative internal experiences than internal medicine polyclinic employees. We can say that working in EM departments for longer periods is associated with higher stress levels increasing the ability to cope with stress. Another outcome of study is that having children is related with low AAQ-II scores which indicate higher levels of PF, hence decrease in experiential avoidance. In addition, further studies with larger groups will contribute to clarifying the relationship between PF and PLSS.

LIMITATIONS

The findings of this study have to be considered in the light of some limitations. One of the major limitation is the sample size of the study; as we mentioned in the discussion section, the small number of participants affected some statistical results. Another limitation is the failure to focus on the professional experience (years) of the participants. We didn't evaluate the participants' stress based on the years of working experience. Because it is known that the severity of professional burnout and perceived stress decrease with increased working experience. We believe that the further studies including professional experience and other processes of PF in greater number of participants will lead us to new results.

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