Research Article

Effects of Technostress and the Role of Their Descriptive Characteristics of Intensive Care Nurses on Their Job Performance

Yoğun Bakım Hemşirelerinde Teknostresin İş Performansına Etkisi ve Tanımlayıcı Niteliklerin Rolü

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ABSTRACT

Objective: Although the correct and appropriate use of Health Information Technologies yields positive results such as high productivity and satisfactory work performance, in some cases it may bring about some disadvantages. One of the most critical negative consequences of the use of health information technologies is technostress. Technostress occurs more frequently in nurses working in Intensive Care Units, where health information technologies are used very frequently. This study was aimed at investigating the effect of technostress on job performance in intensive care nurses.

Methods: In the sample of this cross-sectional study, 214 intensive care nurses were included. The "Technostress" and "Job Performance" scales were used to collect data.

Results: The participating intensive care unit nurses had a moderate level of technostress and a high level of job performance. There was a positive, significant and low correlation between the participating nurses' technostress and job performance levels (r=0.146; p<0.05). The technostress variable has a 2.1% effect on the job performance levels of the participating nurses (F=4.588; p<0.005).

Conclusion: Contrary to existing literature, this study found that as participants' technostress levels increased, their job performance increased.

Keywords: Intensive Care, Intensive Care Nurse, Nurse, Technostress, Job Performance

ÖZ

Amaç: Sağlık Bilgi Teknolojileri'nin doğru ve uygun seviyede kullanılması; yüksek verimlilik ve iş performansını gibi olumlu etkilere sahip olmasının yanında birtakım dezavantajlara da sahiptir. Bu noktada sağlık bilgi teknolojileri kullanımının en kritik olumsuz sonuçlarından biri, teknolojinin karanlık yönü olarak da bilinen, teknostrestir. Teknostresin, daha sık sağlık bilgi teknolojileri kullanımı gerektiren Yoğun Bakım Ünitelerinde çalışan hemşirelerde daha yaygın olduğu belirtilebilir. Bu çalışmanın amacı yoğun bakım hemşirelerinde teknostresin iş performansına etkisini incelemektir.

Yöntem: Kesitsel türdeki bu çalışmanın örneklemini 214 yoğun bakım hemşiresi oluşturmaktadır. Verilerin toplanmasında "Teknostres" ve "İş Performansı" ölçekleri kullanılmıştır.

Bulgular: Yoğun bakım ünitesi hemşirelerinin orta düzeyde bir teknostrese, yüksek düzeyde bir iş performansına sahip olduğu saptanmıştır. Hemşirelerin teknostres ve iş performansı düzeyleri arasında pozitif yönlü, anlamlı ve düşük düzeyde bir ilişki tespit edilmiştir (r=0,146; p<0,05). Hemşirelerin iş performansı düzeyleri üzerinde teknostres değişkeninin %2,1 etkisi olduğu ortaya konulmuştur (F=4,588; p<0,005).

Sonuç: Mevcut alan yazının aksine bu çalışmada, hemşirelerin teknostres düzeyleri arttıkça iş performanslarının iyileştiği bulunmuştur.

Keywords: Hemşire, İş Performansı, Teknostres, Yoğun Bakım, Yoğun Bakım Hemşiresi

INTRODUCTION

The use of Health Information Technologies has a critical importance in the delivery of effective and efficient health services. Health information technologies can be defined as electronic applications which include computer hardware and software, and other technological tools that enable healthcare professionals to communicate with each other and with healthcare recipients, to make decisions, to transform medical and administrative data into information, and to access, share and use this information when needed (Arshad et al., 2016).

In a healthcare delivery organization, health information technologies are actively used by all healthcare professionals and administrative staff. One of these user groups is intensive care nurses. Health information technologies play a central role in the way nurses deliver care. For example, intensive care nurses use health information technologies to archive patient data, to access a patient's medical history, to analyze the patient's clinical status, to administer medication to the patient, and to coordinate care (Brown et al., 2020). They also use health information technologies to document activities related to patient care, such as giving a bed bath, mobilizing and changing clothes (Califf, 2022), which makes them be exposed to various stressful situations due to the more frequent use of health information technologies. In this context, intensive care nurses actively use many technologies such as patient monitoring monitors, respiratory devices, smart infusion pumps, artificial intelligence-based technologies, assistive care robots, virtual reality and mobile health applications (Hoşgör, 2022; Özel & Aba, 2023). As a result, intensive care nurses may be exposed to various stressful situations due to more frequent use of health information technologies.

Intensive care units, which are one of the most complicated and challenging areas of nursing practice, are highly complex units where high-level care and treatment are administered to individuals who suffer from life-threatening conditions, and many technological tools, and equipment are used (Ören & Dağcı, 2020). In addition, intensive care units are stressful areas for intensive care workers because mortality and morbidity rates are high there and because daily work routine is challenging (Moss et al., 2016). Among the main stressors in the intensive care units are life-threatening conditions, excessive workload, inadequate physical conditions, one-to-one patient care, critical situations likely to develop, responsibility to make urgent decisions, excessive stimulating environment, excessive activities and noise, the use of advanced technology devices, and digital software based on various health information technologies (Virginia et al., 2014). In order for these technologies to have a positive impact on the functioning and quality of health services, intensive care nurses must integrate with the system and have certain competencies.

The correct and appropriate use of health information technologies has many positive effects in terms of individual and organizational aspects such as high productivity, low cost, high levels of employee morale and work performance, improved patient care quality, establishment of patient safety and minimized malpractice cases (Daim et al., 2010). Despite all these undeniable advantages, the use of health information technologies in health care organizations may also bring about some negative consequences in some respects one of which is technostress. Technostress is also often conceptualized as the dark side of technology (Harris et al., 2022). In the literature, this concept is also known as cyberphobia, computer phobia, computer stress and negative computer behaviors (Laspinas, 2015).

BACKGROUND

Craig Brod first introduced the concept of technostress to the literature in 1984 and defined it as "a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner". This definition is consistent with Lazarus & Folkman's (1984) definition that "stress refers to situations that disrupt an individual's adaptive state and pose a threat to exceed his or her resources and skills". Therefore, in the context of health services, it can be stated

that technostress arises as a result of the direct interaction between health information technologies products and health providers (Nisafani et al., 2020).

The concept of technostress, which arises from the attempts of individuals to meet their physical, social and cognitive requirements brought about by the ever-evolving use of health information technologies, has been subjected to various classifications in the literature. According to one of the widely accepted classifications, technostress is of three dimensions: techno-overload, techno-complexity and techno-uncertainty (Ayyagari et al., 2011).

- Techno-overload refers to tiring situations that force technology users to work faster and longer (Galvin et al., 2022).

- Techno-complexity refers to situations that cause technology users to feel inadequate in terms of digital skills such as use of computers and force them to make efforts to understand and learn such technologies (Mahdian et al., 2017).

- Techno-uncertainty refers to situations where users feel uncomfortable due to uncertainty and need to improve themselves constantly about these new technologies in a constantly developing and updated technological cycle (Tarafdar et al., 2007).

In addition to these three dimensions, it is known that it also techno-invasion and techno-insecurity dimensions. While techno-invasion refers to the invasion of private life due to technology that creates pressure so that the person is constantly connected, techno-insecurity refers to employees' suffering from the fear of losing their jobs due to new technologies (Borle et al., 2021). In this context, it can be stated that in the field of healthcare, which is a labor and technology intensive sector, all these technostress elements are intensely experienced by intensive care nurses.

Studies on technostress focus on a number of factors related to the potentially negative effects of technology use. In general, technostress has behavioral, psychological and physiological consequences on employees. Among the behavioral consequences are low job performance, inefficiency, increased error rates, presenteeism, low organizational commitment, and high employee turnover. Fatigue, burnout, job dissatisfaction, low motivation, high job tension, worry, anxiety and addiction to technology are examples of psychological consequences. Symptoms such as headaches and backaches, elevated blood pressure, insomnia and worsening of general health can be considered as the physiological consequences (Weinert et al., 2020). Of these results affecting employees, especially the behavioral and psychological ones can also create negative reflections on the organization.

Our review of the literature demonstrated that technostress was addressed together with such variables as job satisfaction (Woo & Park, 2021), job performance (Cahapay & Bangoc II, 2021), work motivation (Özbozkurt, 2019), productivity (Kruse, 2012), work alienation (Mermer, 2022), intention to leave the job (Califf et al., 2015), organizational commitment (Ahmad et al., 2014), professional burnout (Kasemy et al., 2022), organizational stress (Doğrular, 2019), organizational cynicism (Zhao et al., 2022), quality of life (Carvalho & d'Angelo, 2021), work stress (Merdan, 2021), work fatigue (Zhang et al., 2022), cyberslacking (Gügerçin, 2020), and headache and sleep quality (Golz et al., 2021). Our review also demonstrated that while there were a few studies in which the issue was investigated in a sample of health workers, no studies were conducted with a sample of intensive care nurses. Therefore, in the present study, it was aimed to investigate the effect of technostress on job performance of intensive care nurses. It was also aimed to determine whether there were statistically significant relationships between the descriptive characteristics of the participants and their technostress and job performance levels.

In line with these purposes, the following research questions were formed:

- Is there a statistically significant relationship between the descriptive characteristics of the participants and the

technostress and job performance variables?

- Is there a statistically significant relationship between the technostress and job performance variables in the participants?

- Does the technostress variable have a statistically significant effect on the job performance of the participants?

METHODS

In this cross-sectional study, the data were collected from nurses working in the intensive care unit of a private hospital in Istanbul between 18-31 December 2023. The e-survey method was used to collect data. Because we aimed to reach all the intensive care nurses working in the aforementioned hospital, the whole population sampling method was used. All nurses working in intensive care units constituted the universe (N=249). A total of 214 nurses who agreed to participate in the research and filled out the data collection forms correctly constituted the sample of the research (n=214). The sample representation rate is 86%.

Data Collection Instruments

In the study, the "Descriptive Information Form", "Technostress Scale" and "Job Performance Scale" were used as data collection tools.

Descriptive Information Form: This form which was prepared in line with the current literature consists of six items questioning the participants' sex, age, marital status, education level, length of service in the profession and technological aptitude. The technological aptitude of nurses refers to their competency towards both daily life technologies (smart phones, tablets, computers) and occupational technologies (hospital automation systems, intensive care unit equipments, artificial intelligence based patient care tools).

Technostress Scale: The scale developed by Tarafdar et al. (2007) to measure the level of technostress and simplified by Alam (2015) consists of 14 items and the following 3 sub-dimensions: "Techno-overload", "Techno-complexity" and "Techno-uncertainty". Responses given to the scale items are rated on a 5-point Likert type scale. Both in Tarafdar et al.'s and Alam's studies, the Cronbach's Alpha (Cα) internal reliability coefficients for the overall scale and its sub-dimensions were greater than 80%. Türen et al. (2015) conducted the validity and reliability studies of the Technostress Scale to adapt it into Turkish. In Türen et al.'s study, Cα was 90%, 81% and 88% for the Techno-overload, Techno-complexity and Techno-uncertainty sub-dimensions, respectively. In the present study, the scale adapted into Turkish by Türen et al. (2015) was used. The scale does not have any cutoff point or total score. The level of technostress increases as the mean score obtained from the scale increases. In this study, while the Cronbach Alpha coefficient of the general scale was 0.88, the coefficients of the sub-dimensions were found to be 0.89, 0.73 and 0.74, respectively. In this respect, it can be stated that the scale and sub-dimensions have a high internal reliability coefficient.

Job Performance Scale: The scale developed by Kirkman & Rosen (1999), and Sigler & Pearson (2000) in order to measure the job performance of employees was adapted into Turkish by Çöl (2008). The original scale whose Cα value was 0.70 consists of four items and one dimension. The Turkish version of the scale whose validity and reliability was performed by Çöl (2008) also consists of one dimension. Its Cα value was 0.83. The scale does not have any cutoff point or total score. The higher the score obtained from the scale is the higher the level of job performance is. In this study, the

Cronbach Alpha coefficient of the general scale was found to be 0.74. In this respect, it can be stated that the scale has a high internal reliability coefficient.

Statistical Analysis

The study data were analyzed using the Statistical Package for the Social Sciences (SPSS) IBM Statistics for Windows, Version 26.0 Armonk, NY released by the IBM Corp. in 2013. The data were first summarized using the descriptive statistics such as frequency, percentage, arithmetic mean, standard deviation, and minimum and maximum values. In order to test whether the data were normally distributed, the kurtosis and skewness values were checked. Because the kurtosis and skewness values were in the range of ±1.96 as stated by Tabachnick & Fidell (2007), parametric tests were used. Therefore, the t-test, One-Way ANOVA test, Pearson correlation analysis and simple regression analysis were used to analyze the study data (confidence interval: 95%, $p < 0.05$).

Ethical Approval

The ethics committee approval of the study, which was carried out in accordance with ethical principles, was obtained from the non-invasive clinical research ethics committee of Uşak University (Decision date: 14.12.2023, Decision number: 244-244-11. The study was carried out in accordance with the principles of the 1964 Declaration of Helsinki and the National Research Committee.

RESULTS

The mean age of the participating nurses was 29.80±7.74 years. Their mean length of service in the profession was 7.85±7.24 years. As is given in Table 1, of the participating nurses, 79.0% were women, 68.7% were ≥30 years old, 52.3% were married, 82.2% were university graduates, 62.1% had been working in the profession for 7 years ≥, and 53.7% had a technological aptitude.

As is seen in Table 2, the mean scores the participating nurses obtained from the Technostress Scale and Job Performance Scale were 3.30±0.87, and 4.11±0.56, respectively. The mean scores they obtained from the Techno-overload, Techno-complexity and Techno-uncertainty sub-dimensions of the Technostress Scale were 3.25±1.07, 2.95±0.89 and 3.13±0.87, respectively. These data indicate that the participating nurses had a moderate level of technostress and a high level of job performance and that each scale had a high level of Cα reliability.

Table 1. Descriptive Characteristics of the Participating Nurses (N: 214)

Variables	Groups	n (Number)	% (Percentage)
Sex	Women	169	79.0
	Men	45	21.0
Age (x̄: 29.80±7.74) years	≤ 30 years	147	68.7
	≥ 31 years	67	31.3
Marital Status	Single	102	47.7
	Married	112	52.3
Education Level	High school	21	9.8
	University	176	82.2
	Postgraduate	17	7.9
Length of service in the profession (x̄: 7.85±7.24) years	≤ 7 years	133	62.1
	≥ 8 years	81	37.9
Technological aptitude	Not at all	2	0.9
	Somewhat	38	17.8
	Yes	115	53.7
	Yes, very much	59	27.6

Table 2. Descriptive Statistics and Reliability Values of the Scales and Sub-Dimensions

Scales and sub-dimensions	Techno-overload	Techno-complexity	Techno-uncertainty	Technostress (Overall)	Job Performance
N	214	214	214	214	214
Mean*	3.25	2.95	3.13	3.30	4.11
SD	1.07	0.89	0.87	0.87	0.56
Minimum	1.00	1.00	1.00	1.00	1.50
Maximum	5.00	5.00	5.00	5.00	5.00
Skewness	-0.25	0.02	-0.35	-0.59	-1.17
Kurtosis	-0.72	-0.46	-0.09	-0.06	1.16
Cα	0.89	0.73	0.74	0.88	0.74
Level	Medium	Medium	Medium	Medium	High

*1.00-1.80: Very low; 1.81-2.60: Low; 2.61-3.40: Medium; 3.41-4.20: High; 4.21-5.00: Very High

As presented in Table 3, while there were not statistically significant differences between the participating nurses in terms of the relationship between the mean scores they obtained from the Technostress Scale, and the variables such as marital status and education level ($p>0.05$), there was a significant difference between them in terms of the relationship between their scores, and the variables such as sex and technological aptitude ($p<0.05$). The significant differences stemmed from the female participants and the participants who had a very high level of technological aptitude. While there were not statistically significant differences between the participating nurses in terms of the relationship between the mean scores they obtained from the Job Performance Scale, and the variables such as sex and education level ($p>0.05$), there was a significant difference between them in terms of the relationship between their scores, and the variables such as marital status and technological aptitude ($p<0.05$). The significant differences stemmed from the single participants and the participants who had a very high level of technological aptitude.

Table 3. Differences Between the Mean Scores Obtained from the Technostress and Job Performance by the Participating Nurses in terms of Their Descriptive Characteristics

Characteristics	Technostress Scale			Job Performance Scale		
Sex[†]	**Mean ± SD**	**t**	**p**	**Mean ± SD**	**t**	**p**
Women (n: 169)	3.39 ± 0.84			4.11 ± 0.53		
Men (n: 45)	2.98 ± 0.91	2.87	0.005*	4.12 ± 0.67	-0.135	0.893
Marital Status[†]	**Mean ± SD**	**t**	**p**	**Mean ± SD**	**t**	**p**
Single (n: 102)	3.37 ± 0.95			4.23 ± 0.50		
Married (n: 112)	3.24 ± 0.79	1.101	0.272	4.00 ± 0.59	3.015	0.003*
Education Level[‡]	**Mean ± SD**	**F**	**p**	**Mean ± SD**	**F**	**p**
(a) High School (n: 21)	3.59 ± 0.70			4.14 ± 0.53		
(b) University (n: 176)	2.29 ± 0.89	1.599	0.204	4.13 ± 0.57	1.555	0.214
(c) Graduate (n: 17)	3.12 ± 0.82			3.88 ± 0.49		
Technological aptitude [‡]	**Mean ± SD**	**F**	**p**	**Mean ± SD**	**F**	**p**
(a) Not at all (n: 2)	3.25 ± 0.35			4.23 ± 0.35		
(b) Somewhat (n: 38)	3.39 ± 0.64			3.88 ± 0.50		
(c) Yes (n: 115)	3.03 ± 1.02	2.683	0.048*	4.12 ± 0.53	3.396	0.019*
(d) Yes, very much (n: 59)	3.41 ± 0.84			4.25 ± 0.63		
Tukey HSD Post-Hoc Test	**c < d**			**b < d**		

Symbols: † (t-Test); ‡ (One-Way ANOVA Test); *(p<0.05)

According to Table 4, there was a positive, significant and low correlation between the participating nurses' Technostress Scale and Job Performance Scale levels (r: 0.146; p<0.05). There was a positive and significant relationship between the Technostress Scale and its Techno Overload (0.777), Techno Complexity (0.451) and Techno Uncertainty (0.679) sub-dimensions. In other words, as the nurses' Technostress Scale levels increased, so did their Technostress Scale sub-dimension levels and Job Performance Scale levels. On the other hand, there were not statistically significant differences between the participating nurses in terms of the relationship between the mean scores they obtained from the Technostress Scale and Job Performance Scale, and the variables such as age and length of service in the profession (p>0.05).

As presented in Table 5, the effect size of the participants' Technostress Scale levels on their Job Performance Scale levels was 2.1% (F: 4.588; p<0.005). In other words, a one-unit increase in nurses' Technostress Scale levels increased their Job Performance Scale levels by 0.021 units (t:2.142; β: 0.146; R^2: 0.021).

Table 4. Interscale Corrrelations

Variables		2	3	4	5	6	7
Technostress (1)	Pearson Correlation	0.777**	0.451**	0.679**	0.146*	0.009	-0.006
	Sig. (2-tailed)	0.000	0.000	0.000	0.033	0.901	0.934
Techno-overload (2)	Pearson Correlation		0.482**	0.449**	0.038	0.029	0.030
	Sig. (2-tailed)		0.000	0.000	0.585	0.677	0.667
Techno-complexity (3)	Pearson Correlation			0.468**	0.128	0.040	0.034
	Sig. (2-tailed)			0.000	0.061	0.559	0.617
Techno-uncertainty (4)	Pearson Correlation				0.121	0.035	-0.002
	Sig. (2-tailed)				0.077	0.612	0.971
Job performance (5)	Pearson Correlation					-0.024	0.051
	Sig. (2-tailed)					0.726	0.460
Age (6)	Pearson Correlation						0.878**
	Sig. (2-tailed)						0.000
Length of service in the profession (7)	Pearson Correlation						
	Sig. (2-tailed)						

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Table 5. Effect of Technostress Scale on the Job Performance Scale

Predictors	B	SE	Standardized β	t	P
(Constant)	3.802	0.150		25.431	0.000
Technostress	0.094	0.044	0.146	2.142	0.033
Dependent variable: JPS			R^2= 0.021; **F**= 4.588 (**p:** 0.033)		

Acronyms: B (Unstandardized Coefficients), SE (Standard Error), JPS (Job Performance Scale)

DISCUSSION

Technological developments have become one of the important factors affecting the job performance of nurses in an important profession such as nursing. Developing an in-depth understanding of the potential effects of technostress on the job performance of nurses is an important necessity in today's health care management. In the present study carried out to investigate the statistical relationships and differences between technostress, job performance and descriptive qualities, 214 intensive care nurses were included. According to the descriptive characteristics of the participating nurses, the majority of them were women, married, university graduates, ≤30 years old, had a ≤7 years of professional experience and had a technological aptitude.

In the present study, the participating intensive care nurses' technostress and job performance levels were moderate and high, respectively. Considering the fact that the present study was carried out with nurses working in the intensive care unit, which is a very complicated, challenging and demanding unit, it can be stated that the results obtained were not surprising.

On the other hand, intensive care nurses' having a high level of job performance in such a challenging and high-paced environment can be considered as a very positive and promising outcome. In several studies in the literature, it has been reported that those working in the field of health have moderate technostress and high job performance levels

(Dorukbaşı & Karakaya, 2024; Golz et al., 2021a; Kasemy et al., 2022; Kopuz & Aydın, 2020; Mahdian et al., 2017; T. Şen & Yıldırım, 2023) consistent with our results.

According to the results of the present study, the female participants' technostress levels and the single participants' job performance levels were significantly higher. On the other hand, those who had a technological aptitude had significantly higher technostress and job performance levels, which was probably because the female nurses felt the pressure of health information technologies more while they did their jobs. Job performance levels of the single nurses were significantly higher, which can be attributed to the fact that they assumed less responsibility than did the married ones and thus they were able to concentrate on their current job more. On the other hand, the intensive care nurses' having a very high level of technological aptitude increased not only their job performance but also their current technostress levels. Our review of the literature revealed that the results of some studies were consistent with our results whereas some other studies' results were not. For instance, in a study conducted in Brazil (Marchiori et al., 2019), the female participants were exposed to higher levels of techno-complexity and techno-uncertainty. In a study conducted in the Philippines (Cahapay & Bangoc II, 2021), the married participants had a higher level of job performance. In the present study, there were not statistically significant differences between the participating nurses in terms of the relationship between the mean scores they obtained from the Technostress Scale and the variables such as marital status and education level, and in terms of the relationship between the mean scores they obtained from the Job Performance Scale, and the variables such as education level and sex. In Doğrular's (2019) study, as in the present study, there was no significant difference between the participants in terms of the relationship between technostress, job performance, and marital status, sex and education level.

In the present study, there were not statistically significant relationship between the mean scores the participating nurses obtained from the Technostress and Job Performance Scales and the variables such as age and the length of service in the profession. However, it can be expected that their job performance decreases and they feel the technostress pressure related to their work more than before as their age and the length of service in the profession increase. On the other hand, senior nurses can display a higher job performance than can young people, thanks to the habit and comfort of having done the same job for years, which can make the former ones feel pressure induced by work-related technostress less. Therefore, it can be said that these results are somewhat surprising. In Spagnoli et al.'s (2020) study, as the age increased so did the level of technostress. On the other hand, in Boutchich's (2020) study, there was no significant relationship between technostress and the length of service in the profession. Contrary to the results of our study, in Cahapay & Bangoc II's (2021) study, the participants aged 45 and over had a higher level of job performance. Thus, it is not possible to state that there is clarity in the current literature in terms of the effects of variables.

Our study results demonstrated that as the intensive care nurses' technostress levels increased so did their job performance levels and the technostress independent variable predicted 2.1% of the work performance dependent variable. Although the correlation and regression coefficients were not high, it can be said that the results obtained were quite remarkable and interesting because findings in the literature generally indicate that a high level of technostress has negative reflections on organizational outcomes. For instance, in studies conducted with health professionals in Korea (Woo & Park, 2021) and Germany (Gaube et al., 2021), the level of job satisfaction decreased significantly as the level of technostress increased. In a study conducted in Switzerland with 493 healthcare professionals having different titles (Golz et al., 2021b), it was reported that the level of burnout syndrome increased as the level of technostress increased. In a study conducted with 402 nurses in the United States (Califf et al., 2015), the level of turnover intention increased as the level of technostress increased. In another study conducted in the United States (Evans, 2013), the participating nurses' productivity decreased as their technostress levels increased. In a study conducted with 242 health workers in Turkey (Doğrular, 2019), the level of

organizational stress increased as the level of technostress increased. Contrary to the existing literature, in the present study, technostress, which is called the dark side of technology, improved business performance, which is a critical success indicator for organizations. In other words, it can be said that technostress, which is considered as a negative element for many organizations and personnel, is a parameter that helps to maximize job performance for health care organizations and health professionals. Our review of the literature demonstrated that the number of health-related studies whose results were consistent with those of the present study was very few (Doğrular, 2019; İsmail et al., 2023). When the literature was examined, only one study was found using these variables on healthcare personnel working in hospitals in Turkey. In this study (Kıraç, 2024), which was conducted with the participation of 331 healthcare workers in Kahramanmaraş province, results that are exactly the same as our research results were obtained. The study revealed a significant, albeit low, effect of technostress on the job performance of the participants. Thus, it is possible to say that in the field of health, technostress has some positive effects on organizational outcomes.

Limitations

Because the present study was conducted only in one province and in a limited time, the data obtained cannot be generalized all intensive care nurses. In addition, the intensive care nurses' having to work in an order that was strictly adhered to the schedule made data collection difficult. Therefore, care was taken to keep the scales used in the study as short as possible. Thus, the use of the short versions of data collection tools with fewer items in order not to disrupt the duties of the intensive care nurses can be considered as another important limitation of this study. We also tried to keep the number of the items used to question the descriptive characteristics of the participants as few as possible.

CONCLUSION

The results of the present study demonstrated that the increase in the technostress levels of intensive care nurses had a positive effect on their job performance. These results suggest that technostress in the health sector cannot be considered as the dark side of technology. Therefore, we hope that our results would contribute to the limited literature on the issue and offer a different perspective to the researchers. On the other hand, it is clear that a greater number of empirical studies in which the relationship between technostress and organizational outcomes in intensive care nurses are investigated should be conducted. Within this context, we consider that the issue should be investigated in larger samples including nurses working in different units.

We also recommend that to improve individual and organizational outcomes such as job performance, nurse managers should measure and monitor the technostress levels of intensive care nurses systematically. In addition, initiatives such as user-friendly technology, supportive infrastructure, a good working environment, workload and stress management, and technology literacy awareness training can be planned for intensive care nurses. This way, they can be helped to work more efficiently.

Effective training and support programs on current technologies can be designed to increase the job performance of intensive care nurses and reduce their technostress levels. Making digital tools user-friendly can be effective in eliminating negative thoughts about technology and thus reducing stress and increasing job performance. It is also very important for managers in healthcare institutions to keep their employees ready for and support technological innovations and change.

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