Original Article

Level of Technostressors and their Effect on Work Productivity of Teachers of a Private Sector Medical and Dental College

Saadia Maqbool[1], Seema Daud[1], Hassan Ali[1], Hina Ali[1], Bilal Ahmad[1], Salman Tahir[1]
[1]Department of Community Medicine, Lahore Medical and Dental College, Lahore, Pakistan
Correspondence to: Saadia Maqbool, Email: maqboolsaadia@yahoo.com

ABSTRACT

Background: The widespread use of information and communication technology (ICT) is associated with technostress. This study aimed to determine the levels of technostress and technostressors experienced by teachers at a private medical and dental college and to examine the correlation between technostressors and work productivity.

Methods: The teaching staff of Lahore Medical and Dental College, Lahore participated in this analytical cross-sectional study from January 2025 to June 2025. Convenience sampling was used to enroll 230 participants. A validated English-language questionnaire containing 23 items was used, with a Likert scale ranging from 05 (strongly agree) to 01 (strongly disagree). The Cronbach alpha value for the questionnaire was above 0.75. Technostressors (techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty) and work productivity were measured. Low, medium, and high scores were defined as 1.00–2.33, 2.34–3.66, and 3.67–5, respectively, of the total score of 5. The 1–5 scale was divided into three equidistant ranges to ensure balanced interpretation. SPSS version 27 was used to analyze the data. Independent-samples t-test, ANOVA, and Pearson's correlation were applied. A p-value ≤0.05 was considered significant.

Results: The respondents had a medium level of technostress, with a mean score of 2.83 ± 0.65. The techno-invasion score was the highest (3.12 ± 0.97) among all technostressors. Mean technostress was significantly associated with the department. By comparing means, significant associations were noted among the number of social media sites used and techno-overload, use of social media sites and techno-invasion, number of ICT gadgets and years of using ICT with techno-complexity, and gender with techno-uncertainty. Techno-overload, techno-invasion, techno-complexity, and techno-insecurity were found to be significantly but weakly correlated with work productivity.

Conclusion: The teachers had a medium level of technostress. A significant correlation was observed between techno-overload, techno-invasion, techno-complexity, techno-insecurity, and work productivity.

Keywords: Technostress; Information Technology; Work Productivity; Medical Faculty; Occupational Stress.

INTRODUCTION

Digitalization has permeated every facet of human endeavors and brings opportunities as well as challenges.[1] An emerging phenomenon, technostress (TS), is closely related to the pervasiveness of information and communication technologies (ICT) in contemporary society.[2] TS was first described as "a modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner" by Brod in 1984.[3] Use of technology has a detrimental impact on human behavior, thought, attitude, and psychology.[4,5] The rapid growth of ICT in medical education has increased the demand for technologically skilled teachers.[6] However, its integration has created significant stress among faculty due to workload pressures, constant information flow, and the need for continuous skill development.[7,8] Moreover, the use of ICT in the form of social networking, mobile shopping, and information security compliance can lead to technostress.[9]

Technostress manifests in several distinct forms, which are collectively called technostressors. Techno-overload occurs when ICT users are compelled to work longer and faster. Techno-invasion arises when continuous connectivity blurs the boundaries between personal and professional life. Techno-complexity refers to situations in which users feel their computer skills are insufficient, requiring significant time and effort to acquire new competencies. Techno-insecurity emerges when the introduction of new ICT or the presence of more proficient peers creates feelings of inadequacy. Finally, techno-uncertainty describes the stress experienced when ICT

ARTICLE INFO

Article History: Received: 9 June 2025 | Accepted: 21 December 2025
Conflict of Interest: The authors declared no conflict of interest exists.
Funding: None

Citation: Maqbool S, Daud S, Ali H, Ali H, Ahmad B, Tahir S. Level of techno stressors and their effect on work productivity of teachers of a private sector medical and dental college. J Fatima Jinnah Med Univ. 2025;19(4):179-184.
DOI: http://doi.org/10.37018/EDFR2135

evolves continuously, leaving users unsettled and disturbed. [10]

Work productivity of teachers refers to their ability to effectively deliver educational responsibilities, including teaching, mentoring, and administrative tasks, while maintaining efficiency, quality, and timely completion of duties.[11] Work productivity of medical teachers can be negatively affected by technostress.

In a study conducted among science field faculty members in the Kyrgyz Republic, teachers' technostress was found to be moderate (2.71 ± 0.50).[12] A moderate level of technostress was found among 48% of teaching staff at universities in Cluj-Napoca, Romania.[13] Another study conducted among Egyptian medical staff showed that 33.3% had high, 65.2% had moderate, and 1.5% had a low level of technostress.[14]

Despite growing attention to technostress in educational and corporate settings, little is known about its impact on faculty productivity. Existing studies have focused on students or school teachers and have examined the psychological effects of technostress, leaving a gap in understanding the technostress experienced by medical educators. This study addresses that gap by examining the level of technostress among teachers and its effect on their work productivity, providing evidence to guide policymakers, ICT providers, and medical institutions for healthier ICT integration. The study aimed to determine the levels of technostress and technostressors experienced by teachers at a private medical and dental college and to examine the correlation between technostressors and work productivity.

SUBJECTS AND METHODS

This analytical cross-sectional study was conducted at Lahore Medical and Dental College (LMDC), Lahore, and Ghurki Trust Teaching Hospital (GTTH) from January 2025 to June 2025. Ethical approval was obtained from the Institutional Review Board; LMDC approved the study vide letter (IRB no. LMDC/L-ORIC-26-2025). Written informed consent was obtained from participants after they were provided with detailed information about the research. Anonymity and confidentiality of participants were maintained.

All medical and dental teaching staff in LMDC and GTTH, including professors, associate professors, assistant professors, senior demonstrators, demonstrators, senior registrars, and registrars, participated in the study. The WHO sample size calculator determined the sample size with a 95% confidence level and a 5% margin of error. The required sample size was determined by the formula $N = Z^2 \times \hat{p} \times (1-\hat{p}) \div E2$, where N represented the required sample size, Z was the Z score, p denoted the estimated proportion, and E was the desired margin of error. Using convenience sampling, 230 participants were included in the study.

Data collection was done by distributing hard copies of the questionnaire among study participants. Confidentiality and participant anonymity were maintained. Tarafdar et al. ([15]) validated the Technostress Questionnaire (TSQ) in a study conducted across two public-sector organizations in the United States. The reliability value of every item of the questionnaire using Cronbach's alpha was above 0.75.

The questionnaire used in the study consisted of two sections. The first section contained background information of study participants, such as age, gender, work experience, place of work, designation, number of ICT gadgets and social media sites used, years of experience with ICT, and daily hours spent using ICT gadgets. The cumulative use of social media platforms and ICT gadgets, encompassing both personal and professional purposes, was recorded. The second part included the validated Technostress Questionnaire (TSQ)15, consisting of 23 questions on a five-point Likert scale, with options ranging from strongly disagree (1) to strongly agree (5). The TSQ is further divided into five domains, namely, techno-overload (items 1–4), techno-invasion (items 5–8), techno-complexity (items 9–13), techno-insecurity (items 14 & 15), and techno-uncertainty (items 16–19). This scale recorded the level of technostress and work productivity. Of the 23 items in the scale, the first 19 gauged technostress, while the last four (items 20–23) assessed work productivity. Work productivity was measured using a 5-item Likert scale (1 = strongly disagree, 5 = strongly agree) assessing participants' perceptions of how technology enhances work quality, efficiency, and task accomplishment. A mean score was calculated for each participant, with higher scores indicating greater perceived work productivity. The 1–5 scale was divided into three equidistant ranges to ensure balanced interpretation. For total technostress and every techno-stressor, scores of 1–2.33, 2.34–3.66, and 3.67–5 were considered low, medium, and high, respectively.[16]

Data were entered, cleaned, and analyzed using the Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics were used to report numbers, percentages, and mean scores. Independent categorical variables were compared with continuous technostress mean scores using an independent-samples t-test for variables with two categories (e.g., gender, daily ICT use) and a one-way ANOVA for variables with more than two categories (e.g., age, designation, department). The Pearson correlation coefficient (r) was calculated to assess the relationship and direction between technostressors and work productivity. Likert scale responses were treated as continuous variables for these analyses. The cut-off

point for statistical significance was p ≤0.05. Bias was minimized by standardized data collection.

RESULTS

The mean age of participants was 37.82 ± 11.39 years. A significant majority of participants used three or more ICT devices, including a desktop computer, a laptop, a tablet, and a cell phone. The mean duration of using ICT gadgets was 13.55 ± 5.76 years. The respondents used to spend 4.81 ± 2.77 hours per day using ICT (Table 1)

The mean technostress score was 2.83 ± 0.65, indicating a medium level of technostress. Among the five constructs of technostress, techno-invasion had the highest value (3.12 ± 0.97), followed by techno-uncertainty (3.08 ± 1.03).

Table 1: Sociodemographic details of study participants (n=230)

Category	n (%)
Age (years)	
24–39	147 (63.9)
40–59	70 (30.4)
≥60	13 (5.7)
Gender	
Male	84 (36.5)
Female	146 (63.5)
Discipline	
Basic Sciences (Medical)	96 (41.7)
Clinical Sciences (Medical)	84 (36.5)
Basic Sciences (Dental)	17 (7.4)
Clinical Sciences (Dental)	33 (14.3)
Designation	
Professor	41 (17.8)
Associate Professor	15 (6.5)
Assistant Professor	42 (18.3)
Senior Demonstrator/Demonstrator	84 (36.5)
Senior Registrar/Registrar	48 (20.9)
Work experience (years)	
1–5	96 (41.7)
6–10	54 (23.5)
11–15	25 (10.9)
16–20	16 (7.0)
>20	39 (17.0)
Years using ICT	
<5	11 (4.8)
5–10	81 (35.2)
>10	138 (60.0)
Number of ICT gadgets used	
Only smartphone	8 (3.5)
Smartphone + 1 device	43 (18.7)
≥3 devices	179 (77.8)
Number of social media sites used	
None	5 (2.2)
One	32 (13.9)
Two	49 (21.3)
≥3	144 (62.6)
Daily ICT usage	
0–4 hours	121 (52.6)
4 hours	109 (47.4)

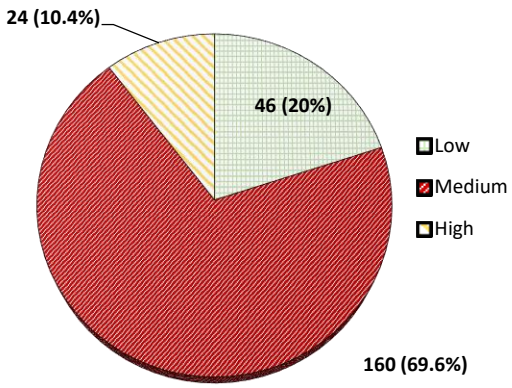

Figure 1: Level of technostress among teachers (n=230)

The values of other constructs were techno-overload (3.02 ± 1.07), techno complexity (2.59 ± 0.93), and techno-insecurity (1.99 ± 1.0).

The majority of participants had a medium level of technostress (Figure 1). Department (as an independent variable) was significantly associated with mean technostress (p = 0.007). The highest level of technostress was found in Pediatric Dentistry (3.54 ± 0.26), followed by Pharmacology (3.45 ± 0.88), while the lowest level of TS was observed in the ENT department (2.3 ± 0.56). However, no statistically significant relationships (p > 0.05) were found between mean technostress and respondents' age group, gender, designation, number of ICT gadgets, years of using these gadgets, or number of social media sites used.

The p-values were calculated using an independent sample t-test for gender and daily ICT usage, and one-way ANOVA for variables with more than two categories. Table 2 shows the association between demographic, professional, and ICT-related variables with techno-stressors.

There was a weak positive but significant correlation between techno-overload and work productivity (p = 0.005), a weak but significant correlation between techno-invasion and work productivity (p = 0.008), techno-complexity and work productivity (p = 0.028), and techno-insecurity and work productivity (p<0.001). Details are mentioned in Table 3.

DISCUSSION

This study was the first in our region to examine this topic and provided deeper insight into technostressors among instructors at medical and dental colleges. Specifically, the correlation between techno-stressors and work productivity was observed.

The participants had a medium level of technostress, with a mean value of 2.83 ± 0.65. Previously conducted

Table 2: Association between demographic, professional, and ICT-related variables with technostressors (n=230)

Factors	Technostressors (mean ± SD)				
	TO	TI	TC	TIS	TU
Discipline					
Medical	2.99 ± 1.11	3.09 ± 0.96	2.62 ± 0.97	2.01 ± 1.04	3.06 ± 1.02
Dental	3.11 ± 0.99	3.23 ± 0.97	2.46 ± 0.77	1.94 ± 0.88	3.12 ± 1.05
p-value	0.45	0.35	0.25	0.69	0.72
Age					
24-39 years	3.06 ± 0.99	3.17 ± 0.94	2.56 ± 0.90	2.03 ± 1.02	3.08 ± 1.06
40-59 years	2.89 ± 1.19	3.06 ± 0.99	2.53 ± 0.94	1.91 ± 0.97	3.09 ± 0.95
≥60 years	3.15 ± 1.25	2.88 ± 1.17	3.15 ± 1.01	1.96 ± 1.05	2.92 ± 1.02
p-value	0.47	0.49	0.07	0.68	0.86
Gender					
Male	2.99 ± 1.12	3.10 ± 0.97	2.46 ± 0.93	1.99 ± 1.06	2.87 ± 1.05
Female	3.03 ± 1.04	3.13 ± 0.97	2.66 ± 0.92	1.99 ± 0.97	3.19 ± 0.99
p-value	0.81	0.79	0.11	0.98	**0.02***
Designation					
Professor	3.09 ± 1.31	3.04 ± 1.03	2.55 ± 0.99	1.72 ± 0.89	3.21 ± 1.05
Associate Professor	3.15 ± 1.08	3.07 ± 1.22	2.79 ± 0.99	2.13 ± 1.06	3.08 ± 1.00
Assistant Professor	2.93 ± 1.03	3.13 ± 0.92	2.56 ± 0.93	2.15 ± 0.98	2.96 ± 0.86
Demonstrator	3.02 ± 1.02	3.14 ± 0.96	2.61 ± 0.96	2.05 ± 1.05	3.13 ± 1.10
Registrar/Senior Registrar	2.97 ± 0.99	3.17 ± 0.92	2.53 ± 0.82	1.94 ± 1.00	2.95 ± 1.03
p-value	0.95	0.97	0.91	0.31	0.69
Total work experience					
1-5 years	2.94 ± 0.98	3.19 ± 0.96	2.57 ± 0.88	2.09 ± 1.03	2.97 ± 1.05
6-10 years	3.08 ± 0.99	3.09 ± 0.85	2.66 ± 0.87	1.90 ± 0.95	3.34 ± 0.92
>10 years	3.06 ± 1.21	3.06 ± 1.05	2.56 ± 1.02	1.94 ± 1.02	3.03 ± 1.04
p-value	0.67	0.66	0.83	0.45	0.09
Use of ICT gadgets					
Only smart phone	3.44 ± 1.24	2.84 ± 1.05	3.20 ± 0.94	2.13 ± 1.22	3.31 ± 1.19
2 gadgets	2.76 ± 0.96	2.97 ± 0.99	2.83 ± 0.80	2.28 ± 1.15	3.06 ± 1.02
≥3 gadgets	3.06 ± 1.08	3.17 ± 0.96	2.50 ± 0.94	1.91 ± 0.95	3.07 ± 1.02
p-value	0.14	0.35	**0.02***	0.09	0.80
Use of social media sites					
Social media is not used	2.94 ± 0.92	2.60 ± 0.98	2.76 ± 0.50	1.60 ± 0.89	2.70 ± 0.97
Only one site	3.17 ± 1.09	2.84 ± 1.07	2.73 ± 0.81	2.16 ± 1.07	3.30 ± 1.02
Two sites	2.50 ± 0.85	2.94 ± 0.93	2.65 ± 0.85	2.03 ± 0.83	3.06 ± 1.04
Three or more sites	2.67 ± 1.04	3.26 ± 0.93	2.53 ± 0.99	1.95 ± 1.05	3.04 ± 1.02
p-value	**0.02***	**0.03***	0.63	0.60	0.49
Years of using ICT					
<5	2.82 ± 0.92	2.59 ± 0.91	3.11 ± 0.92	1.86 ± 0.50	3.18 ± 0.98
5 to 10	3.11 ± 0.90	3.12 ± 0.96	2.60 ± 0.77	2.21 ± 1.07	3.27 ± 1.04
>10	2.98 ± 1.16	3.16 ± 0.97	2.54 ± 1.00	1.88 ± 0.98	2.97 ± 1.01
p-value	0.06	0.24	**0.009***	0.07	0.11
Daily ICT usage					
0-4 hours	3.02 ± 1.05	3.01 ± 1.01	2.71 ± 0.84	2.00 ± 0.98	3.18 ± 1.03
>4 hours	3.01 ± 1.09	3.24 ± 0.90	2.45 ± 1.0	1.98 ± 1.03	2.96 ± 1.0
p-value	0.95	0.08	**0.04***	0.89	0.1

Abbreviations: TO = Techno-overload, **TI** = Techno-invasion, **TC** = Techno-complexity, **TIS** = Techno-insecurity, **TU** = Techno-uncertainty
*Statistically significant.

studies support this finding. Similar results were reported in studies by Efilti et al.[16], Çoklar et al.[17], and Gökbulut et al.[18], in which technostress was measured at 2.60 ± 0.67, 2.43 ± 0.80, and 2.53 ± 0.93, respectively.

As evident from the findings of the present study, techno-invasion had the highest value (3.12 ± 0.97) among the five constructs of technostress. Another study conducted among faculty members in China described that techno-invasion was the highest (3.76 ± 0.79), while techno-insecurity was the lowest (3.08 ± 0.81).[19]

Department (as an independent variable) was significantly associated with mean techno-overload and mean techno-invasion, with Pediatric Dentistry demonstrating the highest levels. No previous research had compared these two variables.

Table 3: Correlation coefficients of the main variables

Variable	WP Mean	TS Mean	TO Mean	TI Mean	TC Mean	TIS Mean	TU Mean
WP Mean	—						
TS Mean	0.055	—					
TO Mean	0.183*	0.722	—				
TI Mean	0.174**	0.628	0.409	—			
TC Mean	-0.145**	0.717	0.368	0.206	—		
TIS Mean	-0.306***	0.456	0.068	0.134	0.431	—	
TU Mean	0.123	0.622	0.29	0.217	0.233	0.196	—

Abbreviations: TO = Techno-overload, **TI** = Techno-invasion, **TC** = Techno-complexity, **TIS** = Techno-insecurity, **TU** = Techno-uncertainty.
Values represent Pearson correlation coefficients (r)
*p <0.05, **p <0.01, ***p < 0.001

Technology-related stress is an important concern in the modern workplace. In the present study, the mean score of techno-overload was highest among teachers who reported using only one social media site. This can be explained by the fact that individuals who had low self-efficacy in using ICT found it difficult to cope with more tasks and to perform them more rapidly. According to Suharti et al., technostress had a negative relationship with techno-logical competence.[20]

The data of the current study indicated that the users of multiple social media sites were not able to delineate the boundaries between work and home. Techno-invasion was greatest in teachers who used three or more sites. Previous research also indicated that the use of two different types of social media, Facebook and YouTube, increases technostress and blurs the line between work and family life.[21]

Complex ICT systems in the workplace can reduce perceived technical competency. If someone's abilities are not sufficient to handle modern technology, the individual may experience stress. Techno-complexity was greatest among teachers who were using ICT for less than five years, whose daily usage was less than four hours, and who reported the use of smartphones only. Similar findings were reported in a study conducted in Egypt. In Mansoura University, the participants who had less than 5 years of experience in ICT use and who spent less than 5 hours per day had a higher level of techno- complexity.[22] The participants who had an increased level of Information Technology (IT) skills perceived less technostress. Tarafdar et al. also stated that techno-stressors are negatively correlated with technology competence.[23]

According to this study, techno-uncertainty was higher in female teachers, and the difference is statistically significant. In contrast, Sareen (2019) found that techno-uncertainty was in excess in males. This association was also significant.[24] The difference may be attributed to different study settings.

There was a weak positive but significant correlation between work productivity and techno- overload, a weak but significant correlation between work productivity and techno- invasion, techno-complexity, and techno-insecurity. Researchers in the study conducted in Egypt indicated that the productivity of the study participants had a significant positive correlation with the techno-overload among them. On the other hand, productivity had a significant negative correlation with techno-complexity.[22] According to a prior study, significant negative correlations between techno-insecurity, techno-complexity, and productivity. There was a significant positive correlation between techno-overload, techno-uncertainty, techno-invasion, and productivity.[25] The difference in the findings regarding the correlation between techno-invasion and work productivity may be due to different study settings.

The current study had certain limitations. Therefore, longitudinal research would be required to elucidate the causal relationship between the variables under investigation. As a cross-sectional study, the possibility of residual confounding and unmeasured effect modifiers cannot be excluded. Future studies should separate professional and personal use to identify whether technology overload stems primarily from work-related demands or personal activities.

CONCLUSION

Technostress was predominantly moderate among participants, with 69.6% of 230 teachers falling in the moderate category, compared to 20% with low and 10.4% with high levels. Techno-invasion had the highest value among all technostressors. Although a significant but weak correlation between techno-overload, techno-invasion, techno-complexity, techno-insecurity, and work productivity was observed. The findings of this study may help policymakers in developing strategies to improve teachers' coping with the challenges of technology. Future studies could look into how techno-inhibitors can help with problems related to technostress.

Acknowledgments
The authors are thankful to the participants of the study.

Author Contributions
Conceptualization: SM
Methodology: SM, SD
Data curation: HA, BA, ST
Formal analysis: HA
Writing – original draft: SM
Writing – review & editing: SD

REFERENCES

1. Cazan AM, David LT, Truța C, Maican CI, Henter R, Năstasă LE, et al. Technostress and time spent online. A cross-cultural comparison for teachers and students. Front Psychol. 2024;15:1377200. DOI: https://doi.org/10.3389/fpsyg.2024.1377200
2. Rey-Merchán MD, López-Arquillos A. Occupational risk of technostress related to the use of ICT among teachers in Spain. Sustainability. 2022;14(14):8746.
3. Ismail AA, Abdelhamid EH, Khalil GM, Abdelsalam NM. Effect of technostress and work stress on the productivity of staff members of the Faculty of Medicine. Egypt J Hosp Med. 2023;90(1):1801-8. DOI: https://dx.doi.org/10.21608/ejhm.2023.284330
4. Hall JA, Steele RG, Christofferson JL, Mihailova T. Development and initial evaluation of a multidimensional digital stress scale. Psychol. Assess. 2021;33(3):230. DOI: https://psycnet.apa.org/doi/10.1037/pas0000979
5. Wang Q, Zhao G. Exploring the influence of technostress creators on in-service teachers' attitudes toward ICT and ICT adoption intentions. Br J Educ Technol. 2023;54(6):1771-89. DOI: https://doi.org/10.1111/bjet.13315
6. Alrashed FA, Ahmad T, Almurdi MM, Alderaa AA, Alhammad SA, Serajuddin M, et al. Incorporating technology adoption in medical education: a qualitative study of medical students' perspectives. Adv Med Educ Pract. 2024:615-25. DOI: https://doi.org/10.2147/AMEP.S464555
7. Li L, Wang X. Technostress inhibitors and creators and their impacts on university teachers' work performance in higher education. Cogn Technol. Work. 2021;23(2):315-30.
8. Salo M, Pirkkalainen H, and Koskelainen T. Technostress and social networking services: Explaining users' concentration, sleep, identity, and social relation problems. J Inf Syst. 2019;29(2):408-35. DOI: https://doi.org/10.1111/isj.12213
9. Kohnke L, Zou D, Moorhouse BL. Technostress and English language teaching in the age of generative AI. Educ Technol Soc. 2024;27(2):306-20. DOI: https://doi.org/10.30191/ETS.202404_27(2).TP02
10. Pothuganti S. Technostress: A comprehensive literature review on dimensions, impacts, and management strategies. Comput Hum Behav Rep. 2024;16:100475. DOI: https://doi.org/10.1016/j.chbr.2024.100475
11. Kim DG, Lee CW. Exploring the roles of self-efficacy and technical support in the relationship between techno-stress and counter-productivity. Sustainability. 2021;13(8):4349. DOI: https://doi.org/10.3390/su13084349
12. Muhametjanova G, Efilti E, Borkoev B, Alímbekov A, Zhumgalbekov A, Salíeva K, et al. Technostress levels of science field faculty members in the Kyrgyz Republic. Innoeduca: international journal of technology and educational innovation. 2024;10(2):179-200. DOI: https://doi.org/10.24310/ijtei.102.2024.18046
13. Costin AD. Assessing Technology-Induced Stress Among Students and Teachers. Appl Med Inform. 2023;45(1):18-27. [cited 2025 Jun. 29]; Available at: https://ami.info.umfcluj.ro/index.php/AMI/article/view/915
14. Kasemy ZA, Sharif AF, Barakat AM, Abdelmohsen SR, Hassan NH, Hegazy NN, et al. Technostress creators and outcomes among Egyptian medical staff and students: A multicenter cross-sectional study of remote working environment during COVID-19 pandemic. Front Public Health. 2022;10:796321. DOI: https://doi.org/10.3389/fpubh.2022.796321
15. Tarafdar M, Tu Q, Ragu-Nathan BS, Ragu-Nathan TS. The impact of technostress on role stress and productivity. J Manag Inf Syst. 2007;24(1):301-28.
16. Efilti E, Çoklar AN. Teachers' technostress levels as an indicator of their psychological capital levels. Univers J Educ Res. 2019;7(2):413-21.
17. Çoklar AN, Efilti E, Sahin YL, Akçay A. Investigation of techno-stress levels of teachers who were included in technology integration processes. Turk Online J Educ Technol. 2016: 1331–1339
18. Gökbulut B. The relationship between teachers' technostress and their techno-pedagogical competence. Ahi Evran University Journal of Kırşehir Education Faculty. 2021;22(1):472-96. DOI: https://doi.org/10.29299/ kefad.929603
19. Jiang R, Eom W. Differences in perception of technostress and factors influencing technostress by university faculty in China. In ICoME 2022.2022. Available at: https://2022.icome.education/wp-content/uploads/2022/07/JIANG22009-Rui-Jiang.pdf
20. Suharti L, Susanto A. The impact of workload and technology competence on technostress and performance of employees. IJCMS. 2014;5(2):1-7.
21. Brooks S, Longstreet P, Califf C. Social media induced technostress and its impact on internet addiction: A distraction-conflict theory perspective. AIS Transactions on Human-Computer Interaction. 2017;9(2):99-122.
22. MMF E, EEA E, GO EK. Technostress among university medical staff members: A cross-sectional study. Egypt J Occup Med. 2024;48(3):45-60.
23. Tarafdar M, Pullins EB, Ragu-Nathan TS. Technostress: negative effect on performance and possible mitigations. Inf Syst J. 2015;25(2):103-32. DOI: https://doi.org/10.1111/isj.12042
24. Sareen P. Techno stress creators- An exploratory research on teaching and non teaching staff working in colleges. International Journal of Management and Humanities (IJMH). 2019;3(9):1-7.
25. Mahmoud NA, el-Sattar A, Mohamed E, Zaitoun MF. Technostress and its Effect on Work Productivity among Academic Staff Members at Zagazig University. Egypt J Community Med. 2025;43(1):64-72.