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RESEARCH ARTICLE

THE IMPACT OF TECHNOSTRESS RESOURCES ON SUBJECTIVE CAREER SUCCESS AMONG HEALTHCARE PROFESSIONALS IN HEALTH INSTITUTIONS

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ABSTRACT

OBJECTIVE:

Employee satisfaction is a critical factor in the success of healthcare organizations. As digital technologies become more prevalent in healthcare settings, understanding their psychological impact on employees is increasingly important. This study investigates the effect of technostress resources on the subjective career success of healthcare professionals.

METHODS:

The study was conducted with 400 healthcare professionals at a university hospital in Konya Province. Data were collected using the 23-item, 5-factor Technostress Creators Scale and the 24-item, 8-factor Subjective Career Success Inventory through face-to-face surveys and convenience sampling. Participants included health technicians, nurses and midwives, physicians, and medical secretaries. SPSS software was used for statistical analysis, including t-tests, ANOVA, correlation, and regression analyses.

RESULTS:

ANOVA and t-tests results showed no significant differences in technostress scores based on education level, marital status, or professional experience. However, significant differences were found in relation to gender, income level, occupation. Correlation analysis revealed a positive and significant relationship between technostress resources and subjective career success.

COCLUSION:

The findings suggest that technostress resources have a measurable impact on healthcare professionals' career satisfaction. Addressing technostress through supportive organizational strategies may enhance employees' sense of career success and well-being in the workplace.

KEYWORDS

technostress, career satisfaction, healthcare professionals, psychological stress, job performance, workplace well-being

INTRODUCTION

Employee satisfaction within the healthcare sector has become a crucial determinant of organizational success. As the healthcare sector continues to evolve, identifying the factors influencing employee satisfaction has gained increasing importance [1]. However, research examining the impact of healthcare organizations on both healthcare providers and patients often produces conflicting findings [2]. In this context, the impact of technology use in organizational settings emerges as a critical issue. Similarly, career success serves as a significant motivator for both employees and organizations, warranting further investigation. Technostress is defined as the negative psychological and physiological strain individuals experience as a result of technology use [3]. Factors such as the inability to keep up with rapidly evolving technological innovations and an increasing workload are among the primary causes of technostress [4]. Technostress is a multifaceted phenomenon encompassing physical, emotional, behavioral, and psychological dimensions [5]. Research on technostress typically focuses on various factors that assess the negative impacts of technology use on individuals [6]. These factors include: the increased workload imposed by technology (techno-overload), the constant connectivity pressure that disrupts personal life (techno-invasion), the complexity of technologies that induces feelings of inadequacy (techno-complexity), concerns about occupational safety arising from new technologies (techno-insecurity), and the uncertainty created by technological changes (techno-uncertainty) [6,7]. Salanova et al. (2013) identified elements of technostress such as skepticism, fatigue, anxiety, and ineffectiveness [8]. In this context, it is believed that the negative impacts of technostress on employees could hinder their career success.

Career success refers to positive outcomes that contribute to an individual's sense of psychological accomplishment in their professional life [9,10]. It can also be defined as the positive outcomes and achievements an individual attains through their work experiences [11,12]. Initially conceptualized through the lens of job satisfaction, career success has since been categorized into two main dimensions as objective and subjective career success. Career success can be assessed through objective factors, such as salary and hierarchical position, as well as through individuals' subjective evaluation of their careers [12,13]. In particular, subjective career success has emerged as a form of success that provides psychological fulfillment, rooted in individuals' personal experiences [14,15]. Conversely, objective career success refers to tangible and psychological outcomes derived from work experiences, which hold significant importance for both individuals and organizations [16,17]. In this context, how individuals perceive their work environments, how they evaluate career development opportunities, and how they cope with stressors have become a fundamental research topic in the field of organizational behavior in today's dynamic and competitive business world.

How individuals perceive their work environments, how they evaluate career development opportunities, and how they cope with stressors have become fundamental research topics in the field of organizational behavior in today's dynamic and competitive business world. In this context, Conservation of Resources (COR) theory offers an important theoretical framework explaining the behaviors and psychological responses of individuals under the threat of resource loss [18,19]. According to COR theory, individuals tend to conserve and increase their resources; some types of stress encountered in this process can be considered not only as threats but also opportunities. From this perspective, challenge stressors represent a potentially valuable resource for individuals [20]. This is because such stressors are often associated with individual development, learning, and career advancement. When individuals perceive these demands as supportive elements in achieving their goals, they tend to view these situations as opportunities for growth rather than as hindering pressure [21,22]. Therefore, it is thought that challenging stressors can strengthen individuals' positive attitudes towards work and encourage innovative behaviors. However, task crafting, a process in which individuals actively reorganize and improve their work, stands out as an important mediating mechanism in transforming challenging stress into innovative outcomes [23]. The task crafting process allows individuals to make their work more meaningful and manageable while coping with stress, and in this respect, it plays a critical role in transforming stress into innovative behaviors.

In a study conducted by Karaşin and Öztırak (2023), it was found that the career dedication of healthcare professionals positively influences their subjective well-being [24]. Similarly, Karadirek (2022) reported that prosocial motivation significantly predicts the career success of academic staff employed at a public university in Türkiye [25]. In addition,

research by Kopuz and Aydın (2020) revealed that healthcare professionals experience a moderate level of technostress [26]. The correlation between career success and technostress is a critical consideration for healthcare institutions striving to establish more efficient and effective work environments. In this context, the present study aims to examine the impact of technostress resources on the subjective career success of healthcare professionals. By contributing to the development of strategies designed to enhance career satisfaction among healthcare professionals, this research seeks to offer a valuable addition to existing literature.

METHODS

PARTICIPANTS

The study sample consisted of physicians, nurses, midwives, health technicians, and medical secretaries employed at a university hospital. Only data from participants who completed all items in the survey were included in the analysis. The sample size was determined using the G*Power 3.1.7 software. A total of 470 surveys were distributed to employees; however, only 400 respondents who completed all items were included in the final analysis. Incompletely filled surveys were excluded from the study. The data collection form required approximately 10 minutes to complete.

INFORMATION FORM

The information form included questions regarding the participants' individual characteristics, professional background, and working conditions.

The Technostress Creators Scale, originally developed by Tarafdar et al. and adapted into Turkish by Bulut, Şengül, and Akbal (2010), with its validity established in 2023, consists of 23 items across five factors: techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty [27]. The scale was designed using a 5-point Likert format. Higher scores on the scale indicate higher levels of technostress. The scale does not contain any reverse-scored items. The Turkish version of the scale demonstrated Cronbach's alpha coefficients ranging from 0.60 to 0.87 across the five factors. The Subjective Career Success Inventory (SCSI), originally developed by Shockley et al. and adapted into Turkish by Budak and Gürbüz (2017), consists of 24 items across eight factors (recognition, meaningful work, influence, quality work, authenticity, personal life, growth and development) [28]. The scale was designed using a 5-point Likert format. The scale does not contain any reverse-scored items. The Turkish reliability coefficient for the factors of the scale ranges from 0.79 to 0.91.

INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria were defined as: actively working as a physician, midwife, health technician, or medical secretary at the university hospital where the program is conducted, being 18 years of age or older, and completing the data collection form voluntarily. Exclusion criteria were listed as incomplete or erroneous data collection, classification according to the specified industries, refusal to participate in the study, or withdrawal from the study during the research process.

STATISTICAL ANALYSIS

Data were analyzed using IBM SPSS Statistics 26.0. The descriptive characteristics of the findings are presented as frequency (n), percentage (%), and mean ± standard deviation (minimum-maximum) values. Normality was assessed using Skewness and Kurtosis values, which ranged between -1.5 and +1.5, indicating that the data were consistent with a normal distribution [29]. For the Technostress Creators Scale, the Skewness and Kurtosis values were 0.112 and -0.283, respectively. For the Subjective Career Success Inventory, the values were -0.342 and 0.486. Descriptive data were evaluated using frequency (n), percentage (%), mean, standard deviation, median, minimum, and maximum values. The reliability of the scales was assessed using Cronbach's alpha internal consistency coefficient. Pearson's correlation test was used to examine correlations between variables. Simple linear regression analysis was used to determine whether the variables predicted each other. Since the data met the normality criteria, parametric tests (t-test, ANOVA) were applied for group comparisons. The χ^2 test was used to assess differences between categorical variables. Results were evaluated at a 95% confidence interval, with statistical significance set at $p<0.05$.

ETHICAL ASPECT OF THE RESEARCH

Before starting the research, permission was received from Selçuk University Faculty of Health Sciences Non-Invasive Clinical Research Ethics Committee (Date: 27/03/2024; Decree No: 2024/340).

RESULTS

The distribution of socio-demographic data for the healthcare professionals participating in the study is presented in Table 1.

TABLE 1: DISTRIBUTION OF PARTICIPANTS ACCORDING TO DESCRIPTIVE CHARACTERISTICS AND TEST RESULTS OF DIFFERENCES (N = 400)

Descriptive characteristics	n (%)	Technostress Total Mean±SD	Test/p	Subjective Career Success Inventory Total Mean±SD	Test/p
Education					
High school	39 (9.8)	2.75±0.68	F=1.345	3.45±0.72	F=0.256
Associate Degree	111 (27.8)	2.93±0.64	p=1.345	3.56±0.56	p=0.054
Bachelor's Degree	153 (38.3)	2.91±0.62		3.47±0.70	
Postgraduate	97 (24.3)	2.99±0.60		3.68±0.54	
Marital Status					
Single	166 (41.5)	2.81±0.63	t=1.025	3.50±0.64	t=0.021
Married	234 (58.5)	2.99±0.61	p=0.306	3.58±0.63	p=0.984
Gender					
Female	225 (56.3)	2.95±0.62	**t=-2.902**	3.55±0.61	t=-1.176
Male	175 (43.8)	2.88±0.63	**p=0.004**	3.54±0.66	p=0.240
Income Status					
Minimum wage	46 (11.5)	2.67±0.58	**F=5.225**	3.48±0.64	F=0.287
2 times the minimum wage	198 (49.5)	2.90±0.61	**p=0.006** Post-Hoc (Scheffe) 1<3	3.55±0.63	p=0.750
3 times the minimum wage and above	156 (39.0)	3.01±0.65		3.56±0.63	
Occupation					
Physician	78 (19.5)	3.06±0.62	**F=2.662**	3.72±0.52	**F=5.520**
Nurse-Midwife	118 (29.5)	2.91±0.59	**p=0.048** Post-Hoc (Scheffe) 4<1	3.46±0.66	**p=0.001** Post-Hoc (Scheffe) 2<1, 4<1
Health Technician	164 (41.0)	2.90±0.66		3.58±0.62	
Medical secretary	40 (10.0)	2.72±0.56		3.27±0.69	
Age					
18-24	63 (15.8)	2.73±0.56	**F=3.877**	3.51±0.50	F=0.177
25-31	138 (34.5)	2.88±0.66	**p=0.009** Post-Hoc (Scheffe) 1<4	3.54±0.65	p=0.912
32-38	103 (25.8)	2.95±0.64		3.54±0.72	
39 and older	96 (24.0)	3.06±0.57		3.58±0.59	
Professional experience					
1-4 years	137 (34.3)	2.82±0.60	F=1.682	3.49±0.57	F=1.105

5-8 years	72(18.0)	2.91±0.70	p=0.153	3.51±0.70	p=0.354
9-12 years	74 (18.5)	2.98±0.67		3.65±0.72	
13-16 years	43 (10.8)	2.91±0.56		3.50±0.64	
17 years and over	74 (18.5)	3.04±0.57		3.61±0.58	

A total of 400 employees participated in the survey, of whom 225 (56.3%) were female. The largest proportion of participants were health technicians (164, 41.0%), followed by nurses and midwives (118, 29.5%), physicians (78, 19.5%), and medical secretaries (40, 10%). The majority of participants were aged between 25 and 31 years (138 participants, 34.5%), and 234 participants (58.5%) were single. The sociodemographic data of the participants are presented in Table 1. All employees participating in the study fully completed the survey.

As a result of the t-test, a significant difference was found between the gender of the participants and their mean score on the Technostress Creators Scale ($p<0.05$). The mean score for female participants was higher compared to that for male participants. However, no statistically significant difference was found between marital status and the mean score on the Technostress Creators Scale ($p>0.05$). In addition, there were no statistically significant differences between marital status, gender, and the mean scores on the Subjective Career Success Inventory ($p<0.05$).

To assess whether the participants' educational status, income level, occupation, age, and years of professional experience were associated with the mean scores on the Technostress Creators Scale and the Subjective Career Success Inventory, a one-way analysis of variance (ANOVA) was conducted. The results revealed significant differences between income level, age group, and occupation, and their respective mean scores on the Technostress Creators Scale ($p<0.05$). It was found that participants earning three times or more than the minimum wage had higher mean scores on the Technostress Creators Scale than those earning the minimum wage. Similarly, participants over the age of 39 had higher mean scores compared to those in the 18-24 age group. In addition, physicians had higher mean scores on the scale compared to medical secretaries.

A significant difference was also found between participants' occupations and their mean scores on the Subjective Career Success Inventory ($p<0.05$). Physicians had higher mean scores on the Subjective Career Success Inventory compared to medical secretaries. However, no significant differences were found between participants' educational status, income level, age group, and years of professional experience and their mean scores on the Subjective Career Success Inventory ($p>0.05$).

TABLE 2. OVERALL SCALE AND FACTOR MEAN SCORES OF EMPLOYEES AND CORRELATION RESULTS (N = 400)

	mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. SCSI Total Score	3.54	0.63	**1**														
2. Recognition	3.74	0.84	**.642****	**1**													
3. Meaningful Work	3.38	0.83	**.728****	**.552****	**1**												
4. Influence	3.05	1.08	**.658****	**.345****	**.409****	**1**											
5. Quality Work	3.78	0.79	**.740****	**.472****	**.556****	**.430****	**1**										
6. Authenticity	3.43	0.91	**.776****	**.344****	**.466****	**.431****	**.502****	**1**									
7. Personal Life	3.43	0.87	**.643****	**.234****	**.299****	**.288****	**.243****	**.557****	**1**								
8. Growth and Development	3.68	0.78	**.779****	**.448****	**.540****	**.357****	**.597****	**.511****	**.491****	**1**							
9. Satisfaction	3.36	1.04	**.739****	**.338****	**.401****	**.362****	**.409****	**.585****	**.459****	**.576****	**1**						

10. Overall Technostress	2.92	0.63	**.237****	**.112***	**.103***	**.101***	**.119***	**.253****	**.260****	**.119***	**.259****	1					
11. Techno-overload	3.11	0.95	**.137****	.077	0.26	-.040	**.113***	**.154****	**.147****	**.130****	**.185****	**.741****	1				
12. Techno-invasion	2.96	0.89	**.211****	**.156****	**0.114***	**.151****	**.142****	**.204****	.075	**.158****	**.188****	**.670****	**.437****	1			
13.Techno-complexity	2.78	0.81	**.129****	.096	.076	.089	.008	**.121***	**.145****	**.018**	**.152****	**.773****	**.423****	**.448****	1		
14. Techno-insecurity	2.90	0.97	**.102***	.017	.028	-.050	.033	**.130****	**.234****	.022	**.162****	**.722****	**.395****	**.320****	**.433****	1	
15. Techno-uncertainty	2.83	1.00	**.239****	.044	**.119***	**.221****	**.111***	**.259****	**.285****	0.79	**.197****	**.537****	**.173****	**.145****	**.196****	**.335****	1

Bold values represent statistically significant results. * p<0.05, ** p<0.01, SD: Standard Deviation,

The correlation between Technostress and Subjective Career Success Inventory scores, as well as the individual factors of each, is presented in Table 2. A significant positive and very weak to weak correlation was found between the total scores and the factors of the scales (Table 2). Results were evaluated at a 95% confidence interval, with statistical significance set at p<0.05.

The mean score for the Technostress Creators Scale was 2.92±0.63, while the mean score for the Subjective Career Success Inventory was 3.54±0.63. These mean scores suggest that participants experienced a moderate level of technostress, while their subjective perceptions of career success were at a moderate-to-high level.

TABLE 3. REGRESSION ANALYSIS (N=400)

	B	Std Error	β	t	p
Constant	2.846	0.147		19.355	<0.001
Technostress	.240	0.049	0.237	4.863	<0.001

R=0.237; R2=0.056; F=23.648; The regression equation of the model is Y=2.846+0.240x

Simple linear regression analysis revealed that technostress significantly and positively predicted subjective career success ($R = 0.237$, $R^2 = 0.056$, $p < 0.001$). Although the explained variance was limited (5.6%), the relationship was statistically significant, indicating that technostress has a measurable effect on career perception. This finding suggests that technostress may play a significant role in how individuals perceive their career success and warrants further investigation in future research ($B = 0.240$, $t = 4.863$).

DISCUSSION

The correlation analysis conducted in this research reveals a weak and statistically significant positive correlation between technostress and subjective career success. Previous studies, such as those by Dragano and Lunau (2020), indicate that increasing technological demands in the workplace can create stress factors, yet, for some individuals, this stress can enhance professional competence and motivate personal development [30]. The positive contribution of technostress to subjective career success can be explained by both individual and institutional dynamics.

When examining the demographic variables related to technostress, it is evident that female participants reported significantly higher levels of technostress compared to their male counterparts. This may be attributed to factors such as insufficient institutional support for technology use, a higher likelihood of female employees experiencing work-family role conflicts, or additional pressures associated with gender roles [31].

In addition, a significant difference was found based on occupation. Physicians reported the highest mean technostress scores, while medical secretaries had the lowest. Physicians often encounter technological challenges related to patient management, advanced diagnostic and treatment tools, and electronic health record systems [32-33].

With respect to subjective career success, significant differences were observed based on occupation, while no significant differences were found in relation to gender, income, age, education level, or marital status. While married participants exhibited slightly higher subjective career success scores compared to their single counterparts, the lack of statistically significance suggests that work–life balance and family responsibilities did not significantly influence career success within this sample [34-35]. While exposure to high levels of technology is associated with increased risks of mental strain, fatigue, and cognitive overload, appropriate training and institutional support mechanisms can enhance employees' professional satisfaction and career success [36].

The findings show a statistically significant, though weak, association between technostress and subjective career success. This suggests that technostress has the potential to influence individuals' career development and should not be ignored, despite its low explanatory power. According to Conservation of Resources (COR) theory, challenging stressors can motivate individuals to increase their resources, learn, and develop; this could explain the positive impact of technostress on subjective career success. Furthermore, the task crafting process can function as a critical channel for individuals to transform stressors into innovative behavior. Regarding demographic and occupational differences, the higher technostress levels reported by female participants can be explained by work-family role conflicts and differences in access to technological support. The highest technostress scores among doctors can be linked to occupational technological challenges such as patient management, advanced diagnostic and treatment tools, and electronic health records. These results indicate that organizations can mitigate the negative effects of technostress and support individuals' career development by providing their employees with adequate training and technological support.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, this study aimed to explore the effects to technostress levels among professionals working in healthcare institutions on their subjective career success. The research findings indicate that technostress presents both challenges and opportunities. The study highlights that various factors of technostress exert different effects on employees. In particular, elements such as techno-overload, techno-invasion, and techno-uncertainty contribute to additional pressures. The findings suggest that, when adequate institutional support and guidance are provided during the technological adaptation process, the adverse effects of technostress can be mitigated. Furthermore, the research demonstrates that digital transformation processes within healthcare institutions can significantly influence employees' perceptions of professional success. This adaptation is closely linked to the institutional support mechanisms available. Based on these insights, several strategies are proposed to reduce technostress levels among employees in healthcare settings and enhance their subjective career success.

The findings of this study provide valuable insights for understanding and managing the effects of technostress on employees in healthcare institutions. To help healthcare professionals adapt to technological changes and sustain their professional success, systematic organizational support and training programs must be implemented.

COMPETING INTEREST:

There is no conflict of interest arising from the study on the part of the authors or from a third perspective.

ETHICAL STANDARDS:

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. In addition, the study (with Selçuk University SBF. Non-invasive Clinical Research Ethics Committee Approval Certificate dated 27.03.2024 and numbered 2024/340) was prepared in accordance with the rules of scientific research and publication ethics.

AUTHOR CONTRİBUTİONS:

ŞG: Conceptualization; writing—original draft; formal analysis; methodology; writing—review and editing

FE: Conceptualization; writing—original draft; formal analysis; methodology; writing—review and editing.
ŞS: writing—review and editing.
YET: writing—review and editing.

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