

Gratitude, Prosocial Motivation, and Work Engagement in the Post-Earthquake Setting: The Indirect Associations Through Psychological Capital

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Given that work engagement is associated with well-being both in the workplace and in everyday life, this study examined factors associated with work engagement during the post-earthquake recovery period. According to JD-R theory, gratitude, prosocial motivation, and psychological capital may be personal resources associated with work engagement. Using two separate simple mediation models, this study examined: (1) the relationship between gratitude and work engagement through psychological capital, and (2) the relationship between prosocial motivation and work engagement through psychological capital. Data were collected between June and September 2025 from 406 employees in Malatya. The data were collected during the recovery and adaptation period, more than two years after the February 2023 earthquakes and following the October 2024 earthquake in Malatya. Using a cross-sectional design, data were collected through convenience sampling. The distribution of participants was balanced between women (55.1%) and men (44.4%), and the average age was 31.3 years (SD = 10.6). Pearson correlation and mediation analyses using Hayes' PROCESS Macro v4.2 (Model 4) were conducted to examine the relationships among gratitude, prosocial motivation, psychological capital, and work engagement. Pearson correlation analyses showed positive associations among gratitude, prosocial motivation, psychological capital, and work engagement. Moreover, two separate simple mediation analyses indicated that psychological capital significantly accounted for the indirect associations of both gratitude and prosocial motivation with work engagement. These findings indicated that personal resources were associated with work engagement during post-earthquake recovery.

Keywords. Gratitude, prosocial motivation, psychological capital, work engagement, earthquake

Due to its geographical location and geological structure, Türkiye is frequently exposed to earthquakes. In 2023, earthquakes of magnitudes 7.7 and 7.6, with their epicenter in Pazarcık district of Kahramanmaraş, affected 11 provinces in eastern Turkey, injuring thousands and forcing them to migrate. This was the earthquake that caused the most material and moral damage in Turkey's history (AFAD, 2023). Although nearly two years had passed since the February 2023 earthquakes, their effects were still evident in everyday life in the affected regions. In Malatya, recovery and reconstruction efforts were still underway, with damaged buildings and areas awaiting reconstruction remaining visible across the city. The recovery process was further shaped by continued seismic activity, including another earthquake in October 2024 and ongoing aftershocks. In the business sector, the workplaces were destroyed or damaged and so employees did not go to work for a long time. Thus, engaging in work may be difficult in the post-disaster context. After an earthquake, employees may be afraid of aftershocks, and going to work may be discouraged for a while. Even if employees return to work, it can be difficult for them to readjust, regain their previous motivation, and engage in their work.

There is a clear need to restore the psychological well-being of earthquake survivors in the post-earthquake setting. While earthquakes negatively affect the mental health (Furr et al., 2010), higher levels of work engagement may be associated with more positive psychological outcomes among employees. Existing research shows that work engagement is negatively related with burnout (Ivanovic et al., 2020) and positively correlated with well-being and physical/mental health (Schleupner & Kühnel, 2021). In the work setting, work engagement is considered a significant indicator of well-being in the workplace (Bakker & Demerouti, 2014). Moreover, work engagement is seen as an antecedent of positive organizational outcomes such as job satisfaction (Orgambidez-Ramos & de Almeida, 2017) and intention to leave (Lee et al., 2019). Engaged employees are healthier and happier than unengaged employees (Bakker, 2008).

Given that work engagement is associated with well-being both in the workplace and in everyday life, what factors are associated with higher levels of work engagement in the post-earthquake setting? The Job Demands – Resources (JD-R) theory, which considers personal resources important in the work environment, may provide an explanation for this (Bakker & Demerouti, 2014). According to JD-R theory, in the post-earthquake setting, gratitude, prosocial motivation, and psychological capital can be valuable personal resources that may be related to work engagement. These

personal resources are associated with positive self-evaluations and a greater sense of control over and influence on one's environment (Bakker & Demerouti, 2014). In JD-R theory, personal resources are mostly conceptualized through sub-dimensions of psychological capital such as self-efficacy, optimism, and resilience. However, in an expanded version of JD-R theory, Demerouti and Bakker (2023) broadened the theory to include resources from different areas of life. Indeed, various studies have shown that, in addition to psychological capital, gratitude and prosocial motivation can also be personal resources supporting work engagement (Nicuță et al., 2023; Jankelová et al., 2025).

Gratitude, Prosocial Motivation and Work Engagement in the Post-Earthquake Setting

After an earthquake, individuals may feel gratitude for their experiences, compare themselves to others, and consider that they might be better off than they were in a worse situation. Fredrickson (2003) found that the most positive emotion experienced by individuals after September 11 was gratitude. Gratitude has been associated with positive emotions such as joy, hope, and resilience in challenging circumstances (Chauhan et al., 2025). Besides the post-earthquake setting, gratitude is also considered an important positive psychological resource in the workplace. Research shows positive correlations between gratitude and work engagement (Nicuță et al., 2023; Lee et al., 2019). Furthermore, research supports that prosocial motivation increases in the post-disaster context (Cassar et al., 2017). An increase in prosocial motivation has been observed in individuals after both individual and societal traumas, including participation in financial aid, blood donation, search and rescue efforts, and volunteer work (Xu et al., 2024). Earthquake survivors, faced with the challenging conditions created by the earthquake, engage in voluntary efforts to help each other more, without expecting anything in return, and to heal their wounds on their own. In this process, individuals and organizations provide material, informational, and emotional support without expecting anything in return. Prosocial motivation that emerges after an earthquake may be associated with higher levels of work engagement by directing employees towards the people they serve and their colleagues in the workplace context. The research findings indicate a positive relationship between prosocial motivation and work engagement (Jankelová et al., 2025; Sari & Riani, 2023).

Indirect Role of Psychological Capital

Psychological capital has been associated with well-being and individuals' ability to cope with stressful life events in a post-earthquake setting (Epstein-Mathias, 2003). It has been linked to individuals' ability to cope with resource losses after an earthquake and to more positive emotional experiences through resource investment (Rabenu et al., 2017; Hobfoll, 2012). Individuals with high levels of psychological capital have more positive expectations about future outcomes and have more confidence in their ability to cope with various challenges encountered at work. The post-earthquake setting provides an environment where gratitude, prosocial motivation, and psychological capital can be observed intensely together. According to Luthans et al. (2007b), individuals with gratitude are also expected to have increased levels of psychological capital. Previous research has reported that gratitude (Özsoylar & Türker, 2021; Effendi et al., 2021) and prosocial

motivation (Su & Hahn, 2023) are associated with psychological capital and its sub-dimensions. Furthermore, engaged employees possess more personal resources such as optimism, self-efficacy, and resilience (Luthans et al., 2008). Studies show that psychological capital improves employees' individual lives and work quality (Baron et al., 2016; Nguyen & Nguyen, 2012). In their meta-analysis study, Mazzetti et al. (2023) found that personal resources such as resilience, self-efficacy, and optimism were more effective than social and work resources in influencing work engagement. Current research also indicates that psychological capital and its sub-dimensions are positively correlated with work engagement (Xanthopoulou et al., 2009; Ma, 2023). Considering these propositions, gratitude and prosocial motivation may be associated with higher levels of psychological capital, a resource that is an indicator of well-being in a post-earthquake setting. Additionally, according to JD-R theory, personal resources are predictors of work engagement (Bakker & Demerouti, 2014) and may act as mediators (Huang et al., 2016). Therefore, psychological capital, as a resource associated with gratitude and prosocial motivation, may also be associated with higher levels of work engagement.

Present Study

Although personal resources such as gratitude, prosocial motivation, and psychological capital are related to positive mental health and work-related outcomes, how these resources interact with one another to enhance work engagement in post-earthquake settings remains less well understood. Within JD-R theory, the relationship between personal resources and work engagement has mostly been examined in more "normal" work contexts outside of crises. Moreover, most previous studies on disasters have been conducted outside the organizational field (Gregg et al., 2022). Demerouti and Bakker (2023), by expanding JD-R theory to include demands and resources from different areas of life, emphasize the need to examine employee well-being and work engagement in crisis conditions as well. These studies highlight the importance of examining the relationship between personal resources and work engagement, especially after crises that affect working conditions. Following challenging circumstances, engaged employees may not only feel better about themselves but also be in a stronger position to receive support and feedback from colleagues and create new opportunities in the work environment. From this perspective, understanding the personal resources that can support employee engagement in the post-earthquake period can contribute both to the employees' reengagement with work and to the strengthening of the work environment. Accordingly, using two separate simple mediation models, this study examined: (1) the relationship between gratitude and work engagement through psychological capital, and (2) the relationship between prosocial motivation and work engagement through psychological capital. On this basis, the following hypotheses were proposed:

H1 Gratitude, psychological capital and work engagement will be positively correlated.

H2 Psychological capital will account for an indirect association between gratitude and work engagement.

H3 Prosocial motivation, psychological capital and work engagement will be positively correlated.

H4 Psychological capital will account for an indirect association

between prosocial motivation and work engagement.

Method

Study Design

In this study, data were collected between June 2025 and September 2025 from various employees in Malatya, one of the provinces most affected by the earthquake centered in Kahramanmaraş in February 2023 and October 2024. Designed as a cross-sectional study, data were collected through convenience sampling. Participation criteria were ‘having experienced the February 2023 and October 2024 earthquakes in Malatya’, ‘having worked at the same workplace since both earthquakes’, and ‘residing in Malatya’. The October 2024 earthquake was included as an additional recent seismic event experienced by participants during the recovery period and was considered relevant to their post-disaster experiences. Participants who were considered to have a potential negative psychological impact, had a psychiatric diagnosis, or were receiving mental health treatment were excluded from the study.

Participants and Procedure

Socio-demographic information of the participants is given in Table 1. A total of 406 employees participated in the study. The distribution of participants was balanced between women (55.1%) and men (44.4%), and the mean age was 31.3 ($SD=10.6$). The majority of participants had a high school education or higher (90.7%). Among participants, 188 were single, 202 were married, and 16 were divorced. The mean job tenure of participants was 4.7 ($SD=2.3$). Of the participants, 125 work in the private sector, 173 in the public sector, and 108 in other jobs outside the private and public sectors. The majority of participants did not suffer any physical injury due to the earthquake (89.6%), and the vast majority had their homes damaged (80.6%).

Prior to the research, ethical approval was obtained from the (Blinded for review) Human Research Ethics Committee (No: 121021). The research was conducted in accordance with the ethical requirements of the Declaration of Helsinki. Participants were informed that their participation was voluntary, that they could withdraw at any time, that their responses would be kept confidential, not shared with third parties, and that data would be evaluated anonymously. Data were collected in paper-pencil format and via online links. For participants who could not be reached in person, the online link was disseminated through social media platforms, companies that agreed to participate in the study, and individuals who agreed to participate. No financial incentives were offered to participants. Each participant took an average of 10–15 minutes to complete the scales. The researcher's contact information was provided in case any questions arose. In order to reduce common method bias, some steps were taken based on the suggestions of Podsakoff et al. (2003). Predictor and criterion variables were presented in separate sections of the questionnaire, with demographic and unrelated items placed between some of the measures to reduce the salience of relationships among the study variables. In addition, several unrelated and attention-check items were included, such as “Which season comes after summer?”, “How many days are there in a week?”, and “Please select ‘strongly disagree’ for this item.” Participants were also informed that there

were no right or wrong answers and that their responses would remain confidential. These procedures were intended to reduce respondents’ tendency to infer the expected relationships among the variables and to encourage independent responses.

Table 1. Descriptive statistics of socio-demographic information (n = 406)

Socio-Demographic Variables	N	%	M	SD
Age	406	100	31.3	10.6
Gender				
Male	225	55.1		
Female	181	44.4		
Education Level				
Primary school	26	6.4		
Middle school	12	2.9		
High school	100	24.6		
Associate degree	92	22.6		
Bachelor’s degree	152	37.4		
Postgraduate	24	5.9		
Marital Status				
Single	188	46.3		
Married	202	49.7		
Divorced	16	3.9		
Job Tenure	406	100.0	4.7	2.3
Sector				
Private	125	30.7		
Public	173	42.6		
Other	108	26.6		
Physical Injury				
Yes	42	10.3		
No	364	89.6		
Damage Status of Home				
None	79	19.4		
Minor	152	37.4		
Moderate	65	15.9		
Severe	76	18.7		
Collapsed	34	8.4		

Measures

Utrecht Work Engagement Scale (UWES). The UWES (Utrecht Work Engagement Scale) was used to measure participants’ level of work engagement. This scale was developed by Schaufeli et al. (2002), and its Turkish validity and reliability studies were conducted by Turgut (2011). The scale consists of 17 items on a 6-point Likert scale (1=Never, 6=Always) and has three sub-dimensions: vigor, dedication and absorption. An example item from the scale is: *I feel full of energy when I am at work*. In the Turkish adaptation study conducted by Turgut (2011), the Cronbach’s alpha coefficient was calculated as 0.89. In this study, the overall scale reliability was found to be Cronbach’s $\alpha = .86$ and McDonald’s $\omega = .86$. The reliability coefficients of the sub-dimensions were calculated as $\alpha = .79$, $\omega = .78$ for vigor, $\alpha = .84$, $\omega = .84$ for dedication, and $\alpha = .83$, $\omega = .82$ for absorption.

Prosocial Motivation Scale. The Prosocial Motivation Scale was developed by Grant and Sumanth (2009). The Turkish adaptation of the scale was carried out by Kesen and Akyüz (2016), and its Cronbach's alpha coefficient was calculated as 0.84. The factor loadings of the scale ranged from 0.774 to 0.853. The scale is presented in a 5-point Likert format (1=Strongly disagree, 5=Strongly agree) and consists of 5 items. The scale consists of a single sub-dimension. A sample item from the scale is: *I do my best when doing work that contributes to the well-being of others*. In this study, the reliability of the scale was found to be Cronbach's $\alpha = .87$ and McDonald's $\omega = .88$.

Gratitude Questionnaire (GQ). To measure participants' levels of gratitude, the Gratitude Questionnaire (GQ), developed by McCullough et al. (2002), was used. The original form of the scale consists of six items and uses a 7-point Likert-type response format (1 = strongly disagree, 7 = strongly agree). The Cronbach's α coefficient in the original form of the scale ranges from .76 to .80. In the Turkish adaptation study conducted by Yüksel and Oğuz Duran (2012), Cronbach's α coefficient was reported as .77. While the original version includes six items, the Turkish version of the Gratitude Questionnaire consists of five items. In the Turkish adaptation study, item 6 ("*Long amounts of time can go by before I feel grateful to something or someone*") was removed from the scale. The item was considered inappropriate because of its poor fit with the limited life experiences of the sample and because it was too abstract and difficult for young participants to understand (Chen et al., 2009; Froh et al., 2011; Yüksel & Oğuz Duran, 2012). Furthermore, Yüksel and Oğuz Duran (2012) reported that the five-item, single-factor structure exhibits better psychometric properties compared to the original six-item model. In the Turkish adaptation study, confirmatory factor analysis supported the factorial validity of the five-item Turkish GQ (Yüksel & Oğuz Duran, 2012). The reliability coefficients of the scale in this study were found to be Cronbach's $\alpha = .73$ and McDonald's $\omega = .74$. An example item is: "*If I were to make a list of the things I am grateful for, it would be a very long list.*"

Psychological Capital Scale. The psychological capital scale was developed by Luthans et al. (2007a) and measures hope, optimism, self-efficacy, and resilience, each with six items. The Cronbach's alpha value of the original scale is 0.89. The scale was adapted into Turkish by Çetin and Basım (2012). In this adaptation study, the Cronbach's alpha was found to be 0.91. The scale is evaluated on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). An example item is: *I always see the good side of things related to my job*. In this study, the reliability coefficients for the total score of the Psychological Capital Scale were found to be Cronbach's $\alpha = .88$ and McDonald's $\omega = .88$. The

reliability coefficients of the sub-dimensions were calculated as follows: for hope, $\alpha = .78$, $\omega = .79$; for optimism, $\alpha = .75$, $\omega = .74$; for self-efficacy, $\alpha = .82$, $\omega = .83$; and for resilience, $\alpha = .74$, $\omega = .74$.

Data Analysis

While cross-sectional studies are important in explaining the nomological network of a structure, data collected using a single method and source may generate common method bias (Cole & Maxwell, 2003). Therefore, Harman's single-factor test was conducted using an unrotated principal axis factoring analysis to assess potential common method bias. Before proceeding to the main analyses, descriptive statistics, reliability, and normality of the data were examined. Skewness and kurtosis values, as in Tabachnick et al. (2013), were accepted in the range of -1.5 and +1.5 in this study. Then Pearson correlations and regression analyses were conducted using Hayes' PROCESS-Macro v4.2 (Model 4) to examine the relationships between variables. In line with Cohen's (1988) guidelines, correlation magnitudes were evaluated as small ($r = 0.10$), medium ($r = 0.30$), and large ($r \geq 0.50$) effects. Cronbach's α and McDonald's ω values were interpreted according to Nunnally & Bernstein (1994), with values above 0.70 considered acceptable. The proposed research involved two separate mediation models. Model 1 examined whether psychological capital (M) accounted for the indirect relationships between gratitude (X1) and work engagement (Y), while Model 2 tested whether psychological capital (M) accounted for the indirect relationships between prosocial motivation (X2) and work engagement (Y). Age, gender, job tenure, sector, physical injury, and home damage status were included in the model as covariates. To analyze indirect mediation effects, bootstrapping with 5,000 resamples and 95% confidence intervals was used (Hayes, 2009). The analyses were performed with SPSS (version 27.0) and JASP (Version 0.19.1).

Results

Preliminary Analyses

Harman's single-factor test was used to assess common method bias. This was done using exploratory factor analysis, grouping all variables under a single factor that shows a homogeneous structure (Harman, 1976). The findings showed that the total variance explained by the single factor in the sample was 16.43%, which is lower than the recommended 50%. Therefore, it can be said that common method variance is unlikely to substantially confound the results of this study (Podsakoff et al., 2003). Descriptive statistics, reliability coefficients, and correlation values of the variables are given in Table 2. The findings show that Cronbach's alpha and McDonald's values ($\alpha=0.73 - 0.87$; $\omega=0.74 - 0.88$) are at an acceptable level (Nunnally & Bernstein, 1994).

Table 2. Descriptive statistics, internal consistency reliability, and correlation analysis

Variables	$\alpha - \omega$	Range	M	SD	Skewness	Kurtosis	Correlation			
							1	2	3	4
1.GR	0.73 - 0.74	1-7	6.06	1.70	- 1.22	1.33	-	0.53**	0.53**	0.37**
2.PM	0.87 - 0.88	1-5	4.04	1.21	- 1.13	0.27		-	0.39**	0.24**
3.PsyCap	0.88 - 0.88	1-6	4.25	1.20	- 0.48	- 0.34			-	0.57**
4.WE	0.86 - 0.86	1-6	3.91	1.82	- 0.25	- 1.32				-

Note. M: mean; SD: standard deviations; GR: Gratitude; PM: Prosocial motivation; PsyCap: Psychological capital; WE: Work engagement; ** $p < 0.001$

The results regarding mean scores indicate that participants' levels of prosocial motivation, gratitude, psychological capital, and work engagement were above the respective scale midpoints. The range of skewness values between -1.22 and -0.25 and kurtosis values between -1.32 and 1.33 indicated that the data show a normal distribution (Tabachnick et al., 2013). Pearson correlation analysis results also showed positive relationships between gratitude, prosocial motivation, psychological capital, and work engagement. Correlation analysis results indicated that effect sizes range from small to large (Cohen, 1988).

Mediation Analyses

The indirect associations of gratitude and prosocial motivation with work engagement through psychological capital were examined with two separate simple mediation models using the SPSS PROCESS macro (Model 4). Table 3 presents the unstandardized coefficients. Standardized coefficients are shown in Figure 1, and standardized indirect effects are presented in Table 4. In the first model, the role of psychological capital in the relationship between gratitude and work engagement was investigated. When age, gender, length of service, sector, physical injury, and home damage status were controlled for, gratitude was found to be positively associated with psychological capital ($B = 0.39$, $SE = 0.03$, $\beta = 0.55$, $p < .001$). Psychological capital was also found to be positively associated with work engagement ($B = 0.80$, $SE = 0.07$, $\beta = 0.53$, $p < .001$). The total effect of gratitude on work engagement was significant ($B = 0.39$, $SE = 0.05$, $\beta = 0.37$, $p < .001$). However, when psychological capital was included in the model, the direct effect of gratitude on work engagement was not significant ($B = 0.08$, $SE = 0.05$, $\beta = 0.08$, $p = .11$). The indirect effect of gratitude on work engagement through psychological capital was also found to be significant (effect = 0.29 , $SE = 0.04$, 95% CI [0.22 , 0.36]). Therefore, these results show the indirect association between gratitude and work engagement through psychological capital.

In the second model, the relationship between prosocial motivation and work engagement through psychological capital was examined. When control variables were included in the model, prosocial motivation was found to be positively associated with psychological capital ($B = 0.39$, $SE = 0.05$, $\beta = 0.40$, $p < .001$). Psychological capital was also found to be positively associated with work engagement ($B = 0.85$, $SE = 0.07$, $\beta = 0.56$, $p < .001$). The total effect of prosocial motivation on work engagement was significant ($B = 0.35$, $SE = 0.07$, $\beta = 0.24$, $p < .001$). However, when psychological capital was included in the model, the direct effect of prosocial motivation on work engagement was no longer significant ($B = 0.02$, $SE = 0.06$, $\beta = 0.01$, $p = .78$). The indirect effect of prosocial motivation on work engagement through psychological capital was significant (effect = 0.22 , $SE = 0.03$, 95% CI [0.16 , 0.29]). These results show the indirect association between prosocial motivation and work engagement through psychological capital.

Discussion

This study reveals that individuals with higher levels of gratitude, prosocial motivation, and psychological capital as personal resources in the post-earthquake setting may also bring these resources into their workplace (Bakker & Demerouti, 2014). Although the relationships between the variables in this study have

been examined separately in different contexts, examining these relationships in the post-earthquake setting may offer theoretical and practical contributions to improving work engagement during the recovery process.

Table 3. Unstandardized coefficients for two mediation models

Model and Variables	Outcome Variable			
	<i>M</i> (Psychological Capital)			
Model 1	Coeff.	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	2.45	0.31	8.02	<.001
<i>X</i> (Gratitude)	0.39	0.03	13.03	<.001
$R^2 = 0.31$				
$F = 25.40$; $p < 0.001$				
<i>Y</i> (Work Engagement) – Direct Effect				
Constant	– 0.10	0.47	– 0.22	0.83
<i>X</i> (Gratitude)	0.08	0.05	1.59	0.11
<i>M</i> (Psychological Capital)	0.80	0.07	11.04	<.001
$R^2 = 0.38$				
$F = 29.95$; $p < 0.001$				
<i>Y</i> (Work Engagement) – Total Effect				
Constant	1.85	0.50	3.68	<.001
<i>X</i> (Gratitude)	0.39	0.05	7.98	<.001
$R^2 = 0.18$				
$F = 12.90$; $p < 0.001$				
Model and Variables	Outcome Variable			
	<i>M</i> (Psychological Capital)			
Model 2	Coeff.	<i>SE</i>	<i>t</i>	<i>p</i>
Constant	3.24	0.33	9.95	<.001
<i>X</i> (Prosocial Motivation)	0.39	0.05	8.63	<.001
$R^2 = 0.17$				
$F = 11.55$; $p < 0.001$				
<i>Y</i> (Work Engagement) – Direct Effect				
Constant	0.04	0.48	0.08	0.93
<i>X</i> (Prosocial Motivation)	0.02	0.06	0.28	0.78
<i>M</i> (Psychological Capital)	0.85	0.07	12.91	<.001
$R^2 = 0.37$				
$F = 29.46$; $p < 0.001$				
<i>Y</i> (Work Engagement) – Total Effect				
Constant	2.80	0.51	5.49	<.001
<i>X</i> (Prosocial Motivation)	0.35	0.07	4.95	<.001
$R^2 = 0.11$				
$F = 6.97$; $p < 0.001$				

Note. *SE* = standard error; *Coeff* = unstandardized coefficient; *X* = independent variable; *M* = mediator variable; *Y* = dependent variable; Age, gender, job tenure, sector, physical injury, and home damage status were controlled for in the models. Model 1: Gratitude → Psychological Capital → Work Engagement. Model 2: Prosocial Motivation → Psychological Capital → Work Engagement

The positive relationships observed in this study between gratitude, prosocial motivation, psychological capital, and work engagement are consistent with the core assumptions of JD-R theory regarding personal resources. One of the main assumptions of JD-R theory is that personal resources are related to work engagement, and employees with more personal resources can access more job resources (Bakker & Demerouti, 2014). The findings in this study

expand on this assumption of the theory, showing that in a post-earthquake setting, having greater personal resources may not only facilitate access to job resources, as proposed by JD-R theory, but may also be associated with having or developing additional personal resources. Personal resources are related to positive motivational processes in the work environment (Effendi et al., 2021; Nicuță et al., 2023; Xu et al., 2024; Jankelová et al., 2025). Recognizing what one possesses and the desire to contribute to the benefit of others can help individuals find meaning and purpose in their lives. This sense of meaning and purpose may be related to individuals evaluating themselves and their future more positively and maintaining their belief in their ability to cope with the challenges they face.

Table 4. Standardized indirect effects of two mediation models

Model 1	Effect	SE	BootLLCI	BootULCI
Total effect	0.37	0.05	0.30	0.49
Direct effect	0.08	0.05	− 0.02	0.18
Indirect effect	0.29	0.04	0.22	0.36
Model 2	Effect	SE	BootLLCI	BootULCI
Total effect	0.24	0.07	0.21	0.49
Direct effect	0.01	0.07	− 0.11	0.15
Indirect effect	0.22	0.03	0.16	0.29

Note. Number of bootstrap samples for percentile bootstrap confidence intervals: 5,000; Age, gender, job tenure, sector, physical injury, and home damage status were controlled for in the models. Model 1: Gratitude → Psychological Capital → Work Engagement. Model 2: Prosocial Motivation → Psychological Capital → Work Engagement.

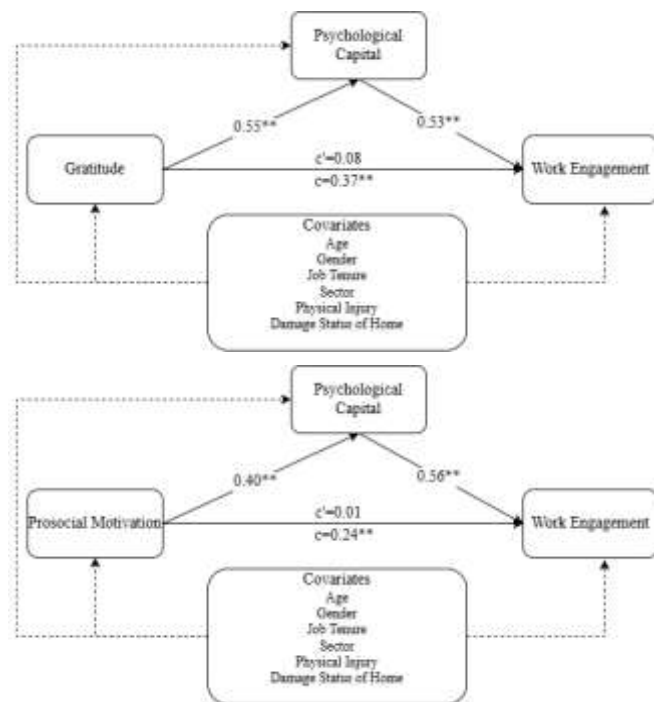


Figure 1. The mediation models with standardized coefficients

Note: Age, gender, job tenure, sector, physical injury, and home damage status were controlled for in the models.

The findings indicated that the associations of gratitude and prosocial motivation with work engagement were indirect through psychological capital. In both models, the indirect association

through psychological capital appeared larger in magnitude than the remaining direct association. This pattern suggests that psychological capital may account for an important part of the relationship between these personal resources and work engagement. This finding is consistent with Huang et al.'s (2016) view that personal resources may act as mediators. Personal resources may not only facilitate access to job resources but may also be linked to the development of other personal resources. Indeed, according to some researchers, personal resources have a similar and equally important role to job resources and can contribute to individuals' growth and goal achievements (Xanthopoulou et al., 2009; Llorens et al., 2007; Xanthopoulou et al., 2007). Moreover, the study conducted by Xanthopoulou et al. (2007) showed that personal resources play a mediating role in the relationship between job resources and work engagement. This study showed that personal resources do not merely act as mediators in the job resource–work engagement relationship, but may also account for the indirect relationship with work engagement through other personal resources.

However, it is worth noting that, descriptively, the total and indirect associations of gratitude with work engagement were numerically larger than those of prosocial motivation in the observed sample. Although these relative differences were not formally tested for statistical significance, this observed pattern may reflect the possibility that gratitude may cover a broader range of psychological and social processes than prosocial motivation alone. In the post-earthquake context, gratitude may arise not only from appreciating support received from others, but also from recognizing the value of being alive despite adversity, existing relationships, and the positive aspects of life (Wood et al., 2010; Fredrickson, 2003). This broader orientation may allow gratitude to draw on a range of complementary personal and social resources. Gratitude may broaden individuals' attention, cognition, and behavioral repertoires and contribute to an upward spiral of optimal functioning (Fredrickson, 2003, 2004; Lambert et al., 2012). In contrast, prosocial motivation is more specifically oriented toward benefiting others and may therefore operate through a narrower motivational pathway. Prosocial motivation may become particularly salient in crisis and disaster contexts, where the needs of others become more immediate and visible, compared with everyday life. However, gratitude may simultaneously be associated with more general positive emotional experiences and positive reinterpretation.

One possible explanation for this indirect association could be that gratitude and prosocial motivation are socio-psychological resources that support the development of relationship-oriented attitudes in employees, and psychological capital plays a supportive role. The fact that these resources may be associated with employees' positive evaluations of other people and interpersonal connections may also explain their relationship with positive attitudes towards work. According to Unanue et al. (2021), individuals who feel gratitude value and appreciate family and social relationships and desire a better society. Many researchers believe that gratitude functions to strengthen social relationships by encouraging reciprocal social behaviors between those who do good and those who receive it (Emmons & McCullough, 2003). Similarly, prosocial motivation is directly related to empathy, social responsibility, ethical values, and human sensitivity (Karadirek, 2023). For

example, the research findings obtained in a study by Karaahmetoğlu and Meydan (2024) with 17 mine workers who volunteered in search and rescue activities during the February 2023 earthquakes showed that the feeling of sociability is the most prominent factor in grounding prosocial behaviors. In this context, gratitude and prosocial motivation are related to considering others. Individuals who feel gratitude and are prosocially motivated seek ways to achieve common goals and do their best to help their colleagues, managers, and customers. Thus, gratitude and prosocial motivation may be associated with stronger interpersonal social bonds in the post-earthquake setting. Psychological capital may be associated with social mechanisms involving high-quality relationships and social networks (Garg et al., 2022). Luthans et al. (2015) stated that individuals with high psychological capital contribute more positively to their environment, have increased feelings of cooperation and solidarity, and tend to dedicate themselves more to the development of society. Thus, the social connections associated with gratitude and prosocial motivation, together with psychological capital, may be related to more positive evaluations, greater effort in challenging tasks, and resilience. As a result, this can be reflected in the workplace, supporting the positive relationship and empathetic development aspects of work engagement. Enhanced social connections also help increase employees' commitment to other employees, their organizations, and the people they serve, and reduce their detachment from the work context (Kersten et al., 2022).

Moreover, the relationships observed in the present study may extend beyond work engagement to other positive outcomes in the work domain. Psychological capital has been shown to be positively associated with employees' individual lives and the quality of their work life (Baron et al., 2016; Nguyen & Nguyen, 2012). Similarly, Ahrens (2016) revealed that gratitude and psychological capital are related to positive outcomes in the work environment, while Garg et al. (2022) showed that psychological capital plays a mediating role in the relationship between gratitude and workplace happiness. A similar pattern may also be observed for prosocial motivation, which has been linked to various positive outcomes in the work setting. Previous research has also shown that higher levels of prosocial motivation and psychological capital are associated with higher levels of positive work-related outcomes, such as organizational citizenship behavior and job satisfaction (Su & Hahn, 2023; Aydin Sünbül & Aslan Gördesli, 2021). Therefore, the current findings suggest that gratitude and prosocial motivation, along with psychological capital, may be related to employees' work engagement and, more generally, positive work outcomes. This finding raises a new question. Could these personal resources also be associated with lower levels of strain and burnout in a post-earthquake setting?

However, the size and practical importance of these relationships should also be considered alongside their statistical significance. Although the observed associations provide support for the proposed model, statistically significant relationships do not necessarily indicate large or practically meaningful changes in employees' work engagement. The practical relevance of these findings may therefore depend on whether interventions targeting these resources lead to meaningful improvements in everyday work functioning, particularly under the continuing demands of post-

earthquake recovery. At the same time, the extent to which personal resources are associated with work engagement may depend on the broader recovery conditions in which employees work, including access to organizational support, perceived job security, workload, and ongoing disaster-related demands. Thus, the practical relevance and strength of these associations may vary across different post-disaster contexts.

Conclusion

Given that work engagement is associated with employee well-being, health, and positive work outcomes (Bakker & Demerouti, 2014; Bakker, 2008; Schleupner & Kühnel, 2021), understanding these personal resources is valuable in the post-earthquake period. Specifically, the associations of gratitude and prosocial motivation with work engagement through psychological capital suggest that these resources may be associated with positive work outcomes in the post-earthquake setting. While the theoretical contributions are discussed in the Discussion section, the practical implications of the findings are presented below.

Practical Implications

The indirect associations of gratitude and prosocial motivation with work engagement through psychological capital point to the importance of considering these resources together, rather than as independent elements. Accordingly, the JD-R theory's assumption regarding personal resources could be expanded in the post-crisis context, considering how practices aimed at increasing work engagement could be designed to enhance not only job resources but also personal resources such as gratitude, prosocial motivation, and psychological capital. For example, organizations and managers can integrate peer recognition and gratitude practices, which allow employees to recognize their positive experiences and the support they receive, and post-earthquake solidarity and peer support programs that encourage contributing to common goals and supporting each other, into employee support practices. Such practices may strengthen employees' psychological capital resources such as self-efficacy, hope, optimism, and resilience while supporting gratitude and prosocial motivation. The emergence of psychological capital as an important mechanism in both relationships suggests that designing Psychological Capital Interventions (PCIs) in conjunction with practices such as gratitude activities and prosocial goal setting may be relevant to future interventions aimed at supporting work engagement after an earthquake. Such an approach can strengthen employees' personal resources while enabling managers to create a supportive and solidarity-promoting work environment. This also allows organizations to develop more comprehensive interventions that support employee well-being and engagement after a crisis.

Limitations and Future Studies

However, the findings should be considered in light of several limitations. First, the lack of pre-earthquake data and the fact that data were collected more than two years after the earthquakes make it difficult to determine whether the observed levels of gratitude, prosocial motivation, and psychological capital reflect the effects of the earthquake. The findings reflect the recovery period, when the effects have partially diminished and individuals have begun to adapt, rather than the early post-earthquake period. Therefore, in the future, longitudinal studies including pre-earthquake, early post-

earthquake, and follow-up measurements should be conducted. In the post-earthquake period, the content of gratitude, prosocial motivation, psychological capital, and work engagement may differ from experiences in normal working life conditions. Qualitative research could further examine the experiences and psychological processes through which these resources develop in the post-earthquake setting. Second, this study did not examine which dimensions of psychological capital or which combination of these dimensions accounted for its mediating role. In future research, these dimensions should be examined both separately and in combination. Third, the cross-sectional design does not allow temporal precedence to be established among gratitude, prosocial motivation, psychological capital, and work engagement. Therefore, the indirect effects identified in this study should not be interpreted as evidence of causal mediation. Reverse or reciprocal associations are also possible. Longitudinal or experimental studies are needed to examine the temporal and causal relationships among these variables. Furthermore, using self-report measures from a single source and testing two separate mediation models in a single sample presents limitations in terms of common method bias and Type I error probability. Larger sample sizes, different data sources, and holistic analysis approaches should be used. In addition, the use of different response scales across the measures may have introduced some measurement-related variance and may make direct comparisons of raw mean scores less straightforward. Future research might consider standardizing response formats to minimize potential measurement variance. Moreover, common method bias was assessed using Harman's single-factor test, which has been criticized for its limited sensitivity. Future studies could use more sensitive approaches, such as latent common method factors or marker variables. Furthermore, the use of convenience sampling may have limited the representativeness of the sample, as participation was based on the accessibility and willingness of employees to take part in the study. This may have introduced some selection bias and, consequently, limited the generalizability of the findings. Finally, the fact that data were collected only in Malatya, one of the 11 provinces affected by the earthquake, limits the generalizability of the findings to the entire earthquake region. Collecting data from different earthquake regions will contribute to evaluating the contextual validity of the findings.

Compliance with Ethical Standards

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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. This study was approved by the Ethics Review Board of Ağrı İbrahim Çeçen University (Approval No: 121021).

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

Data availability statement: The data supporting this study's findings are available from the corresponding author, [ŞA], upon reasonable request.

Author contributions: Study conception/design, methodology, data collection, formal analysis, writing—original draft preparation, review and editing: ŞA.

Declaration of Artificial Intelligence Use. During the preparation of this work, the author used the GPT-5 language model in order to enhance language readability, grammar, and style. After using this tool, the author reviewed and edited the content as needed and take full responsibility for the content of the publication.

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