

## ORIGINAL ARTICLE

# Post-traumatic Stress, Work Performance and Employee Satisfaction Among Health Care Workers during the COVID-19 Pandemic

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## ABSTRACT

**Aim:** This cross-sectional study was carried out to investigate post-traumatic stress, work performance and employee satisfaction of healthcare workers (HCWs) (nurses and physicians) during the COVID-19 pandemic.

**Methods:** A face-to-face questionnaire was administered to 169 HCWs working in inpatient clinics of two public hospitals in İstanbul, Türkiye. The questionnaire comprised four parts, including a socio-demographic form, the Impact of Event Scale-Revised (IES-R), the Employee Performance Scale and the Employee Satisfaction Scale (ESS).

**Results:** IES-R scores showed that 14.2% and 47.9% of participants experienced mild and severe post-traumatic stress (PTSD), respectively. IES-R total and all sub-dimensions scores (intrusion, avoidance, and hyperarousal) were significantly higher in participants who worked  $\geq 48$  hours a week and in those who were exposed to verbal/physical violence. EPS scores showed weak inverse correlations with the overall IES-R score ( $r = -.300$ ;  $p = .000$ ) and with all sub-dimension scores, while ESS scores ( $r = .528$ ;  $p = .000$ ) showed moderate correlations with the overall EPS score and strong correlations with all sub-dimension scores.

**Conclusions:** The remarkably higher incidence of PTSD showed a close relationship with both satisfaction and performance levels among HCWs. As PTSD has long-term effects on the lives of HCWs as well as on quality of life, preventive interventions directed to the sources of PTSD in the work environment are of utmost importance and should encompass attempts to promote both satisfaction and work performance, and to establish safe working conditions.

**Keywords:** Post-traumatic stress, work performance, employee satisfaction, health care worker, COVID-19.

## INTRODUCTION

Considering the parameters of healthy life, physical and psychological quality of life of people improves due to massage and different recovery methods after exercise. However, due to different reasons, negative situations occur in the quality of life of people<sup>1-3</sup>. For example; The COVID-19 pandemic has had devastating effects on our lives, mental health, and lifestyle. The psychological symptoms from depression to even suicide and behavioral reactions of people have culminated in all folks of life. This is particularly clear for healthcare professionals who have been fighting against COVID-19 in the frontline to save people's lives<sup>4</sup>.

Alarmingly, there have been growing numbers of reports on burnout, stress and other mental disorders of healthcare professionals as pointed out by the World Health Organization, resulting from "strenuous workload, lack of personal protective equipment, quarantine and self-isolation,

lack of incentives and insurance, violence and harassment, lack of psychological support and lack of COVID-19 vaccination"<sup>5</sup>. Sheraton et al. conducted a meta-analysis on the psychological effects of the COVID-19 pandemic on healthcare workers, which included studies on fears, stress, depression, anxiety, post-traumatic stress disorder (PTSD) and the risk of developing physical symptoms such as headache, lethargy, and insomnia<sup>6-13</sup>.

Post-traumatic stress disorder (PTSD) following pandemics has been a crucial public health problem among health care workers (HCWs)<sup>14</sup>. Andreasen defined post-traumatic stress as a condition induced by a cluster of stressors that "can induce a final common pathway that is expressed by a variety of autonomic/physiologic, cognitive, and emotional symptoms that occur in response to a severe stressor"<sup>15</sup>. More than four in every 10 South African Nurses were found to have PTSD during the second wave of the COVID-19 pandemic<sup>4</sup>.

According to a meta-analysis carried out by Yuan et al., the overall prevalence of PTSD during the pandemic was 22.6%, with HCWs having the highest prevalence at 26.9%, followed by COVID-19 patients (23.8%). Unless PTSD is treated, it would inevitably cause a detrimental impact on individuals' social lives, work lives and health. Therefore, early detection of PTSD among HCWs is of critical importance to the long-term attempts to improve their mental health and recovery<sup>14</sup>.

This study aims to investigate post-traumatic stress, work performance and employee satisfaction among health care professionals (nurses and physicians) working in inpatient clinics of two state hospitals during the period from January to March 2022.

## MATERIAL AND METHODS

**Study design and participants:** The current study was designed as a cross-sectional study in two public hospitals in İstanbul, Türkiye. A 45-item questionnaire was administered to 169 HCWs of inpatient clinics, including surgical, internal medicine and other wards. Using the confidence interval formula, the minimum sample size was calculated as 150, with a margin of error 8 %, confidence level 95%, and response distribution 50%. The questionnaire was self-administered by using convenience sampling.

**Measurements:** The questionnaire comprised four parts, including a socio-demographic form, the Impact of Event Scale-Revised (IES-R), the Employee Performance Scale (EPS) and the Employee Satisfaction Scale (ESS). The 16-item socio-demographic form included basic sociodemographic characteristics such as age, gender, marital status, education level, income, working years, the prevalence of sounding a code white for violent attitudes and daily patient figures.

The Impact of Event Scale-Revised (IES-R) was developed by Weiss and Marmar (1997) based on the diagnostic criteria of PTSD outlined in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). It was adapted to the Turkish language by Çorapçıoğlu et.al. (2006). The IES-R is a 22-item self-report measure that assesses subjective distress under three sub-scales (intrusion, hyperarousal and avoidance),

caused by traumatic events. The cut-off points of IES-R are 24 and 33 for mild and severe PTSD, respectively<sup>16</sup>.

The Employees' Performance Scale (EPS) was developed by Rahman and Bullock (2004), adapted by Şehitoğlu and Zehir to the Turkish language. This scale assesses 7 items on a five-point Likert scale<sup>17,18</sup>.

The Employee Satisfaction Scale (ESS) was developed by Kantaş Yılmaz et al., aiming at measuring satisfaction levels among healthcare professionals. It includes 29 items in 7 sub-dimensions, including employee rights/relations with senior management, work environment, job security, belonging, social opportunities, cleanliness/hygiene and meal provision<sup>19</sup>.

**Data Analysis:** Data were analyzed using SPSS version for Windows 22.00 software. Descriptive statistics were used for the number and frequency of categories. The independent two-sample T-test was used for comparison of two groups, while the one-way ANOVA analysis was used for comparison across groups. The non-parametric Kruskal-Wallis H-test was used for three or more groups, when there was an insufficient number of samples. Normally distributed variables were analyzed using the Pearson correlation coefficient and non-normally distributed variables with the Spearman correlation analysis.

**RESULTS**

Demographic characteristics of 169 participants are summarized in Table 1, with a female predominance (60.4%) and a mean age of 29.7±5.9 years. The majority of the participants were nurses (79%), single (58%), had an undergraduate degree (53.3%) and worked 48 hours a week on average (81.3%).

**Sample Characteristics**

Table 1: Demographic characteristics of the participants (n=169)

Variable	Group	n (%)
Gender	Female	102 (60.4)
	Male	67 (39.6)
Marital status	Married	71 (42)
	Single	98 (58)
Having children	Yes	48 (28.4)
	No	121 (71.6)
Weekly working hours	<48 hours	31 (18.3)
	≥48 hours	138 (81.7)
Code white incidence	Yes	44 (26)
	No	125 (74)
Exposure to verbal/physical violence	Yes	64 (38)
	No	105 (62)
Increased violent incidence during the pandemic	Yes	107 (63.3)
	No	62 (36.7)
Increased respect for healthcare jobs during the pandemic	Yes	56 (33)
	No	113 (67)
Surveyed clinics	Surgery	60 (35.5)
	Internal medicine	79 (46.7)
	Other clinics	30 (17.8)
Occupation	Physicians	16 (9.5)
	Nurse	133 (78.7)
	Healthcare assistants	20 (11.8)
Education status	High school	39 (23.1)
	Vocational school	26 (15.4)
	Undergraduate	90 (53.3)
	Graduate	14 (8.3)
Work duration in clinics	0-1 year	39 (23.1)
	1-5 years	78 (46.2)
	6-10 years	40 (23.7)
	≥11 years	12 (7.1)
Total occupational duration	0-1 year	27 (16)
	1-5 years	63 (49.1)
	6-10 years	41 (24.3)
	≥11 years	18 (10.7)
Daily patient number per HCW	1-6 patients	20 (11.8)
	7-9 patients	76 (45)
	≥10 patients	73 (43.2)

Table 2 presents descriptive statistics for normality tests and reliability analysis. Kurtosis and skewness values were both between -2 and +2, validating the appropriateness of parametric tests. The reliability thresholds of all scales were sufficient as seen in Table 2. The mean scores were 32.2±20.0 on the IES-R, 99.5±21.2 on the ESS and 28.0±5.7 on the EPS.

Table 2: Descriptive Statistics and Normality Tests for Statistical Data and Reliability Analysis (n=169)

Scale/Variable	Mean (Sd)	Kolmogorov Smirnov (p)	Skewness	Kurtosis	Cronbach's alpha
Employees' Performance Scale	28.0 (5.7)	.000	-.393	-.671	.925
Impact of Event Scale-Revised (IES-R)	32.2 (20.0)	.200	.170	-.784	.968
IES-R - Intrusion	12.69 (7.97)	.001	.038	-.999	.929
IES-R - Avoidance	10.59 (11)	.023	.220	-.599	.907
IES-R - Hyperarousal	8.91 (9.92)	.000	.274	-.800	.890
Employee Satisfaction Scale	99.5 (21.2)	.200	-.363	.171	.959
Employee rights/relations with senior management	41.50 (9.79)	.016	-.517	.209	.935
Provision of meals	20.91 (4.71)	.034	-.503	.610	.874
Cleaning/hygiene	10.33 (2.86)	.000	-.317	-.347	.877
Work environment	6.86 (1.94)	.000	-.204	-.269	.753
Belonging	7.11 (1.89)	.000	-.198	-.432	.860
Social opportunities	6.63 (2.27)	.000	-.297	-.549	.877
Job security	6.14 (2.18)	.000	.006	-.696	.711
Age (years)	29.71 (5.86)	.000	1.018	.694	-

Based on the cut-off points of IES-R of 24 and 33 for mild and severe PTSD, respectively, 14.2% of the participants experienced mild, 47.9% of participants experienced more severe PTSD (Table 3).

Table 3: Post-traumatic stress disorder status

Status	n	%
None	64	37.9
Mild	24	14.2
Severe	81	47.9
Total score	169	100.0

The impacts of the variables on IES-R scores are summarized in Table 4. Understandably, IES-R total and all sub-dimensions scores (intrusion, avoidance, and hyperarousal) were significantly higher in participants who worked ≥48 hours a week and in those who were exposed to verbal/physical violence.

Table 5 summarizes satisfaction levels of the participants on the ESS Scale. Overall scores were significantly higher in participants who did not sound a code white for violence, in those who were not subjected to verbal/physical violence and in those

who worked at hospital clinics other than surgery. Similar associations were also found in the sub-dimensions of employee rights/relations with senior management, work environment satisfaction and belonging satisfaction.

The impacts of the variables on work performance are summarized in Table 6. Participants working <48 hours a week,

those who did not sound code white and those who were not subjected to verbal/physical violence had higher overall work performance scores. In addition, the scores were higher among physicians, those having a graduate degree and those having a 6-10 year duration of employment.

Table 4: The impacts of the parameters on the IES-R (Supplementary Material)

Variables	Overall				Intrusion				Avoidance				Hyperarousal				
	$\bar{X}$	SS	Test	p	$\bar{X}$	SS	Test	p	$\bar{X}$	SS	Test	p	$\bar{X}$	SS	Test	p	
Gender																	
Female	32,22	19,36	t:0,24	,981	12,70	7,82	t:0,27	,978	10,65	6,55	t:1,153	,878	8,86	5,67	t:-,131	,896	
Male	32,14	21,14			12,67	8,25			10,49	7,19			8,98	6,34			
Marital status																	
Married	32,18	20,12	t:0,07	,995	12,59	8,01	t:-,139	,889	10,69	6,86	t:1,160	,873	8,90	5,97	t:-,018	,985	
Single	32,20	20,05			12,76	7,98			10,52	6,77			8,91	5,92			
Weekly working hours																	
<48 hours	23,38	23,07	t:-2,763	,006	9,03	8,87	t:-2,890	,004	7,41	7,71	t:-2,941	,004	6,93	6,81	t:-2,073	,040	
≥48 hours	34,17	18,80			13,51	7,54			11,30	6,38			9,35	5,64			
Code white incidence																	
Yes	36,25	15,83	t:1,568	,119	14,52	6,48	t:2,010	,047	11,59	5,06	t:1,345	,182	10,13	5,11	t:1,601	,111	
No	30,76	21,17			12,04	8,36			10,24	7,29			8,48	6,15			
Exposure to verbal/physical violence																	
Yes	36,78	18,31	t:2,355	,020	14,50	7,26	t:2,331	,021	11,95	6,17	t:2,053	,042	10,32	5,62	t:2,461	,015	
No	29,40	20,58			11,59	8,21			9,76	7,04			8,04	5,97			
Increased violent incidence during the pandemic																	
Yes	33,42	20,94	t:1,053	,294	13,14	8,27	t:0,979	,329	11,12	6,99	t:1,335	,184	9,15	6,26	t:0,712	,477	
No	30,06	18,30			11,90	7,42			9,67	6,37			8,48	5,32			
Increased respect for healthcare jobs during the pandemic																	
Yes	34,48	19,64	t:1,045	,297	13,60	7,98	t:1,050	,295	11,32	6,39	t:0,983	,327	9,55	5,74	t:0,991	,323	
No	31,06	20,20			12,23	7,96			10,23	6,98			8,59	6,01			
Surveyed clinics																	
Surgeon	31,63	18,31	F:0,099	,906	12,63	7,63	F:0,080	,923	10,06	5,807	F:0,378	,685	8,93	5,44	F:0,011	,989	
Internal Medicine	32,92	17,23			12,91	7,00			11,06	6,03			8,94	5,06			
Other clinics	31,40	28,98			12,23	10,84			10,40	9,98			8,76	8,62			
Occupation																	
Physicians	26,93	23,06	H:2,997	,224	10,00	8,74	H:2,810	,245	10,00	7,89	H:2,098	,350	6,93	6,90	H:2,996	,224	
Nurse	33,03	18,29			13,11	7,45			10,79	6,17			9,12	5,38			
Healthcare assistants	30,85	27,77			12,05	10,39			9,70	9,63			9,10	8,24			
Education status																	
High School	26,28	18,31	H:11,897	,008	10,61	7,60	H:10,832	,013	8,07	5,84	H:10,685	,014	7,58	5,40	H:11,037	,012	
Vocational School	35,76	26,28			13,73	10,10			12,03	8,91			10,00	7,68			
Undergraduate	35,53	18,16			14,05	7,21			11,70	6,32			9,77	5,46			
Graduate	20,57	16,20			7,78	6,76			7,78	5,43			5,00	4,65			
Working duration in clinics																	
0-1 year	31,79	19,63	H:2,202	,977	13,12	7,60	H:2,263	,967	9,82	6,73	H:0,630	,890	8,84	5,76	H:0,171	,982	
1-5 years	32,53	20,01			12,67	8,01			10,85	6,64			9,00	5,97			
6-10 years	32,17	20,83			12,45	8,36			10,97	7,20			8,75	6,13			
≥11 years	31,33	21,16			12,16	8,51			10,08	7,20			9,08	6,22			
Total occupational duration																	
0-1 year	35,00	18,80	H:6,132	,105	14,18	7,43	H:7,207	,066	11,14	6,41	H:3,754	,289	9,66	5,42	H:5,171	,160	
1-5 years	34,45	19,98			13,67	7,83			11,19	6,79			9,59	6,04			
6-10 years	27,80	18,71			10,73	7,56			9,65	6,74			7,41	5,27			
≥11 years	27,55	23,77			10,38	9,46			9,11	7,55			8,05	7,17			
Daily patient number per HCW																	
1-6 patients	31,75	18,59	H:1,856	,395	12,75	7,63	H:2,265	,322	10,10	5,47	H:0,877	,645	8,90	5,98	H:1,678	,432	
7-9 patients	34,50	21,04			13,72	8,17			11,21	7,33			9,56	6,09			
≥10 patients	29,91	19,29			11,60	7,80			10,08	6,56			8,23	5,73			

\*p<0,05 \*t= T-Test statistic \*F= F statistic \*H= Kruskal Wallis-H statistic; IES-R: Impact of Event Scale-Revised

Table 5: The impacts of the parameters on the Employee Satisfaction Scale (Supplementary Material)

Variables	Employee Satisfaction Scale				Employee rights/relations with senior management				Work environment				Belonging				Job security				
	$\bar{X}$	SS	Test	p	$\bar{X}$	SS	Test	p	$\bar{X}$	SS	Test	p	$\bar{X}$	SS	Test	p	$\bar{X}$	SS	Test	p	
Gender																					
Female	97,51	21,20	t:-1,520	,130	40,14	10,07	t:-2,248	,026	6,67	1,95	t:-1,552	,123	7,14	1,78	t:0,242	,809	6,11	2,13	t:-,222	,825	
Male	102,56	20,98			43,56	9,01			7,14	1,916			7,07	2,06			6,19	2,27			
Marital Status																					
Married	98,11	23,23	t:-,205	,838	40,84	10,76	t:-,734	,464	6,81	2,03	t:-,267	,790	7,00	2,08	t:-,689	,492	5,78	2,32	t:-1,833	,069	
Single	100,54	19,65			41,97	9,04			6,89	1,89			7,20	1,75			6,40	2,04			
Weekly working hours																					
<48 hours	102,74	17,94	t:0,936	,351	43,77	8,24	t:1,434	,153	6,96	1,30	t:0,434	,665	7,06	2,11	t:-,174	,862	5,87	2,04	t:-,780	,436	

≥48 hours	98,7 9	21,8 5			40,9 9	10,0 6			6,8 4	2,06			7,1 3	1,85			6,2 1	2,21		
Code White																				
Yes	91,4 7	20,9 1	t:- 2,99 5	,00 3	37,8 4	9,98	t:-2,950	,00 4	6,3 8	1,78	t:- 1,90 8	,05 8	6,7 9	1,77	t:- 1,314	,19 0	6,0 4	2,17	t:- ,361	,719
No	102, 35	20,6 4			42,7 9	9,42			7,0 3	1,97			7,2 3	1,93			6,1 8	2,19		
Verbal/Physical Violence																				
Yes	91,2 1	22,0 1	t:- 4,16 3	,00 0	37,8 1	10,1 9	t:-3,992	,00 0	6,3 9	1,94	t:- 2,50 8	,01 3	6,6 5	1,85	t:- 2,509	,01 3	5,9 6	2,06	t:- ,832	,407
No	104, 58	19,0 8			43,7 5	8,85			7,1 5	1,90			7,4 0	1,87			6,2 5	2,25		
Increased violent incidence during the pandemic																				
Yes	101, 39	20,3 3	t:1,5 14	,13 2	42,2 8	9,32	t:1,376	,17 1	6,9 8	1,90	t:1,0 31	,30 4	7,0 9	1,89	t:- ,223	,82 4	6,3 0	2,02	t:1,2 57	,210
No	96,2 9	22,4 1			40,1 4	10,4 8			6,6 6	2,01			7,1 6	1,92			5,8 7	2,42		
Increased respect for healthcare jobs during the pandemic																				
Yes	99,6 6	20,1 5	t:,06 0	,95 2	41,2 5	8,67	t:-,236	,81 4	7,0 5	1,79	t:,89 2	,37 4	7,0 7	1,82	t:- ,225	,82 2	6,6 6	1,77	t:2,1 72	,031
No	99,4 5	21,7 8			41,6 2	10,3 3			6,7 6	2,01			7,1 4	1,94			5,8 9	2,32		
Surveyed clinics																				
Surgeon	98,2 1	22,6 8	F:6,7 24	,00 2	41,2 0	9,85	F:3,602	,02 9	6,5 8	2,14	F:5,4 97	,00 5	7,1 3	1,94	F:5,5 40	,00 5	6,2 3	2,17	F:2,9 06	,057
Internal Medicine	95,8 6	18,9 8			40,1 5	9,65			6,6 8	1,69			6,7 4	1,72			5,7 9	1,95		
Other clinics	111, 76	19,8 1			45,6 6	9,13			7,9 0	1,84			8,0 6	1,96			6,9 0	2,60		
Occupation																				
Physicians	106, 93	21,9 7	H:10, 511	,00 5	43,3 7	9,87	H:5,28 5	,07 1	7,5 0	2,12	H:5, 488	,06 4	6,8 7	2,36	H:5,5 56	,06 2	7,0 6	1,94	H:4, 388	,111
Nurse	97,2 7	20,4 6			40,9 0	9,67			6,6 9	1,88			6,9 9	1,80			5,9 4	2,07		
Healthcare assistants	108, 50	22,7 2			44,0 0	10,4 0			7,5 0	2,06			8,1 5	1,89			6,7 5	2,82		
Education status																				
High School	94,3 0	22,8 0	H:7,5 44	,05 6	38,9 7	10,1 9	H:7,05 5	,07 0	6,6 6	1,97	H:1, 721	,63 2	7,0 7	2,05	H:1,15 8	,98 4	6,0 0	2,56	H:3, 653	,302
Vocational School	105, 84	21,4 0			44,9 6	9,32			7,0 3	2,32			7,3 0	1,82			6,5 3	2,19		
Undergraduate	99,1 0	19,8 3			41,4 4	9,49			6,8 4	1,80			7,1 3	1,80			5,9 5	1,99		
Graduate	105, 00	22,8 1			42,5 0	10,2 9			7,2 1	2,11			6,7 8	2,32			7,0 7	2,05		
Working duration in clinics																				
0-1 year	104, 41	20,2 4	H:2,3 41	,50 5	44,0 0	9,06	H:2,76 9	,42 9	7,5 3	1,77	H:6, 131	,10 5	7,1 0	1,95	H:5,3 9	,91 0	6,7 9	2,24	H:4, 018	,259
1-5 years	96,6 5	22,0 9			40,3 5	10,4 7			6,6 5	1,87			7,0 6	1,73			5,8 2	2,08		
6-10 years	101, 42	18,4 7			41,9 5	9,04			6,8 2	1,90			7,2 0	2,05			6,1 5	2,21		
≥11 years	95,9 1	25,5 0			39,3 3	9,15			6,1 6	2,62			7,2 5	2,41			6,1 6	2,32		
Total occupational duration																				
0-1 year	98,3 3	18,8 0	H:6,9 32	,07 4	41,5 5	8,53	H:3,51 0	,31 9	7,2 2	1,71	H:3, 370	,33 8	6,5 5	1,80	H:6,3 93	,09 4	6,0 7	2,14	H:2, 549	,466
1-5 years	96,5 9	21,7 5			40,4 9	10,0 0			6,6 3	1,96			7,0 3	1,68			5,9 8	2,14		
6-10 years	105, 09	20,1 6			43,5 1	10,2 4			7,1 7	1,85			7,4 8	2,14			6,1 4	2,16		
≥11 years	102, 11	23,1 1			41,5 0	9,55			6,6 6	2,32			7,5 0	2,25			7,0 0	2,44		
Daily patient number per HCW																				
1-6 patients	104, 60	14,4 3	H:3,6 94	,15 8	44,2 5	6,33	H:2,73 8	,25 4	7,2 5	1,68	H:4, 118	,12 8	7,3 5	1,56	H:3,0 64	,21 6	6,8 0	1,54	H:4, 889	,087
7 - 9 patients	101, 85	19,6 9			42,3 4	9,28			7,0 9	1,88			7,3 4	1,85			6,2 8	2,09		
≥10 patients	95,6 9	23,7 0			39,8 7	10,8 5			6,5 2	2,04			6,8 2	2,00			5,8 2	2,38		

\*p<0,05 \*t= T-Test istatistigi \*F= F istatistigi \*H= Kruskal Wallis-H istatistigi

Table 6: The impacts of the parameters on the Employees' Performance Scale (Supplementary Material)

Variables	Performance			
	$\bar{X}$	SS	Test	p
Gender				
Female	27,58	5,89	t-1,064	,289
Male	28,53	5,30		

Marital status				
Married	27,85	5,98	t-,205	,838
Single	28,04	5,46		
Weekly working hours				
≤48 hours	30,12	6,25	t2,383	,018
≥48 hours	27,47	5,44		
Code white incidence				
Yes	24,50	6,02	t-5,040	,000
No	29,18	5,02		
Exposure to verbal/physical violence				
Yes	25,79	5,65	t-4,052	,000
No	29,28	5,28		
Increased violent incidence during the pandemic				
Yes	28,28	5,80	t,979	,329
No	27,40	5,44		
Increased respect for healthcare jobs during the pandemic				
Yes	27,07	5,31	t-1,445	,150
No	28,40	5,81		
Surveyed clinics				
Surgeon	26,80	5,16	F:14,598	,000
Internal Medicine	27,06	6,02		
Other (mixed clinics)	32,66	2,56		
Occupation				
Physicians	32,25	3,69	H:24,775	,000
Nurse	26,84	5,64		
Healthcare assistants	31,95	3,39		
Education status				
High School	27,97	5,90	H:18,146	,000
Vocational School	30,19	4,99		
Undergraduate	26,63	5,52		
Graduate	32,35	3,71		
Working duration in clinics				
0-1 year	28,33	4,89	H:2,258	,521
1-5 years	27,42	5,43		
6-10 years	28,90	6,25		
≥11 years	27,16	7,56		
Total occupational duration				
0-1 year	26,70	4,21	H:18,255	,000
1-5 years	26,69	5,76		
6-10 years	30,56	5,06		
≥11 years	29,77	6,32		
Daily patient number per HCW				
1-6 patients	27,50	5,91	H-,548	,760
7 - 9 patients	28,38	5,30		
≥10 patients	27,65	6,01		

\*p<0,05 \*t= T-Test istatistiği \*F= F istatistiği \*H= Kruskal Wallis-H istatistiği

Table 7: Correlation analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Employees' Performance Scale	1													
IES-R	.169	1												
Intrusion	-.322**	.980**	1											
Avoidance	-.245**	.953**	.891**	1										
Hyperarousal	-.301**	.968**	.944**	.874**	1									
Employee Satisfaction Scale	.528**	-.096	-.099	-.114	-.061	1								
Employee rights/relations with senior management	.474**	-.144	-.151*	-.157*	-.103	.907**	1							
Provision of meals	.443**	-.043	-.049	-.056	-.016	.877**	.719**	1						
Cleaning/hygiene	.437**	-.049	-.042	-.085	-.012	.864**	.696**	.771**	1					
Work environment	.442**	-.036	-.027	-.053	-.024	.757**	.546**	.684**	.768**	1				
Belonging	.403**	-.084	-.076	-.106	-.059	.669**	.465**	.540**	.573**	.615**	1			
Social opportunities	.506**	-.115	-.111	-.123	-.100	.770**	.598**	.594**	.650**	.566**	.581**	1		
Job security	.195*	.094	.085	.094	.096	.559**	.342**	.429**	.432**	.401**	.465**	.611**	1	

	169	169	169	169	169	169	169	169	169	169	169	169	169	169
Age (years)	168*	-.089	-.105	-.066	-.084	118	.082	188*	.063	116	138	054	013	1
	029	250	176	395	276	126	292	015	413	135	074	482	865	
	169	169	169	169	169	169	169	169	169	169	169	169	169	169

\* p<0,05 \*\*p<0,01; IES-R: Impact of Event Scale-Revised.

Table 7 shows the correlations between the variables analyzed in the current study. Scores on the EPS showed weak inverse correlations with the overall IES-R scores (r=-.300; p=.000) and with all sub-dimension scores.

Scores on ESS (r=.528; p=.000), with all sub-dimension scores, were in moderate correlations with the EPS scores. Similarly, ESS scores were strongly correlated with all sub-dimension scores (Table 7).

**DISCUSSION**

The current study investigated post-traumatic stress, work performance and employee satisfaction among HCWs working in inpatient clinics of two public hospitals amidst the pandemic.

**Post-traumatic Stress Levels amidst the pandemic:** Our findings showed that a total of 62.1% of the participants experienced varying degree of PTSD (14.2% mild, 47.9% severe PTSD), as shown by the IES-R scores, which is in striking contrast with those previously reported by Yuan et al. as 26.9% for healthcare workers and by Adriaenssens as 8.5% for emergency nurses<sup>14, 20</sup>. The remarkably higher incidence of PTSD may be attributed to more strenuous working conditions (working long hours and exposure to verbal/physical violence) in our facilities as well as to the small sample size. d’Ettorre et al. also pointed out additional predisposing factors to PTSD, including increased years of service and older age<sup>21</sup>.

Although Asaoka found higher PTSD scores among female medical rescue workers as compared with male counterparts, we found no gender difference in PTSD scores<sup>22, 25,26,27</sup>.

**Satisfaction Levels amidst the pandemic:** As expected, ESS scores showed moderate correlations with the overall EPS score and sub-dimension scores, which emphasizes the fact that the satisfaction of employees may be achieved only through provision of a better work environment, including respected employee rights, supportive relations with hospital management, high job security and heightened feeling of belonging, etc. A similar relationship was also pointed out by other investigators<sup>23, 24,28,29,30,31</sup>

Apparently, HCWs face many unfavorable conditions while practicing their jobs, such as exposure to violence and having to sound a code white, which adversely affect their satisfaction levels. Thus, if HCWs are expected to work to a higher performance, the first thing to do is to promote their satisfaction levels, which would not be possible unless necessary measures are taken to prevent these insults, harassments, and attacks.

**Work performance levels amidst the pandemic:** Similar to satisfaction levels, work performance heavily depends on working conditions, internal positive relations and healthy relations with patients. In the present study, performance scores favored working less than 48 hours a week, not having to sound a code white and not encountering verbal/physical violence.

**CONCLUSION**

In the current study, the remarkably higher incidence of PTSD showed a close relationship with both satisfaction and performance levels among HCWs. As PTSD has long-term effects on the lives of HCWs as well as on

quality of life, preventive interventions directed to the sources of PTSD in the work environment are of utmost importance and should encompass attempts to promote both satisfaction and work performance, and to establish safe working conditions.

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