TECHNOSTRESS AND ITS MANAGEMENT IN THE 21ST CENTURY WORKPLACE: IMPLICATIONS FOR CONSULTING WORKFORCE

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Abstract: Main goal of this paper is to draw more attention to the pervasiveness of technostress (TS) in the consulting domain. As TS tends to be perceived differently in terms of what it entails, this work has focused on researching, instead, the breadth of its relationship with the salient demographical variables: gender, age, organizational rank and family status in an under researched organizational setting. This makes for the first novel contribution of the paper. The interplay in question has been investigated from the quantitative point of view. Knowledge space has been built on the data obtained via a quantitative questionnaire. The research sample consisted of 702 consulting employees (417 men and 275 women), aged 18-65. Data analysis draw on the explanatory potential of ANOVA and stepwise regression models. Results reveal that female participants and employees older than 35, experience significantly more Techno-Complexity compared to other groups. No significant effect of family status on Techno-Complexity was found. Senior-rank employees experience more Techno-Overload and Techno-Invasion, compared to their co-workers in more junior positions. Our findings point out to the necessity of workplace-stress prevention solutions focusing specifically on gender, age and the seniority level of an employee. In addition, they provide important signposts for how such fast-paced organizations as consulting companies can revitalize their human resource management (HRM) practices to foster a healthy workplace environment conducive of workplace productivity and innovation.

Key words: technostress, consulting, HRM, ICT management

DOI: 10.17512/pjms.2023.27.2.13

Article history:
Received February 12, 2023; *Revised* April 23, 2023*; Accepted* May 06, 2023

Introduction

Technological advancements are geared by and toward people. Their underlying goal is to make people's lives easier by providing highly efficient means for effective organization and action. This is particularly the case with information and communication technology (ICT). As one of the main offshoots of technological progress, ICT is intended to facilitate seamless global communication, increase work

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process efficacy and workplace productivity. However, especially in the current century and in the increasingly dynamic work environment, the reality of ICT use often tends to be quite the opposite. More specifically, it tends to be characterized by discomfort, anxiety as well as by a variety of physical troubles, emotional overload, mental strain and occupational stress (Camacho et al., 2015; Day et al., 2012; Richmond and Skitmore, 2006; Reinke et al., 2016; Salanova et al., 2013; Tarafdar et al., 2013).

Fast forward to today, as the meta-analyses indicate, the dark side of work-related ICT use, i.e., outcomes still remains, in the aggregate, its less critically studied side (Baumeister et al., 2021; Bondanini et al., 2020; Karimikia et al., 2021). Following the recommendations of the most recent meta-analyses above, the following paper focuses on contributing insights that can help bridge the gaps in the understanding of the causation mechanisms underlying the dark side ICT use. Its novelty in this respect is twofold. First, the current paper focuses on the novel quantitatively driven formalization of the specific links and implications of one of the most pervasive exponents of the dark side of ICT – Technostress (TS) (Atanasoff and Venable, 2017; Ayyagari et al., 2011; Camarena and Fusi, 2022; Ferziani et al., 2018; Tarafdar et al., 2007; Wang et al., 2008). Second, these formalizations are a result of the empirical quantification of workforce experiences from the specific under investigated workplace environment – consulting organization. An added practical value of such work as presented here is also twofold. One, it contributes to the much-needed efforts at critical rethinking of what makes a workplace healthy ICT use-wise (Weerasekara and Smedberg, 2022). And, two, it provides practice-driven insights into what knowledge should power organizational human resource management for it to empower employees toward health, productivity and innovativeness in the ICT driven workplaces (Honka et al., 2011).

In order to tap into the nuts and bolts of TS in the consulting workplace, the present work breaks it down into three more specific sub-dimensions. These focal driving sub-dimensions acting as TS creators, more specifically, include Techno-Overload (TO), Techno-Invasion (TI) and Techno-Complexity (TC). These sub-dimensions have been identified through the empirical study as being the key driving constituent forces of TS. As such, they are crucial for the comprehension of the full breadth of impact of the ICT driven workplace TS on the target workforce. With respect to the latter, the main goal and, at the same time, the main critical contribution of this work is the determination and novel quantification of the specific links between the pillar workplace variables (gender, age and rank) and the pillars of TS (TO, TI and TC). By combining real-work-life experiential data with the considerations originating from the most prolific TS researchers, the ultimate goal of this work is to open up additional relevant research directions. These are the directions that can significantly deepen the field of responsible human research management as a precondition for workforce health, workplace productivity and organizational innovativeness.

Literature Review

Technostress refers to a specific instance of stress. An instance that has become one of the defining characteristics of a highly technologized society we live in today. As such, TS is regarded as a direct consequence of the fast-paced technological changes taking place in the society at large and, incrementally, on a daily basis (Şahin and Çoklar, 2009; Tarafdar et al., 2011). In the organizational context, TS can also arise due to the numerous challenges the introduction of technology brings with itself such as implementation costs, adaption of infrastructure and personnel education costs (Gulewicz, 2022). In order to keep up both with the pace and the scope of these technological changes, ICT related in particular, researchers have so far proposed a number of definitions. Despite their differences, what the majority of these definitions has in common is the commonly identified foundational knowledge space. This space builds around and on physical, psychological and/or behavioral strain responses to technology-induced stressors, or techno stressors (La Torre et al., 2019; Tarafdar et al., 2019).

Turning to the seminal research, we find that TS has been identified along the lines of a contemporary adjustment disease. Furthermore, Brod (1984) identifies the root cause of TS to be the continuous inability of people to cope with the fast-paced development of ICT and its demands, leading to increased usage stress, anxiety and overall distress (also Bencsik and Csinger, 2021). Building on these early insights, Wang et al. (2008) provide us with a more comprehensive definition according to which TS is a "'reflection of one's discomposure, fear, tenseness and anxiety when one is learning and using computer technology directly or indirectly that ultimately ends in psychological and emotional repulsion and prevents one from further learning or using computer technology" (p. 3004). Shifting the focus onto the organizational environment, Salanova et al. (2007) contribute a definition that particularly concerns the workplace setting. Here TS manifests itself as a "negative psychological state associated with the use or threat of ICT use in the future. This experience is related to feelings of anxiety, mental fatigue, skepticism and inefficacy" (Salanova et al., 2007, p. 1). As Salanova et al. (2013) point out, and the current research practice confirms, there is still plenty of room for research that focuses on examining the actual psychological experience of TS in a variety of workplace settings. The present work contributes to diminishing this gap through its actual-experience informed quantitative study, which focuses on exploring the potential causation between the foundational demographic pillars (gender, age and rank) and foundational pillars of TS (TO, TI and TC).

The quantitative study in question has been motivated by the more recent accounts that address the TS experience through the prism of a negative spiral. What have been identified as the main determinants of this negative spiral are low personal resources and low technological self-efficacy (O'Driscoll et al., 2010; Salanova et al., 2014). What makes these determinants so significant is their capacity to broaden our critical knowledge and comprehension of the workplace nature of TS. This, especially, concerns the adverse effects that result from the interaction between high

technological expectations and low technological means. In other words, this particularly concerns those effects which bring about such psychosocial disorders as techno strain (Brivio et al., 2018; Pflügner et al., 2020; Wang et al., 2008) and/or adverse organizational consequences as e.g., low workplace performance (Atanasoff and Venable, 2017; Basuki et al., 2022; Salanova et al., 2014). In addition to these findings, the more recent research has also provided evidence in support of the more direct link between TS creators or indicators and workplace demographics (Stadin et al., 2020). This body of research more specifically indicates significant association between gender (Marchiori et al., 2019; Tarafdar et al., 2011), age (Hsiao, 2017; Syvanen et al., 2016), employee rank (Bakker and Demerouti, 2018; Ogbonnaya et al., 2017) and workplace TS. The literature review, however, points to an additional important gap, this work also attempts to bridge. This gap refers to the lack of quantitative research focusing on family status as an indicator variable of workplace TS. The gap also, more specifically, concerns the link between family status and gender, age and employee rank as a cluster for the identification of the more specific impact-breadth each TS indicator has on the overall profile of TS within the consulting workplace environment.

The identification of the, aforementioned, relevant gaps has been informed by the current literature, which indicates that gender is a significant indicator of TS (Riedl et al., 2013; Tams et al., 2018). More specifically, some studies also suggest that women tend to experience TS more often compared to men (Marchiori et al., 2019; Syvanen et al., 2016), while other studies suggest the opposite (Hsiao et al., 2017; Tarafdar et al., 2011). The lack of consensus signals the need to additionally investigate the nature of the link. This paper responds to the call by putting to the test *Hypothesis 1: Employee's gender influences how a person perceives Techno-Overload (1a), Techno-Invasion (1b) and Techno-Complexity (1c).*

In addition to the salience of gender, more recent studies also indicate age to be an equally salient variable with respect to TS. More specifically, these studies suggest that older people tend to experience much higher levels of TS in comparison to younger people (Chen and Muthitacharoen, 2018; Pflügner et al., 2021; Syvanen et al., 2016). Identified as the potential underlying cause of this is the older people's tendency to be more vulnerable to physical weakening (González-López et al., 2021; Tams et al., 2021). As is the case with gender, there are studies that have suggested otherwise, namely, that it is the younger population that is more prone to experiencing higher levels of TS (Hsiao, 2017; Tarafdar et al., 2011). Research has also suggested that age is, actually, not a significant variable when it comes to TS (Krishnan, 2017). This inconsistency in findings also marks a call for additional critical research focusing on the nature of this particular link. The following paper attempts to bridge this gap by testing *Hypothesis 2: Employee's age influences how a person perceives Techno-Overload (2a), Techno-Invasion (2b) and Techno-Complexity (2c).*

In comparison to the body of research focused on the gender and age variables, research focusing on the employee's organizational rank as a variable has shown far

less variability in terms of evidence. Namely, the research in question has suggested a direct link between this specific variable and TS (Bakker and Demerouti, 2018; La Torre et al., 2019; Ogbonnaya et al., 2017). Furthermore, previous research has also provided evidence which suggests employee's organizational rank to have an impact on the employee's perception of TS. More specifically, the available evidence indicates that different workplace ranks e.g., technical staff, blue-collar/white-collar, managers and supervisors, translates to altogether different levels of TS experience wise (Salanova et al. 2007, 2014). In spite of this evidence, however, all these studies raise an additional important question. This question, namely, addresses the point of the extent to which all the different organizational ranks can also be regarded as significant predictors of each of the indicators of TS in the workplace. The following paper makes its contribution in this respect by testing *Hypothesis 3: Employee's organizational rank influences how a person perceives Techno-Overload (3a), Techno-Invasion (3b) and Techno-Complexity (3c)*.

Last but not least, a quite limited number of research has placed its focus on the investigation of the link between TS and the family status variable. Research conducted by Harris et al. (2022) reports a significant correlation between the two. However, as of yet, only one additional research conducted by Riglea, Rus and Ratiu (2021) provides more empirical evidence with respect to the correlation between the person's family status and TO, TI and TC as indicators of TS. More specifically, the potential link has been investigated through the implications having children or being single have for TS levels. In this respect, last of the contributions of this paper is aimed at bridging this specific research gap by putting to the test *Hypothesis 4: Employee's family status influences how a person perceives Techno-Overload (4a), Techno-Invasion (4b) and Techno-Complexity (4c)*.

Research Methodology

Following work has built its practical knowledge space around a quantitative study, grounded in convenience sampling. Demographic data has been collected through an online survey that was generated using Quicksurvey and distributed via E-Mail to the study participants in September 2021. In order to meet and ensure legal and ethical compliance, the questionnaire had been submitted to the legal department and employee council of the consulting organization before being officially distributed within the target population. The target population was comprised of German employees, working for one of the leading global IT consulting organizations. In order to make the sample diversified and, thus, more relevant in terms of representativeness across the domain, the study participants have been recruited at different organizational ranks. These have more specifically included analysts, associates, consultants, managers, senior managers and leadership. What makes the sample additionally organizationally representative and globally cross-comparable is its focal demographic variables, namely, gender, age, organizational rank and family status. The study sample itself consisted of 707 employees in total. To ensure sample adequacy, the sample adequacy analysis had been performed once all the

questionnaires had been returned. The analysis has resulted in the exclusion of five participants as outliers, giving the final sample of 702 participants aged 18 to 65 (Table 1).

Table 1. Sample demographics

		Frequency	Percent
Gender	Female	275	39.2
	Male	417	59.4
Age	18-35	401	57.1
	36+	301	42.9
Level at Work	Analyst + Associate	257	36.6
	Consultant	190	27.1
	Manager + Senior Manager + Leadership	255	36.3
Family Status	Participants with Children	251	35.8
	Participants without Children	451	64.2

The main instrument employed in the collection of TS related data was the Technostress Creator (TC) test battery. The version used as a part of the study's survey was an adaptation of the test battery initially advanced into practice by Tarafdar et. al. (2007). What gives this test battery empirical power is its focus on the five main indicators of TS – Techno-Overload, Techno-Invasion, Techno-Complexity, Techno-Insecurity and Techno-Uncertainty, operationalized as sub-scales. The original instrument was adapted in such a way that it maximizes the potential of the three sub-scales – that have been identified in the literature review as the most relevant to the demographic variables. These include Techno-Overload (five items), Techno-Invasion (four items) and Techno-Complexity (five items). The five-point Likert scale was used to rate the items, where 1 ("not at all true") was the lowest and five ("very much true") the highest ranking. In order to ensure reliability, Cronbach's alpha reliability values had been calculated for the adapted test battery. In the case of Tarafdar et. al. (2007) these values were 0.81 and 0.89. The calculated values for the present study were 0.79 and 0.85, pointing to instrument reliability.
In terms of the variables, gender, age, organizational rank and family status served as independent variables. The following questions served as dependent variables: "Do companies need more training to prevent TS?", "Do women experience more TS?", "Do older people experience more TS?" and "Are rules against TS are financially demanding?", as well as TO, TI and TC. Demographic variables had been dummy coded and entered as categorical predictor variables for TO, TI and TC.

Research Results

Data obtained through the quantitative phase had been subsequently analyzed with the SPSS 25.0/MAC software. The normality assumption was based on the calculated skewness and kurtosis values. With respect to normal distribution, the calculation had shown that these values had been within the acceptable range (Table 2).

Table 2. Descriptive Statistics

Variables	N	Range	Min.	Max.	Mean	SD	Skewness	Kurtosis	α
Techno-Overload	702	4.00	1.00	5.00	3.04	1.04	-0.20	-0.83	0.85
Techno-Invasion	702	4.00	1.00	5.00	2.35	1.00	0.46	-0.58	0.79
Techno-Complexity	702	3.40	1.00	4.40	2.00	0.84	0.78	-0.12	0.80

Based on the obtained box plots, five outliers had been excluded from the overall data. The next step involved testing for multicollinearity. For this purpose, Pearson correlation coefficients, variance inflation factor (VIF) and tolerance values had been computed. With respect to VIF, previous studies have indicated that its value ought to be lower than 4, whereas tolerance ought to be higher than 0.20 (see Tabachnick and Fidell, 2007). In the case of this study, findings have indicated that both its VIF and tolerance values had been within the acceptable range. In other words, they indicated that multicollinearity had not been violated.

This study also tested for linearity and homoscedasticity. Residuals being reasonably rectangular and data collected in the center indicated this study had satisfied both linearity and homoscedasticity. What followed was descriptive statistics (frequencies, means and SD) and one-way analysis of variance (ANOVA). Their role was to facilitate the examination of data for divergence. In other words, the goal was to determine if single TS related indicators differed with respect to the demographic variables. ANOVA has led to the following findings: a) higher scores for women compared to man indicate former experience more TS, b) higher scores for younger participants compared to the 36+ participants concerning the perception of TS indicate the latter group experiences more TS, c) higher scores for consultants, managers, senior managers, and leaders compared to associates and analysts, with women reported to generally experience more TS and d) higher scores for parents compared to non-parents indicate former experience more TS (Table 3).

Table 3. ANOVA test of the relation between demographic factors of respondents and the following statements

Variables	Groups	Do Companies Need More Training to Prevent TS?		Do Women Experience More TS?		Do Older People Experience More TS?		Are Rules against TS Financially Demanding?		Notes
		M (SD)	F	M (SD)	F	M (SD)	F	M (SD)	F	
Gender	Female	3.64(1.15)	2.26	0.26(.44)	14.65***	0.81(.39)	1.16	0.26(.44)	0.60	
	Male	3.56(1.18)		0.14(.35))		0.78(.42)		0.29(.45)		Women TS: Female > Male
Age	18-35	3.64(1.14)	0.88	0.19(.39)	0.004	0.84(.37)	16.02***	0.29(.46)	0.25	
	36+	3.55(1.24)		0.19(.39)		0.72(.45)		0.27(.45)		Older TS: 18-35 > 36+
Level at Work	Associate + Analyst [a]	3.66(1.10)	1.952	0.18(.39)	2.897**	0.87(.34)	1.279	0.37(.49)	0.962	
	Consultant [b]	3.67(1.18)		0.24(.43)		0.79(.41)		0.28(.45)		Women TS: b, c > a
	Manager + Senior Manager + Leadership [c]	3.60(1.18)		0.23(0.42)		0.80(.40)		0.26(.44)		
Family Status	With Children[a]	3.59(1.16)	1.07	0.20(.40)	0.69	0.83(.38)	11.72***	0.29(.45)	0.12	
	Without Children[b]	3.72(1.10)		0.21(.42)		0.88(.33)		0.24(.44)		Older People TS: a>b

****p < 0.001, **p < 0.01, *p < 0.05*

Focusing on TS indicators, higher TC scores had been recorded for female compared to male participants. TC scores of the 35+ participants were also higher compared to 35-year-olds and younger. TO and TI levels of managers, senior managers and leaders were higher compared to consultants, associates and analysts. However, TO and TI scores recorded for consultants were higher than the scores for associates and analysts. Lastly, TC scores for parents were higher than for non-parents (Table 4 and Table 5).

Table 4. ANOVA test of TO, TI and TC in demographics

Variables	Groups	Techno-Overload		Techno-Invasion		Techno-Complexity		Post Hoc Results
		M (SD)	F	M (SD)	F	M (SD)	F	
Gender	Female	3.10(1.06)	1.62	2.33(1.01)	0.25	2.09(.87)	5.07*	**TC:** Female >Male
	Male	3.00(1.02)		2.36(.97))		1.94(.80)		
Age	18-35	2.99(1.02)	2.41	2.32(.98)	1.15	1.86(.77)	25.24***	**TC:** 36+ > 18-35
	36+	3.11(1.06)		2.40(1.01)		2.18(.89)		
Level at Work	Associate + Analyst [a]	2.93(1.00)	3.13*	2.22(.94)	5.39**	1.93(.84)	1.23	**TO:** c>b>a
	Consultant [b]	3.02(1.08)		2.32(1.02)		2.04(.85)		**TI:** c>b>a
	Manager + Senior Manager + Leadership [c]	3.16(1.04)		2.50(1.01)		2.03(.83)		
Family Status	With Children[a]	3.07(1.02)	0.48	2.37(.98)	0.16	2.11(.90)	6.57**	**TC:** a>b
	Without Children[b]	3.02(1.04)		2.34(1.00)		1.94(.80)		

****p < 0.001, **p < 0.01, *p < 0.05; TO: Techno-Overload, TI: Techno-Invasion, TC: Techno-Complexity*

As the main means for post hoc comparisons, this study has used the Tukey's honest significance test. Phase that involved the dummy coding of demographic variables preceded the regression analysis. The regression model values had been coded as "1", whereas the remaining categorical values in the groups had been coded as "0". This was done in such a way so as to allow for distinguishing the relevant category effects on dependent variables. Stepwise regression analysis constituted the final analytic phase. It has revealed a positive impact of the manager, senior manager and leadership ranks on TO and TI. Moreover, these three ranks explained 1% of the total variance with respect to TO and TI (Table 5). None of the independent variables showed any significant impact on either TO or TI (Table 6).

Table 5. Stepwise regression analyses predicting TO and TI

Dependent Variables	Predictors	B	t	Sig.	R	R^2	F	Sig.
Techno-Overload	Managers Senior Managers Leadership	0.09	2.34	0.019	0.09	0.01	5.49	0.02
Techno-Invasion	Managers Senior Managers Leadership	0.12	3.08	0.002	0.12	0.01	9.51	0.002

Table 6. Stepwise regression analyses predicting TC

Models		B	t	Sig.	R	R^2	F	Sig.
1	18-35 years-old	-0.187	-5.024	0.000	0.19	0.035	25.24	0.000
2	18-35 years-old	-0.208	-5.550	0.000	0.22	0.049	18.05	0.001
	Female	0.122	3.243	0.001				

Follow-up stepwise regression analysis has also revealed the 18-35 age group to be predictive of TC in a negative way (Model 1), also predicting 3.5 % of the total variance. The same age group has also been found to have a negative impact on TC.

Important finding here was that the impact of female gender on TC was positive as well as that it explains ca. 5% of the total TC variance. On the contrary, TC was not found to be significantly impacted by 35+ age, male gender, work level and having or not having children.

Discussion

Present study contributes to the extension of the current literature on TS within the consulting workforce. It does so by systematically assessing and quantifying the specificities of the relationship between gender, age, organizational rank, family status and the three TS formative indicators – TO, TI and TC. An additional contribution of this study is the focus on the previously unexamined workforce culture – German consulting employees' culture, in the context of the topic.

The onset point of this critical study was the investigation of the connection between gender and the three above-mentioned indicators. As identified in the sections above, previous research approaches show considerable inconsistency in terms of findings. This is particularly the case with studies focusing on the gender-TS relation which are characterized by considerable contradictions. In effect, a body of research suggests female population experiences more TS than male population (Syvanen et al., 2016), e.g., due to higher computer anxiety (Ragu-Nathan et al. 2008). Other studies, however, suggest that male population compared to the female experiences more TS (Ragu-Nathan et al., 2008), e.g., because biologically male stress levels are greater (Riedl et al., 2013). Finally, a number of recent studies also suggests no significant association between gender and TS (Li and Wang, 2021; Özgür, 2020).

On a more fine-grained level, findings do indicate that gender influences TS, particularly if we focus on the three singled out TS indicators. Specifically, studies demonstrate that women experience higher TC (Califf and Brooks, 2020; Korzynski et al., 2016; Marchiori et al., 2019), whereas men experience higher TO and TI (Sareen, 2019). La Torre et al.'s (2020) study reveals women to experience TO, TI and TC more commonly than men. Such lack of consensus deems further critical investigations necessary. Particularly those investigations that analyze TO, TI and TC through the lens of gender, and especially in a setting where people have more similar characteristics, e.g., the same profession. With respect to this, present study contributes evidence that demonstrates female consultants to have significantly higher TC (H1c) scores than their male counterparts. Furthermore, evidence also shows female gender to have a positive impact on TC. Females explained about 2% of the entire variance of Techno-Complexity. However, gender has no significant impact on TO (H1a) and TI (H1b). Overall, current evidence extends the literature on consulting workforce TS in terms of novel gender-related findings. Additionally, it indicates a more likely link between female consulting population and TC than with TO and TI.

The study has, additionally, examined the connection between age and the three above-mentioned indicators. Results indicate that employees' age had a significant positive impact on TC (H2c), but not on TO (H2a) or TI (H2b). Specifically,

participants older than 35 had significantly higher TC scores compared to the 35-years-olds and younger, indicating the 18-35 age range to predict TC in a negative way. This, consequently, points to the potential of TS levels, (TC in particular), to increase with age. What, additionally, supports this tendency is the original assumption that older adults are more susceptible to interruptions and their aftereffects compared to younger adults, particularly in light of age-specific cognitive capabilities span (Hasher and Zacks, 1988). More recently, Tams et al. (2018) provide additional practice-informed insights indicating that older employees may experience higher TC due to age-specific cognitive skills changes. Similarly, other relevant recent studies also regard age to be a significant TS-influencing factor (Özgür, 2020). Conversely, Hsiao (2017) and Tarafdar et al. (2018) demonstrated that younger people tend to indicate higher TS levels, whereas other studies (Krishnan, 2017) found no association between age and overall TS. Tams et al. (2018) explain above to be the case due to the lack of consensus originating from the fact that majority of research does not draw on theories of aging. In its attempt to bridge this gap, t concerning the association between employees' age and TS, this study contributes new empirical evidence in support of the link between the increased age and difficulties to adapt to new technologies.

Following age, next focus point was the examination of the connection between organizational rank and TC, TO and TI. In this respect, present research contributes evidence in support of H3a and H3b More specifically, managers, senior managers, the leadership, and consultants exhibited higher levels of TO and TI compared to associates and analysts. No significant difference was detected in the case of TC (H3c). This implies managerial, senior managerial, leadership, and consultant work levels to have a significant positive effect on both TO and TI, but no such effect on TC.

In support of these findings, recent research findings indicate TO and TI to be especially demanding for management-level employees (Pflügner et al., 2021). Because senior work levels struggle to adapt to new technological developments due to excess responsibility, they tend to reorder habits and daily routines resulting in TO and TI increase (Ragu-Nathan et al., 2008). Research such as Davis' (2002) has previously indicated that managers and work leaders suffer from TO because they process more data than they could handle. Overall, employees at higher work levels experience TI, due to the conviction they should be constantly connected (Gaudioso et al., 2017).

Finally, the results obtained by means of regression analysis did not support any of the family-status related hypotheses (H4a-H4c). More specifically, having children or not did not have any significant impact on TO, TI or TC. However, an important finding resulted from the ANOVA analysis. It has revealed higher TC scores in the case of participants with children compared to those without children. Potential explanation for this tendency is that the former lack sufficient time to adopt new technological developments due to the child-care demands, making them in turn more prone to TS.

Additional insightful conclusions involve the ANOVA analysis results concerning the difference of TS levels in terms of gender, age and levels at work. For instance, female participants showed higher TS levels compared to male participants, indicating a greater tendency of the former to experience TS. Considering age, younger participants reported significantly less TS than older ones. Other informative findings include the consultants, managers, senior managers, and the leadership stating that women experience more technostress compared to other work levels.

Managerial Implications of Study Results

Aside from the theoretical and research implications, the following work also has managerial implications. These implications, particularly, concern the organizational human resource management (HRM) practices. More specifically, the study underlying this work provides evidence in support of the breadth of disruptiveness TS can cause in the workplace and, especially, with respect to the specific workforce. By evidencing the detrimentally disruptive nature of TS in the workplace the following study demonstrates an essential point. Namely, TS needs to be more proactively addressed by organizations in the form of more employee-centered and employee-responsible human resource management (HRM) practices. In this respect, compared to the current studies on the topic (Camarena and Fusi, 2022; Ibrahim and Yusoff, 2015; Marchiori et al., 2019), the present work goes a step further by identifying the most vulnerable specific workplace populations (i.e., different organizational rank constellations) HRM practices need to, particularly, focus on in order to foster a healthy workplace culture. This is, in effect, one of the major preconditions for organizational innovativeness.

Furthermore, this study also contributes relevant insights to the theory and IT services management within a representative organizational setting. With respect to theory, the results of the current study provide evidence for the explicit effects of demographic differences. This, primarily, concerns the fact that these differences have the potential to significantly affect and modify TS perception, i.e., the TS levels reporting by the affected ICT users. Translating this to the organizational practice, the results this study contributes can prove highly beneficial to the IT managers. This especially concerns their understanding of the nature and the role of the link between the individual differences and TS creators. Such information constitutes an important resource for the IT managers as it can lead to problem-solving frameworks created to cater to the needs of each specific workplace population. Last but not least, this study suggests an additional take home message for organizations. Namely, the employee-responsible HRM practices are key to workforce health which is, in turn, key for a healthy organization where people are motivated to commit and contribute to in terms of development.

Conclusion

The results of this study point to a number of relevant implications for organizations, researchers studying workforce related TS and responsible human resource

management. The identified current research gaps and the new pertinent findings it contributes make this study a potent point resource for understanding the breadth of impact the interplay between gender, age, organizational rank, family status and the specific TS creators (TO, TI and TC) can have on the organization's workforce and its productivity. Employers and organizations willing to safeguard their employees from TS can utilize these findings by implementing them in the form of employee responsible HRM practices. Such practices can be, more specifically, fostered through adequate employee training programs. Especially beneficial in this respect could be orientations that would provide employees both with psychological and technological know-how assets to effectively leverage TO, TI and TC. Such research informed understanding of the leading TS creators and how, and why, they affect certain workforce populations more than other can lead to an, overall, significant decrease in physical, emotional and psychological harm in the workplace.

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TECHNOSTRES I ZARZĄDZANIE NIMI W MIEJSCU PRACY XXI WIEKU: WSKAZANIA DLA PRACOWNIKÓW DORADZTWA

Streszczenie: Głównym celem niniejszego artykułu jest zwrócenie większej uwagi na wszechobecność technostresu w branży konsultingowej. Ponieważ technostres jest zwykle postrzegany w różny sposób pod względem tego, co się z nim wiąże, niniejsza praca koncentruje się na badaniu zakresu jego związku z istotnymi zmiennymi demograficznymi: płcią, wiekiem, rangą organizacyjną i statusem rodzinnym w niedostatecznie zbadanym środowisku organizacyjnym. Stanowi to pierwszy nowatorski wkład tego artykułu. Omawiana interakcja została zbadana z ilościowego punktu widzenia. Przestrzeń wiedzy została zbudowana na danych uzyskanych za pomocą kwestionariusza ilościowego. Próba badawcza składała się z 702 pracowników konsultingu (417 mężczyzn i 275 kobiet) w wieku 18-65 lat. W analizie danych wykorzystano potencjał wyjaśniający modeli ANOVA i regresji krokowej. Wyniki pokazują, że kobiety i pracownicy w wieku powyżej 35 lat doświadczają znacznie większej złożoności technologicznej w porównaniu z innymi grupami. Nie stwierdzono istotnego wpływu statusu rodzinnego na złożoność techniczną. Pracownicy wyższego szczebla doświadczają większego przeciążenia technologicznego i inwazji technologicznej w porównaniu do swoich współpracowników na niższych stanowiskach. Nasze wyniki wskazują na konieczność wprowadzenia rozwiązań zapobiegających stresowi w miejscu pracy, koncentrujących się w szczególności na płci, wieku i stażu pracy pracownika. Ponadto, dostarczają one ważnych wskazówek, w jaki sposób tak szybko rozwijające się organizacje, jak firmy konsultingowe, mogą zrewitalizować swoje praktyki

zarządzania zasobami ludzkimi (HRM), aby wspierać zdrowe środowisko pracy sprzyjające produktywności i innowacyjności w miejscu pracy.

Słowa kluczowe: technostres, konsulting, HRM, zarządzanie ICT

TECHNOSTRESS 及其管理在 21 世纪的工作场所：对咨询人员的影响

摘要：本文的主要目的是引起人们对技术压力 (TS) **在咨**询领域的普遍性的更多关注。 **由于** TS **在其含**义方面往往有不同的看法，因此这项工作的重点是研究它与显着人口统计变量的关系的广度：性别、年龄、组织级别和家庭地位，在研究不足的组织环境中。 这是本文的第一个新颖贡献。 **已从定量的角度研究了所**讨论的相互作用。 **知**识空间建立在通过定量问卷获得的数据之上。 **研究**样本包括 702 **名咨**询员工（417 **名男性和** 275 **名女性**）， **年**龄在 18-65 岁之间。 **数据分析利用方差分析和逐步回**归模型的解释潜力。 结果显示，与其他群体相比，女性参与者和 35 岁以**上的**员工体验到的技术复杂性要高得多。 **未**发现家庭状况对技术复杂性有显着影响。 **与初**级职位的同事相比，高级员工经历更多的技术过载和技术入侵。 **我**们的研究结果指出了工作场所压力预防解决方案的必要性，这些解决方案特别关注员工的性别、年龄和资历水平。 **此外**， **它**们为咨询公司等快节奏组织如何重振其人力资源管理 (HRM) 实践以营造有利于工作场所生产力和创新的健康工作环境提供了重要的路标。

关键词: 技术压力, **咨**询, HRM, ICT**管理**