DETERMINATION OF TECHNOSTRESS LEVELS OF NURSES

HEMŞİRELERİN TEKNOSTRES DÜZEYLERİNİN BELİRLENMESİ

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ABSTRACT

Aim: This study was conducted to find out the technostress perceptions of nurses and the factors affecting their technostress perceptions.

Materials and Methods: The study was conducted in a university hospital in Turkey. The sample consisted of 303 nurses. 'Descriptive Information Form' and 'Technostress Scale' were used to collect the study data.

Results: In the study, the sub-dimension mean scores of the Technostress scale were found as follows; "Techno-Overload" mean score was 2.68±0.65; "Techno-Invasion" mean score was 2.77±0.78; "Techno-Complexity" mean score was 2.74±0.63; The mean score of "Techno- Insecurity" was 2.61±0.70; The mean score of "Techno-Uncertainty" is 3.34±0.77. The mean scores of Technostress scale were found 2.80±0.49. It was found that techno complexity, techno insecurity, techno uncertainty and total scale scores increased as age increased and the relationship between was found to be statistically significant. It was found that the participants who were high school graduates, those who considered the hospital information system difficult, those who received in-service training for information system and those who were undecided about their competence had higher techno-invasion mean scores; the participants who had good level of technological competence and those who stated that all the records in the unit were in computer had higher techno-uncertainty mean scores and the difference between was found to be statistically significant.

Conclusion: It was found that the nurses had moderate technostress levels. It was found that age, educational status, technological competence perception and all records in the unit being in computer affected nurses' technostress levels.

Key Words: Information technologies, Nurse, Technology, Stress.

ÖZET

Amaç: Bu araştırma hemşirelerin teknostres algılarını ve etkileyen faktörleri belirlemek amacıyla yapıldı.

Gereç ve Yöntem: Araştırma tanımlayıcı olarak Türkiye'de bulunan bir üniversite hastanesinde yapıldı. Araştırma evrenini üniversite hastanesinde görev yapan 664 hemşire, örneklemini ise araştırmaya katılmayı kabul eden 303 hemşire oluşturdu. Araştırma verilerini toplamada 'Tanıtıcı Bilgi Formu' ve 'Teknostres Ölçeği' kullanıldı.

Bulgular: Araştırmada" Teknostres ölçeğinin alt boyut puan ortalamaları şöyle bulunmuştur; "Tekno-Aşırı Yük" puan ortalaması 2.68±0.65, "Tekno-İşgal" puan ortalaması 2.77±0.78, "Tekno-Karmaşıklık" puan ortalaması 2.74±0.63, "Tekno-İş Güvencesizliği" puan ortalaması puan ortalaması 2.61±0.70, "Tekno-Belirsizlik" puan ortalaması 3.34±0.77, Teknostres Ölçek toplam puan ortalaması ise 2.80±0.49 olarak bulundu. Yaş arttıkça tekno karmaşıklık, tekno güvensizlik, tekno belirsizlik ve toplam ölçek puanının arttığı ve aradaki ilişkinin istatistiksel olarak anlamlı olduğu bulundu. Lise mezunlarının, hastane bilgi sistemini zor olarak nitelendirenlerin, bilgi sistemi için hizmet içi eğitim alanların ve yeterliliği konusunda kararsız kalanların tekno-işgal ortalama puanları; evli olanların, hastane bilgi sistemini zor olarak değerlendirenlerin ve teknolojik yeterliliklerini orta olarak değerlendiren hemşirelerin tekno-karmaşıklık ortalama puanları; evli olanların, idari kısımda çalışanların, birimdeki tüm kayıtların bilgisayarda olduğunu ifade edenlerin tekno-iş güvencesizliği ortalama puanları; teknolojideki yeterlilik düzeyi iyi olanların ve birimdeki tüm kayıtların bilgisayarda olduğunu belirtenlerin tekno-belirsizlik ortalama puanları daha yüksek ve aradaki farkın istatistiksel olarak anlamlı olduğu bulundu.

Sonuç: Hemşirelerin teknostres düzeylerinin orta seviyede olduğu bulundu. Çalışma sonucunda; yaşın, eğitim durumunun, teknolojik yeterlilik algısının, birimdeki tüm kayıtların bilgisayarda kayıtlı olmasının hemşirelerin teknostres düzeylerini etkilediği belirlendi.

Anahtar kelimeler: Bilgi Teknolojileri, Hemşire, Teknoloji, Stres

INTRODUCTION

Health services are getting more complex and computer dependent every day. The amount of data collected and stored for patients increases rapidly each year and grows exponentially. While reaccessing, using and processing these data becomes more and more difficult, this requirement becomes more and more important in the meantime. As a result of this, there is a great need and demand for systematic application of information processing methods and use of computer and information technologies.[1,2]

Although technology has been introduced and recognized as time-saving, it has increased the expectations that should be realized in institutions. This, in turn, requires individuals to improve their technological skills and competence constantly.[3] The complex and rapidly changing structure of information and communication technologies, the difficulty of learning new technologies, the need for more work increase expectations and work load and cause multiple tasks.[4] Some individuals are faced with the concept of technostress which includes worry, stress, anxiety and even fear when it comes to technology use.[3,5] While the concept of technostress is defined as the phenomenon of inability to cope with the stress experienced by users in the workplace and the constantly evolving technology in the use of information and communication technologies[6], in a different definition it is expressed as the inability to deal with new information and communication technologies and the inability to adapt to these technologies.[7] When the determinants of technostress are examined, it can be seen that they are high anxiety, scepticism and low self-efficacy perception resulting from information and communication technologies.[8] In the development process of technostress, employees are afraid of making mistakes while using information and communication technologies in the work place and these feelings of worry and anxiety they experience cause them to develop an uncomfortable prejudice for computer.[6] It is claimed that individuals do not experience only stress due to their low self-efficacy for information and communication technologies but also feel psychological and physical fatigue due to being constantly involved in these technologies.[8]

Tarafdar et al. (2011) explain technostress with five different dimensions: Techno-overload is defined in situations when individuals who use information and communication technologies work more and faster. Techno-invasion requires employees to be constantly connected and accessible everywhere. Techno-complexity requires the use of rapidly and continually developing technologies, new applications, hardware and software. The situation which requires users to spend more time and effort to understand the new applications is defined with techno-complexity. Techno-insecurity is the situation when users fear losing their job against those who use new applications and technologies better. In

techno-uncertainty, continuous changes and developing technologies do not give employees the opportunity to experience and specialize in certain applications.[8] In this case, employees get an "uncomfortable" feeling because the information they have has become "old" in the face of rapidly changing information. Although they have been enthusiastic in early stages, the need for constant renovation and updating results in frustration and anxiety.[9]

In order to meet the increasing demand for health services today, it is necessary to make more use of technology and to support nursing care. Health services now make use of various technologies such as electronic health records, prescription tools, tele-health, online appointment planning, mobile applications, medical devices, portable monitors, smart patient beds and wearable biosensors which are used in health services currently. Nurses have great contributions in realizing, using and developing these technologies. [10,11] Nurses who care for and who are closest to a healthy/sick individual should have all the information about the health of the individual in shortest time possible so that they can provide quality care, ensure the individual's security and interact quickly. This can be ensured with the effective use of technology. Effective use of technology prevents waste of medical equipment, improves the standards and quality of care by ensuring proper use of resources, evidence-based application and clinical decision-making support. [10,12] Nursing is a practical discipline which renovates itself through scientific, technological and socio-cultural changes by pulling away from the way it is traditionally perceived in the world and in Turkey.[13]Technological developments will certainly continue to affect nurses' future education, and professional and individual life.[14] Nursing organizations consider technology as the basic building block of nursing practices and consider effective use of technology as a required qualification in nursing.[2,15] In this context, when it is considered that technological innovations and developments become more complex every day[4], it is of great importance that the technostress situations nurses may experience are not adversely affected by their attitudes and perceptions towards technology. It has been reported that nurses may experience problems when hospital information systems do not work or when nurses are not familiar with the software and hardware.[16] It has been stated that nurses experience technostress as a result of dealing with various devices. While working with technology, nurses have been reported to have negative experiences such as fear of clicking or pressing wrong keys, giving an incorrect command or order, being forced to trust machines instead of people, headaches and spasms.[17] For this reason, studies which analyse the technostress states of nurses are needed. Studies conducted on technostress will help to eliminate the problems in this area by making indirect contributions to health care services.

Aim of study

Although studies in different fields have been conducted on technostress in Turkey [4,18], no studies conducted on nurses were found. The present study was conducted to find out the technostress perceptions of nurses caused by the information and communication technologies used by them and the factors affecting their technostress perceptions.

Research questions:

- What is the technostress level of nurse?
- What are the factors affecting the technostress levels of nurses?

MATERIALS AND METHODS

Research design

The present study was conducted as a descriptive and cross-sectional study.

Population and Sample

Universe of the study included 664 nurses working in a university hospital March 2020. The inclusion criteria to be part of the study were as follows: nurses who are currently working in university hospital and are willing to participate in the study. The size of the sample was not defined, with the possibility of accessing the entire sample. The questionnaire form was distributed to the nurses working in the clinic and the questionnaire forms were collected back the next day. 303 completely filled forms were included

in the study. The process of delivery, completion and collection of the questionnaires lasted a maximum of 11 days.

Data Collection Instruments

'Descriptive Information Form' and 'Technostress Scale' were used to collect the study data.

Descriptive Information Form: The form, which was prepared by the researchers, included questions such as the nurses' age, gender, level of education, marital status, working time in the profession and the institution, unit, frequency and purpose of using the internet, way of accessing the internet, the level of easiness for hospital information system, the state of having received in-service training for hospital information system, sufficiency of the training and the state of having all records in the unit on computer.

Technostress Scale: The scale, which was developed by Tarafdar et al. (2007) aims to find out the technostress levels of individuals [1919](16). The scale was adapted into Turkish by Ilgaz et al. (2016). The scale is a 5–Likert type scaled between totally disagree (1) and totally agree (5) and consists of 5 sub-dimensions and 23 items. Higher scores taken from the scale show higher technostress level. Sub-dimensions of the scale are; techno-overload (6 items), techno-invasion (3 items), techno-complexity (5 items), techno-insecurity (5 items) and techno-uncertainty (4 items). Cronbach's alpha coefficient of the scale was reported as 0.92.[20] In the present study, Cronbach's alpha coefficient was found as 0.81.

Data Analysis

While evaluating the findings obtained from the study, SPSS (Statistical Package for Social Sciences) for Windows 25.0 program was used for statistical analysis. Number and percentage, mean± standard deviation were used in the analysis of the data obtained from the study. Mann Whitney U test and Kruskall Wallis test were used to compare the technostress mean scores of independent groups. The association between technostress and age, working time and working time in the institution was analysed with Pearson correlation test. The results found were evaluated at 95% confidence interval and 5% significance level.

Ethical aspect of the study

Approval was taken from Istanbul Sabahattin Zaim University Ethics Committee (29/02/2020 date 2020/02 numbered). Permission was obtained from the hospital the study was conducted in. This study was conducted in accordance with the ethical standards of Declaration of Helsinki. Volunteering participants were included in the study and their personal identity information was kept confidential. Participation relied on the provision of verbal consent.

RESULTS

It was found that the mean age of the nurses who participated in the study was 29.06±6.02, 65% were female, 43.2% were undergraduates, 51.2% were single, 62.0% were working in clinic, mean total working time was 6.89±5.02 years, mean working time in the institution was 4.86±4.42 years. 67.6% of the nurses described the hospital information system as easy. It was found that 77.9% of the nurses had received training for hospital information system and 63.9% of those who were trained thought the training they received was sufficient. 53.1% of the nurses described their technological competence level as moderate and 58.7% stated that all the records in the unit were not in the computer (Table 1).

Table 1. Sociodemographic Information and Technology Use Information of Nurses (n=303)

	Number	**%**
Gender		
Female	197	65
Male	106	35
Educational Status		
High school	74	24.4
Associate degree	72	23.8
Undergraduate	131	43.2
Postgraduate	26	8.6
Marital status		
Married	146	48.2
Single	157	51.2
Unit nurses work in		
Clinic	188	62.0
Intensive care	94	31.0
Administration	21	7.0
Hospital information system evaluation		
Difficult	13	4.3
Easy	205	67.6
Complicated	85	28.1
The state of having received in-service training for hospital information system		
Yes	236	77.9
No	67	22.1
The state of thinking that the training was sufficient		
Yes	151	63.9
No	21	8.9
Undecided	64	27.2
Level of technological competence		
Insufficient	22	7.3
Moderate	161	53.1
Sufficient	120	39.6
The state of all records of the unit being in the computer		
Yes	125	41.3
No	178	58.7
	Mean±SD	
Age	29.06±6.02	
Total working time	6.89±5.02	
Working time in the institution	4.86±4.42	

Techno-overload mean score was found as 2.68±0.65, Techno-invasion mean score was found as 2.77±0.78, Techno-complexity mean score was found as 2.74±0.63, Techno-insecurity mean score was found as 2.61±0.70, Techno-uncertainty mean score was found as 3.34±0.77, and total scale mean score was found as 2.80±0.49.

Table 2 shows the comparison of nurses' mean scores from TS and sub-dimensions in terms of sociodemographic characteristics and technology use information. In Techno-overload sub-dimension, married participants were found to have higher mean scores and the difference between was found to be statistically significant (p=0.021). In Techno-invasion sub-dimension, the participants who were high school graduates (p=0.034), those who described hospital information system as difficult (p=0.008), those who had received in-service training for information system (p=0.026) and those who were undecided about the sufficiency of in-service training (p=0.016) were found to have higher mean scores and the difference between was found to be statistically significant. In Techno-invasion sub-dimension, the participants who were married (p=0.002), those who described hospital information system as difficult (p=0.037) and those who evaluated their technological competence as moderate (p=0.032) were found to have higher mean scores and the difference between was found to be statistically significant. In Techno-insecurity sub-dimension, the participants who were married (p=0.022), those who were working in administrative department (p=0.010), those who stated that all the records in the unit were in computer (p=0.017) were found to have higher mean scores and the difference between was found to be statistically significant. In Techno-uncertainty sub-dimension, the participants who stated that their level of technological competence was good (p=0.011) and those who stated that all the records in the unit were in computer (p=0.000) were found to have higher mean scores and the difference between was found to be statistically significant. In the assessment of TS total score, the participants who were married were found to have higher mean scores and the difference between was found to be statistically significant.

Table 2. Comparison of nurses' TS and sub-dimensions mean scores in terms of sociodemographic characteristics and technology use information

	Techno-overload	**Techno-invasion**	**Techno-complexity**	**Techno-insecurity**	**Techno-uncertainty**	**TS**
Gender						
Female	2.07±0.70	2.74±0.76	2.75±0.65	2.61±0.72	3.30±0.77	2.80±0.53
Male	2.36±057	2.81±0.80	2.71±0.59	2.60±0.66	3.41±0.76	2.80±0.41
	U=9865.500	U=9652.000	U=10315.000	U=10348.000	U=9439.500	U=10227.500
	p=0.427	p=0.274	p=0.862	p=0.898	p=0.166	p=0.769
Educational Status						
High school	2.55±0.61	2.84±0.74	2.60±0.68	2.50±0.72	3.18±0.92	2.66±0.50
Associate degree	2.66±0.65	2.55±0.75	2.71±0.62	2.62±0.63	3.36±0.84	2.81±0.51
Undergraduate	2.75±0.67	2.84±0.73	2.80±0.63	2.65±0.70	3.36±0.63	2.86±0.48
Postgraduate	2.69±0.66	2.79±0.99	2.89±0.40	2.67±0.84	3.69±0.58	2.92±0.39
	KW=3.708	KW=8.702	KW=6.284	KW=2.147	KW=6.847	KW=7.074
	p=0.295	**p=0.034**	p=0.099	p=0.542	p=0.077	p=0.070
Marital status						
Married	2.77±0.66	2.83±2.71	2.85±0.60	2.72±0.69	3.44±0.66	2.90±0.47
Single	2.59±0.64	2.71±0.74	2.63±0.64	2.50±0.70	3.25±0.84	2.71±0.49
	U=9703.500	U=10581.500	U=9138.000	U=9716.000	U=10374.500	U=8937.500
	p=0.021	p=0.244	**p=0.002**	**p=0.022**	p=0.151	**p=0.001**
Unit nurses work in						
Clinic	2.65±0.67	2.75±0.80	2.70±0.67	2.54±0.73	3.31±0.77	2.76±0.51
Intensive care	2.71±0.68	2.82±0.78	2.81±0.59	2.66±0.66	3.37±0.75	2.85±0.47
Administration	2.75±0.23	2.69±0.58	2.78±0.38	2.99±0.50	3.48±0.85	2.93±0.26
	KW=1.821	KW=0.486	KW=1.371	KW=9.218	KW=1.341	KW=3.494
	p=0.402	p=0.784	p=0.504	**p=0.010**	p=0.512	p=0.174

Hospital information system evaluation						
Difficult	2.61±0.70	2.85±0.75	2.87±0.93	2.76±0.93	3.07±0.85	2.76±0.64
Easy	2.69±0.64	2.48±0.84	2.69±0.59	2.63±0.67	3.37±0.74	2.82±0.46
Complicated	2.65±0.69	2.60±0.80	2.84±0.67	2.53±0.73	3.31±0.82	2.77±0.53
	KW=0.413	KW=9.704	KW=6.613	KW=2.854	KW=1.764	KW=0.429
	p=0.814	**p=0.008**	**p=0.037**	p=0.240	p=0.414	p=0.807
The state of having received in-service training for hospital information system						
Yes	2.69±0.65	2.81±0.77	2.75±0.60	2.62±0.69	3.36±0.73	2.821±0.49
No	2.63±0.67	2.60±0.79	2.71±0.73	2.55±0.74	2.82±0.79	2.74±0.49
	U=7539.500	U=6508.500	U=7429.000	U=7375.500	U=7234.000	U=6833.000
	p=0.561	**p=0.026**	p=0.449	p=0.400	p=0.285	p=0.090
The state of thinking that the training was sufficient						
Not trained	2.64±0.69	2.56±0.73	2.75±0.74	2.56±0.77	3.29±0.73	2.75±0.50
Yes	2.68±0.66	2.73±0.75	2.70±0.62	2.67±0.70	3.36±0.76	2.81±0.50
No	2.45±0.66	2.68±0.87	2.53±0.68	2.40±0.72	3.03±1.06	2.59±0.64
Undecided	2.77±0.60	3.07±0.77	2.86±0.52	2.57±0.63	3.44±0.69	2.90±0.38
	KW=4.184	KW=8.273	KW=5.885	KW=2.880	KW=2.734	KW=4.734
	p=0.123	**p=0.016**	p=0.053	p=0.237	p=0.255	p=0.094
Level of technological competence						
Insufficient	2.66±0.61	2.74±0.68	2.49±0.69	2.60±0.72	2.88±0.83	2.66±0.51
Moderate	2.72±0.66	2.80±0.78	2.84±0.58	2.61±0.68	3.37±0.69	2.85±0.47
Sufficient	2.62±0.65	2.72±0.78	2.65±0.67	2.59±0.79	3.39±0.82	2.77±0.51
	KW=0.139	KW=0.176	KW=4.607	KW=**0.016**	KW=6.493	KW=2.503
	p=0.710	p=0.675	**p=0.032**	p=0.901	**p=0.011**	p=0.114
The state of all records of the unit being in the computer						
Yes	2.65±0.59	2.79±0.73	2.75±0.61	2.72±0.66	3.50±0.81	2.85±0.44
No	2.69±0.70	2.75±0.81	2.73±0.65	2.53±0.72	3.23±0.72	2.77±0.44
	U=10804.500	U=10962.000	U=11019.500	U=9337.500	U=8486.500	U=9808.500
	p=0.668	p=0.827	p=0.888	**p=0.017**	**p=0.000**	p=0.079

* TS: Technostress Scale

A positive and very weak statistically significant association was found between age and techno-uncertainty sub-dimension and TS total score (p=0.007, p=0.026). Similarly, a positive and very weak statistically significant association was found between total working time and Techno-uncertainty sub-dimension (p=0.007). Finally, a positive and very weak statistically significant association was found

between working time in the institution and techno-overload (p=0.005), Techno-invasion (p=0.016), Techno-complexity (p=0.025) and TS total score (p=0.007) (Table 3).

Table 3. The association between TS and sub-dimensions and age, total working time and working time in the institution Ö

	Techno-overload	**Techno-invasion**	**Techno-complexity**	**Techno-insecurity**	**Techno-uncertainty**	**Total**
Age	r=0.081 p=0.161	r=0.026 p=0.652	r=0.075 p=0.193	r=0.102 p=0.076	r=0.154 **p=0.007**	r=0.128 **p=0.026**
Total working time	r=0.055 p=0.341	r=0.047 p=0.417	r=0.067 p=0.246	r=0.026 p=0.657	r=0.155 **p=0.007**	r=0.097 p=0.090
Working time in the institution	**r=0.159 p=0.005**	**r=0.138 p=0.016**	**r=0.128 p=0.025**	r=0.017 p=0.771	r=0.109 p=0.059	**r=0.155 p=0.007**

* TS: Technostress Scale

DISCUSSION

The present study was conducted to determine the technostress levels created by information and communication technologies used by nurses working in a university hospital and the factors affecting technostress. The results obtained as a result of the analysis of study data were discussed in line with the related literature. In the present study, it was found that nurses experienced moderate levels of technostress. In their study conducted to find out the technostress levels of nurses, Mahdian et al. (2017) reported that nurses had moderate level of technostress perception.[21] In a different study conducted, health professionals were found to experience moderate level of technostress.[22] In their study, Khuntia et al. (2015) found that smart care systems caused stimulation fatigue and technostress.[23] The use of constantly developing technologies and new practices in patient care can be thought to cause technostress.

In the evaluation made in terms of marital status, married individuals were found to have higher mean techno-overload, techno-complexity, techno-insecurity and TS scores. In studies conducted, unlike the results of the present study, it was found that marital status did not affect technostress level.[4,18,22] It can be thought that married individuals' having more responsibility when compared with single ones may have caused them to perceive technology more complicated and to have increased technostress levels. Mean techno-invasion scores of high school graduates were found to be higher. In their study, Hsiao (2017) and Krishnan (2017) emphasized that technostress level decreased as level of education increased and that level of education was a significant criterion for technostress.[24,25]

In techno-invasion sub-dimension, the participants who evaluated hospital information system as difficult, those who received in-service training for information system and those who were undecided about the sufficiency of in-service training had higher mean scores. Techno-invasion is defined as situations in which technology forces its users to work faster and longer [26]. This means nurses' using the hospital information system faster and longer and maybe outside the normal working hours. Nurses use the hospital information system to record the data about the care they provide to ensure the continuation of care.[27] It has been stated that if a nurse does not have the chance to enter such information during shift and if s/he has to work faster or stay longer for this reason, s/he will probably experience negative psychological situations.[2] In Califf's (2020) study, it was reported that in their breaks, nurses regularly put patient information in the system and thus experienced changes in their working habits and their technostress levels increased.[22] In techno-complexity sub-dimension, it was found that the

participants who evaluated the hospital information system as difficult and those who evaluated their technological sufficiency as moderate had higher mean scores. In one study, it was reported that nurses had to change their way of working to adapt to technology and thus their workload increased. This, in turn, affected their technostress levels negatively.[28] In techno-uncertainty sub-dimension, it was found that the participants who evaluated their technological sufficiency as good and those who stated that all the records in the unit were in computer had higher mean scores. Users can think of complexity of technology as an obstacle to completing their work.[6] When changes occur continually in technology and such changes are not communicated effectively to users, technological uncertainty occurs and prevents the completion of tasks about work.[6,9] In one study, it was reported that 61.6% of nurses complained that the systems and devices used were updated very frequently. In addition, these factors were found to increase nurses' technostress levels.[28] It was found that error message of the computer system or breakdown of the system increased the cortisol levels of users significantly.[29] It has been stated that situations that may cause anxiety and tension in individuals occurred due to reasons such as lack of training for technology, lack of infrastructure in institutions and lack of support for technology experts.[30] In techno-insecurity sub-dimension, it was found that the participants who worked in the administrative department and those who stated that all the records in the unit were in computer had higher mean scores. When individuals feel inadequate about technology, they may feel vulnerable about losing their jobs to more knowledgeable and techy individuals.[9] The present study also had results supporting these findings. It has been reported that nurses who do not feel adequate about patient care technology feel threatened about their jobs by young nurses who are adequate about technology.[2] In another study, it was found that 74% of nurses lacked job security due to having insufficient information about technology use. It has been reported that this situation increases technostress levels of nurses.[28] All kinds of support provided to individuals about technology will enable them to feel themselves comfortable to a large extent.[8] This is because individuals who have high level of information, experience and self-efficacy about technology use will have higher self-confidence and the anxiety and stress they feel about technology use will decrease considerably.[31]

A positive and very weak statistically significant association was found between age and techno-uncertainty sub-dimension and TS total score. Similar to the result that the difference between age variable and technostress level is significant, there are also studies in literature which show that technostress level increases as age increases.[4,18,26] In their information technologies study about the effects of the variable of age on technostress, Tams et al. (2018) emphasized that age should be included as a key value among demographic variables.[32] It has been stated that since the process of adaptation to changing and developing technologies is difficult with aging, individuals may experience higher technostress levels in advanced ages.[31,33] It has also been stated that continuous changes and updates in technology will make users uncomfortable and create uncertainty in users and thus they will need to learn information and educate themselves about new technologies.[2] It has been thought that this situation may have a negative influence on technostress levels. In this study, a positive and very weak statistically significant association was found between total working time and techno-uncertainty sub-dimension. In addition, a positive and very weak statistically significant association was found between working time in the institution and techno-overload, techno-invasion, techno-complexity and TS total scores. In one study, senior nurses stated that it was challenging to learn new technologies. These senior nurses stated that it was not that challenging for young nurses to use hospital information system. They stated that the reason for this was the fact that young individuals were very good at using this system. In addition, it was reported that nurses only accessed the areas they knew about and that they could not explore the system much due to its complexity.[2] In their study, Çetin and Bülbül (2017) found that school managers with more professional service time had high technostress levels.[4] It has been thought that complexity about technology causes users to feel inadequate about computer skills and forces them to spend time and effort to learn and understand the system.

Limitations of the Study

The present study is limited with nurse studying in a university hospital in Turkey. The response rate obtained in this study was 45%.

CONCLUSION

As a result of the study, it was found that nurses had moderate technostress levels and age, level of education, perception of technological sufficiency and the fact that all records of the unit were in computer affected nurses' technostress levels. It is recommended to study burnout and job satisfaction due to techno stress in future studies.

Conflict of Interests

The authors declare that they have no conflicts of interest. All authors reviewed, revised and edited the paper. All authors read and approved the final manuscript submitted for publication.

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