



# Mediating Role of Professional Commitment in the Relationship Between Technostress and Organizational Stress, Individual Work Performance, and Independent Audit Quality

Bekir Gerekan<sup>1</sup> · Utku Şendurur<sup>1</sup> · Murat Yıldırım<sup>2</sup>

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## Abstract

This study aims to examine the mediating role of professional commitment in the relationship between technostress and organizational stress, individual work performance, and independent audit quality. Participants included 120 independent auditors (76.7% men, 23.3% women) who completed measures of personal technostress, personal commitment, organizational stress, individual work performance, and independent audit quality. The results indicated that technostress had a direct effect on professional commitment, organizational stress, individual work performance, and independent audit quality. Also, the professional commitment had a direct effect on organizational stress, individual work performance, and independent audit quality. Furthermore, the results showed that personal commitment mediated the association between technostress and organizational stress, individual work performance, and independent audit quality. These results suggest that personal commitment plays an important role in understanding the underlying mechanism between technostress and organizational stress, individual work performance, and independent audit quality.

**Keywords** Technostress · Personal commitment · Organizational stress · Individual work performance · Independent audit quality · Independent auditors

## Introduction

Stress refers to physical and emotional reactions to the possible negativities that may come from the external environment (Şimşek et al., 2003). It also refers to unclear psychological and physiological responses to threats that may affect the current situation of individuals (Şimşek, 2001). Stress is typically generated from the interaction between an individual

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✉ Murat Yıldırım  
muratyildirim@agri.edu.tr; muratyildirimphd@gmail.com

<sup>1</sup> Department of Business Administration, Ağrı İbrahim Çeçen University, Ağrı, Turkey

<sup>2</sup> Department of Psychology, Ağrı İbrahim Çeçen University, Erzurum Yolu 4 Km 04100, Merkez, Ağrı, Turkey

and the external environment; it is stated as social and physical tension arising from incompatibility in terms of elements such as demands, abilities, behaviours, and judgments (Tomova et al., 2014). Stress is a personal experience and individual experiences different levels of stress (Blaug et al., 2007).

Stress has been studied in a wide range of fields including psychology, sociology, education, and management (Geçer & Yıldırım, 2021; Moroń et al., 2021; Rehman et al., 2023). Previous research provided evidence that supports the role of stress in alleviating mental and physical health problems (Chandola et al., 2006; Chirico et al., 2022; Hu et al., 2023; Wagner et al., 2000; Yildirim & Alanazi, 2018; Yıldırım & Solmaz, 2022). Stress can distort individuals' numerical perceptions and judgments (Liu & Onwuegbuzie, 2012). In addition, stress induces withdrawal behaviours in the workplace, such as job burnout (Maslach et al., 2001) and intention to leave (Liu & Onwuegbuzie, 2012). Current technologies cause major changes in the working environment. These changes can lead to a wide range of outcomes for employees including stress (Türen et al., 2015).

The rapid developments in information technologies in the modern age have provided various benefits that facilitate human life (Batmaz et al., 2022; Tanhan et al., 2023; Yıldırım & Çiçek, 2022; Yıldırım et al., 2022) but have also led to many aversive consequences such as technostress (Hung et al., 2015). Technostress is a form of stress arising from the difficulties that individuals or organizations face in the process of adapting to continuous technology-related changes (Agboola & Olanmi, 2016). Technostress arises from the individual's reactions to technological developments (Kaymaz & Lorcu, 2018). These reactions may create various consequences for both individual and organizational levels such as low productivity, job dissatisfaction, lack of participation in work, and poor work performance (Jackson & Schuler, 1985).

Information and communication technologies have become widely used in today's working environments. Therefore, the use of technology can lead to various psychological outcomes for employees in the organizational context. Technology-related tasks such as downloading or installing software, organizing files, adjusting format structures, or adding new features have the potential to cause organizational stress (Tarafdar et al., 2007). Furthermore, situations such as performing multiple tasks at the same time, completing the tasks at the maximum level under the pressure, and being constantly available outside of working hours can also cause organizational stress (Kestane & Özbek, 2021; Kumar et al., 2017; Tarafdar et al., 2015).

Organizations are exposed to compelling factors such as intense competition environments, providing the demanded quality in production and service delivery, following innovations, and minimizing the duration of their activities. Undoubtedly, this situation causes the expectations of the employees to increase and causes the development of organizational stress in the employees (Daniel, 2019). Thus, organizational stress emerges as a situation that affects the professional commitment of employees. Organizational stress, which has currently become a widespread problem, has been a source of great concern for the management, employees and other stakeholders of the organizations. The aforementioned situation undoubtedly affects the quality of the individual's professional commitment, individual job performance and the activity outputs performed in organizational terms as a whole. According to El-Kurdy et al. (2022), affective commitment had a significant effect on job stress.

Organizational stress is the reaction of employees when they have to face excessive demands beyond their abilities or knowledge (Mirela & Madlina-Adriana, 2011). In other words, organizational stress refers to the perception of a mismatch between environmental demands (stress factors) and individual capacities to fulfil these demands (Ornelas &

Kleiner, 2003; Topper, 2007; Vermunt & Steensma, 2005). Stress in organizations can lead to organizational distress such as poor interpersonal communication, interpersonal conflicts, dissatisfaction, loss of performance/productivity, poor product and service quality, and relationships with customers, suppliers, partners, and regulatory authorities (LeBlanc & Kelloway, 2002; Schat & Kelloway, 2000). In addition, institutions may also have to carry the costs of stress such as low performance (tends to low audit quality) or productivity costs, high replacement costs associated with workforce turnover, complaints, and litigation or compensation costs (Brakel, 1998; Bano et al., 2011). According to Kristanti et al. (2017) which stated that when auditors who are under work stress perform audit procedures, they will not be able to perform their work correctly, resulting in poor-quality of audit results. Such that, Mahmudi et al. (2022) found, auditor work stress pressure has a negative and significant effect on audit quality. Also, Nasirpour et al. (2022) found job stress had a significant and inverse impact on the audit quality of auditors of independent audit companies.

Much research showed that occupational stress has a significant effect on the organizational commitment of employees. While a mild level of stress helps individuals to improve their work performance, an excessive level of stress may lead to poor work performance (Stevenson & Harper, 2006; Carvalho & Angelo, 2021). In the extant literature, there is much evidence to support this notion. For example, some studies indicated a negative impact of stress on the level of occupational satisfaction and organizational commitment (Ayyagari et al., 2011; Park & Jex, 2011; Tarafdar et al., 2007; Boyer-Davis, 2019), while others showed a positive impact of stress on job satisfaction and organizational commitment (Ahmad et al., 2012; Hung et al., 2015; Doğrular, 2019). Therefore, it is important to understand the predictors of organizational stress on job satisfaction and commitment (Joshi, 2018). In this regard, the following hypothesis was generated.

**Hypothesis 1:** Technostress would have a significant effect on professional commitment, organizational stress, individual work performance, and independent audit quality.

In the extant literature, professional commitment, which affects individual behaviours within organizations, is also known as professional belonging, professional commitment, professional identification, professional values, professional dedication, career commitment and work commitment (Selimoğlu & Yeşilçelebi, 2014). The concept of commitment includes long-term plans of the individual related to their profession and it is closely related to the attitudes and behaviours of the employees regarding the activities performed in the organizational context (Greenfield et al., 2008). Employees who are committed to an organization can more deeply identify with corporate values, goals, and objectives, better equipping them to embrace change (Boyer-Davis, 2019). Accordingly, the level of commitment cannot be characterized as passive loyalty, but also as an active relationship between business organizations making every effort for the corporate success of the organization. In this context, the level of professional commitment is different from employee to employee. For example, employees with a high level of professional commitment have high self-confidence, open to continuous improvement in their profession, and have a high belief in the sustainability of the current profession (Lord & DeZoort, 2001). Therefore, professional commitment and individual work performance are closely related to one another (Clark & Larkin, 1992). Ketchand and Strawser (1998) identified various dimensions of professional commitment to explain the level of relationship between professional commitment and performance. Also, Siders et al. (2001) and Jaramillo et al. (2005) provided similar results showing that professional commitment has a positive effect on performance. Similarly, as

a result of studies investigating the effect of professional commitment on individual job performance showed a significant positive relationship between professional commitment and work performance (Meyer et al., 2002). Park et al. (2023) also found that, statistically stronger relationship with professional commitment and job satisfaction. However, this relationship is understudied in the context of independent auditors.

Professional commitment is also closely related to the quality of the independent audit performed by the independent auditors. Auditors with a high level of professional commitment are expected to observe the public interest and avoid behaviours that have the potential to harm the organization, whereas auditors with lower professional commitment may be more inclined to act in a maladaptive and dysfunctional way (Lord & DeZoort, 2001). Therefore, auditors with high professional commitment are more likely to resist tendencies towards unethical behaviours than auditors with low professional commitment despite the nature or amount of social pressure. Therefore, auditors with high professional commitment are expected to be less likely to sign financial statements that are materially misrepresented, which can have a significant impact on the quality of the independent audit activity performed (Lord & DeZoort, 2001; Selimoğlu & Yeşilçelebi, 2014; Smith & Hall, 2008). In this context, studies examining the effect of professional commitment on the quality of independent auditing revealed that the quality of independent auditing increases as the level of professional commitment of independent auditors increases (Selimoğlu & Yeşilçelebi, 2014; Tandiontong, 2013). There are studies in the literature that found professional commitment has a positive relationship with audit quality (Lestari et al., 2020; Leo Handoko et al., 2021). Thus, the hypothesis was generated as follows.

**Hypothesis 2:** Professional commitment would have a significant effect on organizational stress, individual work performance, and independent audit quality.

In the current study, we argue that technostress at work can be viewed as a job demand (Crawford et al., 2010). It can be conceived as a possible stressor at work, while characteristics of the job including psychological, social, and physical that may assist employees to minimize and manage work-related risk can be perceived as job resources (e.g., protective factors) (Falco et al., 2021).

## Theoretical Framework of the Study

In the study, we use the job demand-resource model (JD-R) which posits that offering employees job resources can help mitigate the strain effect of job demands (Bao et al., 2022). The JD-R model suggests that working conditions or all aspects of the working environments can be classified as job demands and job resources. For individuals, a strain is a response to an imbalance between job demands and job resources (Zhou et al., 2022). Based upon the Job Demands–Resources Model (JD-R; Bakker & Demerouti, 2007; Demerouti et al., 2001), we initially considered technostress as a risk factor for work-related stress and then examined its association with professional commitment and possible work-related outcomes (e.g., individual work performance). Afterwards, given that the JD-R emphasises the association between classes of constructs (e.g., job demands and poor psychosocial and physical health), we also examined the underlying theoretical mechanism between technostress and work-related outcomes by considering the mediating role

of professional commitment as a job resource. Accordingly, the following hypothesis was created to test the mediating effect.

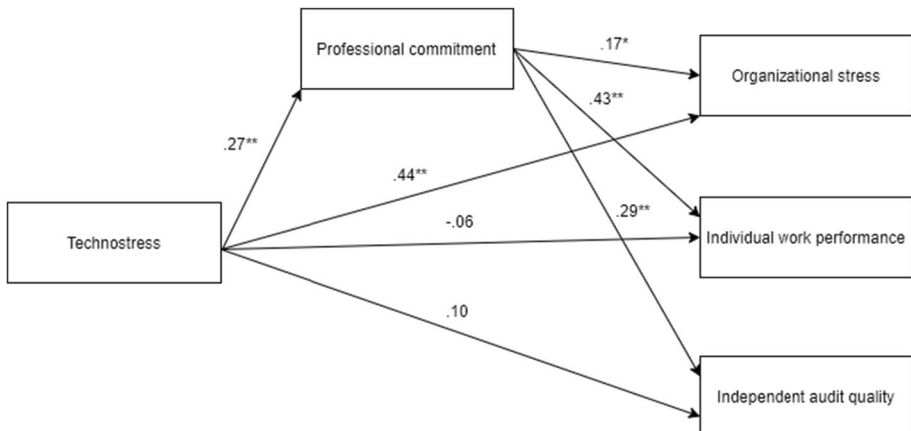
**Hypothesis 3:** Professional commitment would mediate the relationship between technostress and organizational stress, individual work performance, and independent audit quality.

In the literature, there are several studies focusing on the relationship between professional commitment, technostress, organizational stress, individual work performance, and independent audit quality (Doğrular, 2019; Günlük et al., 2017; Olasanmi, 2016; Hung et al., 2015; Tarafdar et al., 2015; Kumar et al., 2017; Yener, 2018; Lestari et al., 2020; Sunyoto, 2020). However, although the mediating role of professional commitment in the relationship between audit quality and individual work performance has been examined, to the best of our knowledge, no study yet tested the mediating role of professional commitment in the relationship between technostress and organizational stress, individual work performance, and independent audit quality. Therefore, this study aims to examine whether professional commitment mediates the association of technostress with organizational stress, individual work performance, and independent audit quality. The proposed model is presented in Fig. 1.

## Method

### Participants

The participants of this research have been working at several organizations and were invited to take part in the project. Despite the use of a convenience sampling approach in this study, a heterogeneous sample from different demographic backgrounds (e.g., age, gender, and work experience) was collected by using organizations from different locations in Turkey. Participants included 120 independent auditors (76.7% men, 23.3% women). The majority of participants were aged between 46 and 55 years



**Fig. 1** Structural model depicting the associations between the variables (\*\* $p < .001$ )

(35.0%), followed by 36-45 years (30.8%), 56 and above (20.8%), 26-35 years (9.2%), and 18-25 years (4.2%). In terms of work experience, more than half of the participants (52.5%) had work experience of 21 years or more, followed by 16-20 years (20.8%), 11-15 years (12.5%), 6-10 years (8.3%), and 1-5 years (5.8%).

## Measures

**Technostress Scale** (Tarafdar et al., 2007) is a 19-item self-reported scale developed to assess stress related to technologies. The items on the scale are rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating a greater level of technostress. A sample item is “I am forced by this technology to work much faster.” The scale was adapted to Turkish by Doğrular (2019). In this study, Cronbach’s alpha coefficient was .88.

**Organizational Stress Scale** (Dijkhuizen & Reiche, 1980) is a measure of stress related to the organization. The scale includes 13 items rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). A high score on the scale refers to higher levels of organizational stress. This scale comprises various subdimensions such as “extreme workload”, “uncertainty of duty”, “responsibility”, “conflict of duty”, “inability to leave the workplace”, “inability to join the decision-making process regarding the work”, “lack of believing the necessity of the work”, “future uncertainty”, “lack of job satisfaction” and “work-related anxiety” sub-dimensions. Each of the subscales can be taken into account as an independent scale. The Turkish adaptation of the scale was performed by Türk (1997). In this study, Cronbach’s alpha coefficient was .94.

**Professional Commitment Scale** (Blau, 2003) is a self-report measure of professional commitment related to the workplace. The scale comprises 18 items rated on answered on a 5-point Likert-type scale varying from 1 (strongly disagree) to 5 (strongly agree), with higher scores signifying greater levels of professional commitment. A sample item is “My line of work/career field is an important part of who I am.” The psychometric properties of the scale in Turkish were carried out by Selimoğlu and Yeşilçelebi (2014). In this study, Cronbach’s alpha coefficient was .77.

**Individual Work Performance** (Kirkman & Rosen, 1999) includes 6 items scored on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). A high score on the scale refers to high levels of individual work performance. A sample item is “I meet or exceed my work goals.” Reliability and validity studies of the scale in Turkish were conducted by Günlük et al. (2017). In this study, Cronbach’s alpha coefficient was .89.

**Independent Audit Quality Scale** (Şeker & Dinç, 2016) is a self-report measure designed to assess independent audit quality. The scale comprises 29 statements that are rated on a 5-point Likert-type scale varying from 1 (strongly disagree) to 5 (strongly agree), with high scores reflecting higher levels of independent audit quality. “A sample item is “the auditor performing the audit work should have the knowledge, skills and experience required for the job.” The scale was validated in Turkish by Selimoğlu and Yeşilçelebi (2014). In this study, Cronbach’s alpha coefficient was .97.

## Procedure

The survey for this study was electronically disseminated by creating a secure link that participants had to click the link to take part in the study. A consent form was provided to all respondents on the first page of the survey. All participants had to present their willingness prior to proceeding with the survey. Only participants who agreed to participate in the study could proceed. All participants were assured of confidentiality and anonymity of responses.

## Statistical Analysis

Descriptive statistics (e.g., mean and standard deviation) were presented for each analysed variable used in this study. Skewness and kurtosis statistics and their cut-off scores were taken into account when testing the assumption of normality. The Pearson correlation coefficient was reported to explore the link between the study variables. Simple mediation analysis was carried out using Model 4. Additionally, bootstrapping (10,000 samples) was conducted to examine the 95% confidence intervals (CI) for indirect effect (Hayes, 2009; Hayes & Preacher, 2014). All analyses were performed using SPSS version 26 for Windows and macro-PROCESS (Hayes, 2012).

## Results

### Descriptive Statistics and Correlation Analysis

Table 1 presents descriptive statistics (i.e., mean, standard deviation, and tests of normality), internal consistency reliability, and correlation results for the variables. Skewness scores ranged between  $-1.73$  and  $.49$  and kurtosis scores ranged between  $-.65$  and  $4.81$  suggesting that all variables had approximately normal to acceptable distribution with a traditional frame of reference for skewness  $< |2|$  and kurtosis values  $< |7|$  (West et al., 1995). The results of the Pearson correlation revealed that technostress had a positive correlation with professional commitment and organisational stress. Professional commitment was positively correlated with organisational stress, individual work performance, and independent audit quality. There was a significant positive correlation between individual work performance and independent audit quality.

### Mediation Analysis

The results of mediation analysis (see Tables 2 and 3, and Fig. 1) showed that technostress had a significant positive predictive effect on professional commitment ( $\beta = .27$ ,  $p < .001$ ) by explaining 7% of the variance in professional commitment. Technostress ( $\beta = .44$ ,  $p < .001$ ) and professional commitment ( $\beta = .17$ ,  $p < .001$ ) had significant positive predictive effects on organisational stress by accounting for 27% of the variance in organisational stress. In addition, the professional commitment had a significant positive predictive effect on individual work experience ( $\beta = .43$ ,  $p < .001$ ) and independent audit quality ( $\beta = .29$ ,  $p < .001$ ). Professional commitment explained 17% of the variance in

**Table 1** Descriptive statistics and correlations

Variable	Descriptive statistics					Correlations				
	M	SD	Skewness	Kurtosis	$\alpha$	1	2	3	4	5
1. Technostress	54.66	12.80	-0.20	-0.03	0.88	–	.27**	.49**	.06	.18
2. Professional commitment	50.86	9.22	-0.62	0.91	0.77		–	.29**	.41**	.31**
3. Organizational stress	34.82	11.87	0.49	-0.65	0.94			–	.11	.06
4. Individual work performance	15.83	3.04	-1.73	4.81	0.89				–	.20*
5. Independent audit quality	98.18	22.83	-0.66	0.53	0.97					–

\*\* $p < 0.01$ ; \*  $p < 0.05$



**Table 2** Unstandardized coefficients for the mediation model

		Consequent			
		<i>M</i> (Professional commitment)			
Antecedent		Coeff.	<i>SE</i>	<i>t</i>	<i>p</i>
<i>X</i> (Technostress)		.19	.06	3.00	<.01
Constant		40.38	3.59	11.52	<.001
		$R^2 = .07$			
		$F = 8.98; p < .01$			
		<i>Y</i> <sub>1</sub> (Organisational stress)			
Antecedent		Coeff.	<i>SE</i>	<i>t</i>	<i>p</i>
<i>X</i> (Technostress)		.41	.08	5.37	<.001
<i>M</i> (Professional commitment)		.22	.11	2.12	<.05
Constant		1.04	5.94	0.18	=.861
		$R^2 = .27$			
		$F = 21.22; p < .001$			
		<i>Y</i> <sub>2</sub> (Individual work performance)			
Antecedent		Coeff.	<i>SE</i>	<i>t</i>	<i>p</i>
<i>X</i> (Technostress)		-.01	.02	-.63	=.530
<i>M</i> (Professional commitment)		.14	.03	4.92	<.001
Constant		9.36	1.61	5.81	<.001
		$R^2 = .17$			
		$F = 12.33; p < .001$			
		<i>Y</i> <sub>3</sub> (Independent audit quality)			
Antecedent		Coeff.	<i>SE</i>	<i>t</i>	<i>p</i>
<i>X</i> (Technostress)		.18	.16	1.10	=.274
<i>M</i> (Professional commitment)		.71	.22	3.16	<.01
Constant		52.41	12.59	4.16	<.001
		$R^2 = .11$			
		$F = 7.02; p < .001$			

Number of bootstrap samples = 10,000; *SE* standard error, *Coeff* unstandardized coefficient, *X* independent variable, *M* mediator variable, *Y* outcome variable

**Table 3** Standardized indirect effects

Paths	Effect	<i>SE</i>	BootLLCI	BootULCI
Technostress→Professional commitment→Organisational stress	.04	.03	.01	.10
Technostress→Professional commitment→ Individual work performance	.03	.02	.00	.07
Technostress→Professional commitment→ Independent audit quality	.14	.08	.01	.31

individual work experience and 11% of the variance in independent audit quality. Furthermore, the indirect effect of technostress on organisational stress (effect = .04, 95% CI [.01, .10]), individual work performance (effect = .03, 95% CI [.00, .07]), and independent audit quality (effect = .14, 95% CI [.01, .31]) were significant through professional commitment

(see Table 3). These results suggest that professional commitment mediates the effect of technostress on organizational stress, individual work performance, and independent audit quality.

## Discussion

This study aims to examine the mediating role of professional commitment in the relationship between technostress and organizational stress, individual work performance, and independent audit quality. The results largely supported the hypotheses of this study by showing that professional commitment mediated the relationship between technostress and organizational stress, individual work performance, and independent audit quality.

A statistically significant effect was found between technostress, professional commitment, and organizational stress. These results are consistent with those of previous studies (Kumar et al., 2017; Kestane & Özbek, 2021; Tarafdar et al., 2015;). The effect of technostress was found to be positive and the reason for this is thought to be related to the time that study was conducted. This study was carried out during the pandemic which allowed a flexible working model of the employees working from home and the decrease in their workload.

In the current study, there was a positive relationship between technostress and professional commitment, while a statistically insignificant relationship between technostress and audit quality. Previous research provided support regarding the link between stress and job satisfaction, commitment, and quality of supervision (Ahmad et al., 2012; Ayyagari et al., 2011; Doğrular, 2019; Hung et al., 2015; Tarafdar et al., 2007; Park & Jex, 2011; Winoto & Harindahyani, 2020). It is thought that the increase in the commitment of independent auditors to their profession as a result of the increase in technostress is due to the reduction of the negative effect of the proactive approach, which is defined as taking pre-emptive action against changes, and the excessive technology load. Employees work harder to overcome their increasing stress, so they adapt quickly to changes. It is thought that this increases the job satisfaction and commitment of the employees (Doğrular, 2019).

This study also showed a positive significant relationship between professional commitment and organizational stress. That is, as professional commitment increases, the organizational stress of independent auditors also increases. This result is due to the notion that the destructive feature of stress comes to the fore, rather than motivating it. On the other hand, professional commitment is seen as an important factor in increasing work performance, providing work motivation, reducing work-related pressure, and thus increasing individual work performance and the quality of the work done (Selimoğlu & Yeşilçelebi, 2014). Elias (2006) describes professional commitment as a kind of personal bond that ensures individual commitment to their profession. Pai et al. (2012) stated that professional commitment enables individuals to make self-sacrificing efforts in the context of the realization of various goals and objectives, which ensures the individual's willingness to even work extra. However, Lee et al. (2000) state that there is a relationship between work experience and professional expertise and that the performance to be revealed in this process can be associated with professional commitment. It is also possible to interpret this situation for employees working in the field of accounting. Because, in the accounting profession, expertise develops within the scope of continuous training and work experience (Arifin, 2017; Chariri & Januarti, 2017; Sunyoto, 2020). Kwon and Banks (2004) explain the factors that lead to the

professional commitment of internal auditors in their studies. Accordingly, it is stated as a result of the study that high professional commitment will reduce staff turnover rates, increase motivation and improve performance. The results of this research are consistent with previous studies examining that employees' professional commitment has a positive effect on their work performance (Meyer et al., 2002). The current study indicated that as professional commitment increases, individual work performance also increases. Likewise, the level of professional commitment also affects audit quality. As the professional commitment of independent auditors increases, the quality of the audit also increases. These results are compatible with the literature (Tandiontong, 2013; Selimoğlu & Yeşilçelebi, 2014). In addition, according to the study model, technostress concluded that the effect of organizational stress on individual work performance and audit quality can be measured with the occupational dependence moderator.

The results of the present study suggest that a higher level of technostress is positively associated with a higher level of professional commitment which in turn leads to greater organisational stress, individual work performance, and independent audit quality. The point that draws attention here may be that as organizational stress increases, professional commitment also increases. Because stress can increase productivity up to a certain point (Doğrular, 2019). Working efficiently in the workplace can turn disadvantages into advantages, which can increase job satisfaction and professional commitment. Managers and business owners who do not want to see the negative effects of organizational stress in their organizations can help minimize this problem by providing good training, continuous learning, and adequate technical and organizational support. Another result of the research is that professional commitment increases individual work performance and audit quality. Based on these results, it may be necessary to carry out studies to increase job satisfaction and professional commitment in independent auditors in all relevant institutions, encourage independent auditors in various ways, and introduce a rewarding system, since it will increase individual work performance and audit quality.

The results of this study are not without limitations. First, the study was conducted during the COVID-19 pandemic which imposed people to work from home on a flexible schedule. Once people return to their work, the levels of technostress, professional commitment, organizational stress, individual work performance, and independent audit quality may differ. The variation in the levels of the above-mentioned variation in the face of adversity and the normalization period should be examined by future research. Second, the current study was a cross-sectional study which restricts a causal link between the studied variables. Future research should use a longitudinal research design to draw a definitive conclusion regarding possible causal relationships between the variables. Finally, self-report measures were used to collect data in the current study. Subsequent research should utilize objective measures to examine the association between the variables of this study.

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**Data Availability** The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

## Declarations

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed Consent** Consent was obtained from all participants included in the study.

**Conflict of Interest** The authors declared no conflicts of interest with respect to the research, authorship, and/or publication of this article.

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