

THE EFFECT OF AN INNOVATIVE ORGANIZATIONAL CLIMATE AND DIGITAL LITERACY LEVELS ON PHYSICIANS' JOB PERFORMANCE

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ABSTRACT

Aim: The aim of this study was to examine the effect of an innovative organizational climate and digital literacy levels on physicians' job performance.

Methods: The study was conducted between March 10, 2024 and April 30, 2024 with physicians working at the University of Health Sciences, Bursa Yuksek Ihtisas Training and Research Hospital. The research was conducted by transferring the Innovative Organizational Climate Scale, Digital Literacy Scale and Job Performance Scale to the online environment and administering them to the volunteer physicians (n=222) in this way.

Results: If job performance was high, the innovative organizational climate and digital literacy levels were also high ($r=0.15$ and $p=0.025$; $r=0.517$ and $p<0.001$, respectively). Similarly, if the innovative organizational climate values were high, the digital literacy level were also high ($r=0.132$ and $p=0.05$). The effective components of the innovative organizational climate on job performance in physicians were top management support and adequacy of resources ($\beta=0.302$ and $p=0.002$; $\beta=0.191$ and $p=0.007$, respectively). When Digital Literacy Scale scores was added to the analysis, management support, attitude, and technical and cognitive values were found to have a positive effect on job performance ($\beta=0.340$ and $p<0.001$; $\beta=0.22$ and $p=0.007$; $\beta=0.216$ and $p=0.032$; $\beta=0.259$ and $p=0.001$, respectively). Autonomy had a negative effect on job performance ($\beta=-0.143$ and $p=0.036$).

Conclusions: Job performance and innovative organizational climate and digital literacy are interrelated concepts. It is important to provide senior executive support and adequate resources to support physicians' job performance. While physicians' attitudes, technical skills, and cognitive capacities positively affect their job performance, the effect of autonomy on their performance was evaluated as negative. Consideration of these situations by hospital administrations may contribute to increasing work efficiency.

Keywords: Autonomy, digital literacy, innovative organization, job performance

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INTRODUCTION

The competitive environment and rapid technological developments in the healthcare sector highlight the many factors that affect physicians' current job performance. Two important factors play a critical role in understanding physicians' job performance: an innovative organizational climate and the digital literacy level. Examining the impact of these factors on physicians' performance is important to identify the potential for improving the quality of healthcare services.

An innovative organizational climate refers to an organization's openness to innovation and its supportive structure. In this context, an innovative organizational climate can help physicians develop their ability to think creatively, take risks, and collaborate [1]. The positive effects of an innovative climate on physicians' job satisfaction, work productivity, and quality of patient care have been shown in many studies [2, 3]. Organizational innovation enables the development of innovative solutions in healthcare and achieving higher standards in medical practices.

Digital literacy refers to the ability of individuals to use digital technologies effectively. In the healthcare sector, digital literacy includes physicians' ability to work effectively with electronic health records, telemedicine, and other digital tools [4]. Digital literacy increases physicians' access to information, facilitates data analysis, and makes patient management more effective [5]. Moreover, the development of digital skills can reduce physicians' workload and improve their work performance [6].

This study aimed to examine the effects of innovative organizational climate and digital literacy levels of physicians on their job performance. The contributions of an innovative organizational climate

and high digital literacy to job performance will provide important information to improve the quality of healthcare services and increase the productivity of physicians.

METHODS

This study was conducted by the online survey method with physicians (n=222) working at the University of Health Sciences between 10.03.2024-30.04.2024. The answered survey questions were automatically saved on the prepared media file. The Innovative organizational climate scale, Job performance scale, and Digital literacy scales were used in the study. The data obtained were evaluated with statistical methods. Ethics committee approval was obtained from the University of Health Sciences, Bursa Yuksek Ihtisas Training and Research Hospital Medical Sciences Ethics Committee on 06.03.2024 with protocol number 2024-TBEK 2024/03-04.

Nybakk, Crespell, and Hansen's (2001) Innovative Organizational Climate Scale (IOCS) consisting of 5 dimensions and 20 items was used to assess the innovative organizational climate [7]. This scale includes 20 items of 5-point Likert type (1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, and 5=Strongly Agree). Items 2, 4, 5, 6, 11, 13, 16, 18, and 19 were reverse scored [7].

The Digital Literacy Scale (DLS) developed by Ng (2012) and adapted into Turkish by Hamutoğlu et al. (2017) was used to assess digital literacy levels [8, 9]. The original scale consists of 17 items and 4 factors. These factors include attitude, technical, cognitive and social dimensions. The scale has 5-point Likert scale statements as "1=Strongly Disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4=Agree, and 5=Strongly Agree".

To measure job performance, the scale developed by Pradhan and Jena (2017) was used [10]. The Job Performance Scale (JPS) consists of 23 five-point Likert-type items and three dimensions. These are task performance, adaptive performance, and contextual performance [11].

Statistical Analysis

Demographic and clinical characteristics of the cases evaluated in the study were analyzed by descriptive statistical analysis (number, percentage). The correlations between the scores of the JPS, the IOCS, and the DLS were analyzed using Pearson Correlation Analysis. Hierarchical Linear Regression Analysis was used to analyze the efficacy of the scores and subscale scores of the IOCS and DLS in explaining the scores of the JPS. The significance level was

determined as $p < 0.05$ for all analyzes. The conformity of the data to a normal distribution was checked with kurtosis and skewness values (± 1.5). The IBM SPSS 26.0 program was used in the application of the analyses.

RESULTS

It was found that 121 (54.5%) of the physicians evaluated in the study were male. It was also found that 63 (28.4%) of the physicians were single, 153 (68.9%) were married, 6 (2.7%) were divorced; 52 (23.4%) were between the ages of 18-28, 106 (47.7%) between the ages of 29-39, 43 (19.4%) between the ages of 40-50, and 21 (9.5%) over the age of 51. The data revealed that 83 (37.4%) of the physicians had worked 1-5 years, 55 (24.8%) 6-10 years, 40 (1%) 10-20 years, and 44 (19.8%) over 20 years.

Table 1. Demographic characteristics of the physicians evaluated in the study

		n	%
Gender	Female	101	45.5
	Male	121	54.5
Marital Status	Single	63	28.4
	Married	153	68.9
	Divorced	6	2.7
Age	18-28	52	23.4
	29-39	106	47.7
	40-50	43	19.4
	51 and above	21	9.5
Duration of employment	1-5 years	83	37.4
	6-10 years	55	24.8
	10-20 years	40	18.0
	20 years and above	44	19.8

According to Pearson Correlation Analysis, it was found that there was a statistically significant positive correlation ($r=0.150$; $p=0.025$) between the JPS scores of the cases and the scores of the IOCS. It was also found that there was a statistically significant positive correlation ($r=0.517$; $p<0.001$) between the JPS

scores of the cases and the DLS scores. In addition, a statistically significant positive correlation ($r=0.132$; $p=0.050$) was found between the patients' scores on the IOCS and the DLS scores.

The correlation between the subscales of the JPS, the IOCS, and the JPS is shown in Table 2.

Table 2. Correlation between the scores of the Job Performance Scale, the Innovative Organizational Climate Scale, and the Digital Literacy Scale

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1- Job Performance Scale	r													
	p													
2- Responsibility	r	0.696												
	p	<0.001												
3-Adaptation Dependency	r	0.967	0.620											
	p	<0.001	<0.001											
4-Contextual Dimension	r	0.853	0.503	0.711										
	p	<0.001	<0.001	<0.001										
5- Innovative Organizational Climate Scale	r	0.150	0.074	0.134	0.163									
	p	0.025	0.274	0.046	0.015									
6-Team Harmony	r	0.141	0.035	0.112	0.195	0.724								
	p	0.036	0.608	0.095	0.003	<0.001								
7-Superior Management Support	r	0.205	0.088	0.197	0.199	0.838	0.511							
	p	0.002	0.191	0.003	0.003	<0.001	<0.001							
8-Resources	r	0.241	0.165	0.223	0.229	0.554	0.333	0.351						
	p	<0.001	0.014	0.001	0.001	<0.001	<0.001	<0.001						
	r	-0.024	-0.033	-0.029	-0.003	0.749	0.431	0.493	0.230					

9-Autonomy	p	0.717	0.625	0.666	0.963	<0.001	<0.001	<0.001	0.001						
10-Openness to Innovation	r	-0.002	0.031	<0.001	-0.017	0.734	0.298	0.641	0.189	0.506					
	p	0.978	0.641	0.997	0.796	<0.001	<0.001	<0.001	0.005	<0.001					
11- Digital Literacy Scale	r	0.517	0.388	0.516	0.396	0.132	0.178	0.055	0.231	0.055	-0.026				
	p	<0.001	<0.001	<0.001	<0.001	0.050	0.008	0.418	0.001	0.413	0.699				
12-Attitude	r	0.488	0.390	0.491	0.357	0.097	0.148	0.034	0.209	0.036	-0.060	0.892			
	p	<0.001	<0.001	<0.001	<0.001	0.151	0.028	0.617	0.002	0.591	0.374	<0.001			
13-Technical	r	0.435	0.314	0.428	0.352	0.132	0.187	0.043	0.197	0.055	0.007	0.913	0.665		
	p	<0.001	<0.001	<0.001	<0.001	0.050	0.005	0.528	0.003	0.414	0.914	<0.001	<0.001		
14-Cognitive	r	0.489	0.340	0.479	0.404	0.028	0.039	-0.017	0.234	-0.012	-0.115	0.729	0.639	0.564	
	p	<0.001	<0.001	<0.001	<0.001	0.683	0.564	0.802	<0.001	0.863	0.088	<0.001	<0.001	<0.001	
15-Social Emotional	r	0.336	0.246	0.351	0.229	0.193	0.188	0.156	0.157	0.116	0.081	0.797	0.563	0.779	0.466
	p	<0.001	<0.001	<0.001	0.001	0.004	0.005	0.020	0.020	0.085	0.227	<0.001	<0.001	<0.001	<0.001

r=Pearson Correlation Analysis.

According to the Hierarchical Linear Regression Analysis, it was found that 2% of the JPS scores of the cases were statistically significantly ($F=5.25$; $p<0.001$) explained by the scores of the IOCS. When Model 1 was analyzed, it was found that the scores of the IOCS ($p=0.023$; CI: 0.001 - 0.012) were statistically significantly effective in explaining the JPS scores.

It was found that 28% of the DLS scores were explained at a statistically significant level ($F=41.26$; $p<0.001$) with the addition of the JPS scores to Model 1. When Model 2 was analyzed, it was found that only the scores of the DLS ($p<0.001$; CI: 0.018 - 0.028) were statistically significant in explaining the JPS scores.

Table 3. Efficacy of the Innovative Organizational Climate Scale and Digital Literacy Scale scores in explaining the Job Performance Scale scores

Model		Unstandardized Coefficients		Standardized Coefficients	t	p	95.0% CI	
		B	SE	Beta			LL	UL
1	(Constant)	3.541	0.183		19.330	<0.001	3.180	3.902
	Innovative Organizational Climate Scale	0.007	0.003	0.153	2.291	0.023	0.001	0.012
2	(Constant)	2.222	0.219		10.129	<0.001	1.789	2.654
	Innovative Organizational Climate Scale	0.004	0.003	0.086	1.484	0.139	-0.001	0.009
	Digital Literacy Scale	0.023	0.003	0.506	8.688	<0.001	0.018	0.028

Hierarchical Regression Analysis Results, Model 1: $R^2=0.02$, $F=5.25$, $p<0.001$, Model 2: $R^2=0.28$, $F=41.26$, $p<0.001$

According to the Hierarchical Linear Regression Analysis, it was found that 12% of the JPS scores of the cases were statistically significantly ($F=5.75$, $p<0.001$) explained by the subscale scores of the IOCS. When Model 1 was analyzed, it was found that only Senior executives' support ($p=0.002$, CI: 0.017 - 0.074) and resources ($p=0.007$, CI: 0.010 - 0.060) subscale scores were statistically significantly effective in explaining JPS scores. It was found that 38% of the JPS scores were explained at a statistically significant

level ($F=14.08$, $p<0.001$) with the addition of the DLS subscale scores to Model 1. When Model 2 was analyzed, only top management support ($p<0.001$, CI: 0.027 - 0.076), autonomy ($p=0.036$, CI: -0.042 - -0.001), attitude ($p=0.007$, CI: 0.006 - 0.040), technique ($p=0.032$, CI: 0.002 - 0.040), and resources ($p=0.001$, CI: 0.036 - 0.130) subscale scores were found to be statistically significantly effective.

Table 4. The effectiveness of the subscale scores of the Digital Literacy Scale and the Innovative Organizational Climate Scale in explaining the Job Performance Scale scores

Model		Unstandardized Coefficients		Standardized Coefficients	t	p	95.0% CI	
		B	SE	Beta			LL	UL
1	(Constant)	3.386	.193		17.527	<0.001	3.005	3.767
	Team Cohesion	0.005	0.012	0.037	0.468	0.641	-0.018	0.029
	Senior Executives' Support	0.046	0.014	0.302	3.169	0.002	0.017	0.074
	Sources	0.035	0.013	0.191	2.739	0.007	0.010	0.060
	Autonomy	-0.021	0.012	-0.140	-1.757	0.080	-0.045	0.003
	Openness to Innovation	-0.028	0.014	-0.171	-1.942	0.053	-0.055	0.000
2	(Constant)	2.024	.221		9.162	<0.001	10.588	20.459
	Team Cohesion	-0.003	0.010	-0.019	-0.274	0.784	-0.023	0.017
	Senior Executives' Support	0.052	0.013	0.340	4.128	<0.001	0.027	0.076
	Sources	0.009	0.011	0.051	.839	0.402	-0.013	0.032
	Autonomy	-0.022	0.010	-0.143	-2.115	0.036	-0.042	-0.001
	Openness to Innovation	-0.016	0.012	-0.101	-1.331	0.185	-0.040	0.008
	Attitude	0.023	0.009	0.220	2.707	0.007	0.006	0.040
	Technical	0.023	0.011	0.216	2.164	0.032	0.002	0.044
	Cognitive	0.083	0.024	0.259	3.455	0.001	0.036	0.130
	Social Emotional	-0.031	0.025	-0.109	-1.222	0.223	-0.080	0.019

Hierarchical Regression Analysis Results, Model 1: $R^2=0.12$, $F=5.75$, $p<0.001$, Model 2: $R^2=0.38$, $F=14.08$, $p<0.001$

DISCUSSION

According to the results of the research, if job performance is high, innovative organizational climate and digital literacy levels are also high. Similarly, if innovative organizational climate values are high, digital literacy level is also high. The effective factors on job performance in physicians are top management support and adequacy of resources. When digital

literacy is taken into consideration, it is observed that attitude, technical and cognitive capacity are the factors that have a positive effect on job performance, while autonomy has a negative effect.

The relationship between job performance and innovative organizational climate is an important issue in organizational behavior. An innovative

organizational climate provides an environment that encourages employees' creativity and innovative thinking abilities. This type of climate can help employees to achieve high performance. It is argued that an innovative work environment positively affects employee creativity and job performance [12-14]. An innovative organizational climate can increase employees' commitment and motivation to their work. It is known that employees in an innovative environment show higher job satisfaction and performance [15]. When employees feel supported and valued, they show more commitment to their work. However, an innovative environment may not have the same effect in every organizational structure. For example, some employees may find an innovative and ever-changing environment stressful and this may negatively affect job performance [16]. In addition, the lack of resources necessary to create an innovative organizational climate may limit its effectiveness. Inadequate training, technological infrastructure or supportive tools can make innovative thinking difficult and thus negatively affect job performance [17].

Digital literacy enables employees to use digital tools and systems effectively. This ability can speed up business processes and increase productivity. For example, digital literacy is known to increase productivity in the workplace and positively affect employees' job performance [18]. Having knowledge about digital tools and software allows employees to work faster and more effectively. Digital literacy can improve employees' problem-solving skills and help them produce innovative solutions. It is known that individuals with high levels of digital literacy exhibit better job performance [19]. Digital skills can help employees solve technology-related problems faster and develop new methods.

Top management support is a critical factor that directly affects employees' job performance. The support provided by top management can increase employee motivation and positively affect job performance. Rhoades and Eisenberger (2002) stated that there is a strong relationship between the support provided by top management and employees' job satisfaction and performance [20]. Management support provides the tools and resources necessary to enable employees to achieve organizational goals. The support provided by top management can increase employees' motivation and commitment to their jobs. Top management support has been found to play an important role in improving employees' job performance [21]. This support makes it easier for employees to cope with challenges and improve their performance.

Employees' positive attitudes towards their work play an important role in improving overall job performance. For example, job satisfaction and motivation can help employees to focus more on their work and achieve higher performance. In a study conducted by Judge and Bono (2001), it was found that employees' general attitudes have a strong relationship with job performance [22]. Positive attitudes make employees more willing and determined to achieve their work goals, which leads to increased performance.

Technical skills are another important factor that directly affects job performance, especially depending on the nature of the job. In a study by Heslina and Syahrani (2021), it was stated that technical knowledge and skills positively affect employee performance [23]. These skills enable employees to perform their jobs more effectively and efficiently, which leads to increased performance. Cognitive assets include employees' problem-solving abilities and decision-making processes. Employees with

particularly high cognitive capacities are better able to manage complex tasks, which can improve performance. The positive impact of cognitive abilities on job performance is known [24]. Cognitive skills enable employees to develop innovative solutions and improve business processes.

While autonomy is often seen as the ability of employees to manage their work independently, in some cases it can negatively affect performance. Autonomy can increase levels of uncertainty and stress when employees lack direction and support. A study by Gagné and Deci (2005) shows that excessive autonomy can negatively affect employee motivation and job performance [25]. Lack of direction can lead to decreased performance, especially in new or inexperienced employees, as these individuals may find it difficult to make the right decisions on their own. Therefore, it is important to strike a balance in work environments and meet employees' needs for both autonomy and guidance.

In conclusion, job performance and an innovative organizational climate and digital literacy are interrelated concepts. Top management support and adequate resources are important to support physicians' job performance. While physicians' attitudes, technical skills and cognitive capacities positively affect their job performance, the effect of autonomy on their performance was evaluated as negative. Consideration of these situations by hospital administrations may contribute to increasing work efficiency.

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