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Coping Self-Efficacy for Trauma as a Predictor of Post-Traumatic Growth and Traumatic Grief Among Earthquake Survivors Who Experienced Disaster-Related Loss

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ABSTRACT

Purpose: Coping self-efficacy for trauma is recognized as an important psychological resource in post-traumatic adjustment, yet its role in individuals bereaved by disasters remains understudied. This study examined the predictive associations of self-efficacy with post-traumatic growth and traumatic grief in individuals who lost a close relative in the 2023 Türkiye earthquakes.

Methods: This cross-sectional study was conducted between March 15 and May 15, 2025. The sample comprised 413 adults who had experienced the February 6, 2023 earthquakes and lost at least one close relative. Data were collected online using a personal information form, the Coping Self-Efficacy for Trauma Scale, the Traumatic Grief Inventory, and the Posttraumatic Growth Scale–Short Form. Descriptive statistics, t-tests, one-way ANOVA, Pearson correlation, and multiple regression analyses were performed. Perceived income, number of disaster-related losses, and post-earthquake relocation served as covariates.

Results: After covariate adjustment, coping self-efficacy for trauma positively predicted post-traumatic growth ($\beta = +.459$, $R^2 = .256$) and negatively predicted traumatic grief ($\beta = -.298$, $R^2 = .158$, both $p < .001$). A significant positive association between post-traumatic growth and traumatic grief persisted after adjustment for covariates ($r = .365$, $p < .001$). The model accounted for approximately 26% of the variance in post-traumatic growth and 16% of the variance in traumatic grief.

Conclusion: The findings indicate that coping self-efficacy for trauma is associated with lower traumatic grief and greater post-traumatic growth in earthquake-bereaved individuals. Self-efficacy represents a potential intervention target in psychosocial support programs for earthquake survivors.

Keywords: Adaptation, Psychological; Earthquakes; Grief; Posttraumatic Growth, Psychological; Self Efficacy.

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ÖZET

Amaç: Travma ile başa çıkma özyeterliliği, travma sonrası uyum sürecinde önemli bir psikolojik kaynak olarak kabul edilmektedir. Ancak bu kaynağın afet sonrası yas yaşayan bireylerdeki rolü yeterince incelenmemiştir. Bu çalışmada, 2023 Türkiye depremlerinde yakın kaybı yaşayan bireylerde özyeterliliğin travma sonrası büyüme ve travmatik yas ile yordayıcı ilişkisi incelenmiştir.

Yöntem: Kesitsel tasarımdaki bu çalışma, 15 Mart–15 Mayıs 2025 tarihleri arasında yürütülmüştür. Çalışmaya, 6 Şubat 2023 depremini deneyimleyen ve en az bir yakınını kaybeden 413 yetişkin dahil edilmiştir. Veriler, kişisel bilgi formu, Travma ile Başa Çıkma Özyeterliliği Ölçeği, Travmatik Yas Ölçeği ve Travma Sonrası Büyüme Ölçeği Kısa Formu kullanılarak çevrimiçi toplanmıştır. Verilerin analizinde tanımlayıcı istatistikler, t-testi, tek yönlü ANOVA, Pearson korelasyon ve çoklu regresyon analizleri kullanılmıştır. Algılanan gelir, afet kaynaklı kayıp sayısı ve deprem sonrası taşınma kovaryans olarak alınmıştır.

Bulgular: Kovaryanslar kontrol edildikten sonra travma ile başa çıkma özyeterliliği travma sonrası büyümeyi pozitif ($\beta = +,459$; $R^2 = ,256$), travmatik yası ise negatif yönde ($\beta = -,298$; $R^2 = ,158$; her ikisi için de $p < ,001$) yordamıştır. Travma sonrası büyüme ile travmatik yas arasında, kovaryans kontrolü sonrasında da anlamlı pozitif bir ilişkinin devam ettiği görülmüştür ($r = ,365$; $p < ,001$). Model, travma sonrası büyümedeki varyansın yaklaşık %26'sını, travmatik yastaki varyansın ise yaklaşık %16'sını açıklamaktadır.

Sonuç: Bulgular, travma ile başa çıkma özyeterliliğinin deprem sonrası yas yaşayan bireylerde daha düşük travmatik yas ve daha yüksek travma sonrası büyüme ile ilişkili olduğunu göstermektedir. Özyeterliliğin, deprem mağdurlarına yönelik psikososyal destek programlarında potansiyel bir müdahale hedefi olabileceği önerilmektedir.

Anahtar Kelimeler: Depremler; Öz yeterlik; Psikolojik uyum; Travma sonrası büyüme; Yas.

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The earthquakes of magnitudes 7.7 and 7.6 that struck southeastern Turkey on February 6, 2023, affected 11 provinces and resulted in more than 48,000 deaths (1). Beyond the immediate physical destruction, these disasters left enduring psychological consequences for survivors. A meta-analysis examining the psychological effects of the Kahramanmaraş earthquakes reported a probable post-traumatic stress disorder (PTSD) prevalence of 41% among adults, with depression and anxiety prevalence ranging from 40% to 50% (2). An 18-month follow-up study further confirmed the persistence of these effects, reporting a PTSD prevalence of 20.1% (3). These figures underscore the prolonged psychological burden borne by individuals who experienced disaster-related loss.

Turkey's geographic position has long made it vulnerable to devastating seismic events. The 1999 Marmara earthquake and the 2011 Van earthquake both generated substantial research on long-term psychological consequences. Studies on Marmara earthquake survivors demonstrated that PTSD and depression could remain elevated for years (4), while research following the Van earthquake highlighted the roles of psychological resilience, social support, and post-traumatic growth in survivor recovery (5). This accumulated evidence provides an important comparative framework for understanding the psychological sequelae of the 2023 earthquakes.

Individuals who experience disaster-related loss face the dual challenge of coping simultaneously with a traumatic event and the death of a loved one. In this context, coping self-efficacy for trauma, defined as an individual's perceived capacity to manage the demands of traumatic experiences, is theorized to function as an antecedent psychological resource whose underlying beliefs may be associated with subsequent psychological outcomes (6). Consistent with this framework, research following the 2023 earthquakes demonstrated that self-efficacy, alongside social support and hope, significantly mediated the relationship between mental health and resilience (7). Among disaster volunteers, coping self-efficacy for trauma was strongly associated with post-traumatic growth, with trauma centrality serving as a full mediator (8).

Traumatic grief represents a particularly complex response in disaster survivors. Defined as an intense bereavement reaction following the sudden or violent death of a loved one (9), traumatic grief is distinct from normal grief and can co-occur with PTSD and pathological bereavement responses. A comprehensive meta-analysis identified unexpected death, unnatural death, and low social support as significant risk factors for prolonged grief disorder (10), and the nature of the relationship with the deceased and pre-existing mental health problems represent additional specific risk factors for pathological grief (11). These findings highlight that disaster survivors who have lost close relatives are at heightened risk of developing severe and prolonged grief responses.

Paradoxically, adversity may also be accompanied by profound personal transformation. Post-traumatic growth, defined as positive psychological change resulting from the struggle with highly challenging life circumstances (12), encompasses strengthened interpersonal relationships, new perspectives on life, and a heightened awareness of personal strength. Research on Van earthquake survivors demonstrated that post-traumatic growth was closely associated with psychological resilience, social support, and effective coping (5). Importantly, recent evidence suggests that post-traumatic growth and psychological distress are not mutually exclusive: survivors may experience both simultaneously, reflecting the nonlinear complexity of post-traumatic adjustment (13, 14).

Although coping self-efficacy for trauma, traumatic grief, and post-traumatic growth have each been examined in the disaster literature, they have rarely been modeled together. A critical theoretical question therefore remains unresolved: how can a single coping resource be linked to two divergent bereavement outcomes, one adaptive and one pathological, that can co-occur within the same individual? A second gap concerns timing: disaster-bereavement research has predominantly focused on acute reactions, yet traumatic grief and post-traumatic growth unfold gradually, making the medium-term post-disaster phase particularly informative. Conducted approximately two years after the 2023 Kahramanmaraş earthquakes, the present study addresses both gaps by examining whether coping self-efficacy for trauma predicts post-traumatic growth and traumatic grief in survivors who experienced disaster-related loss, and by exploring the association between these two outcomes.

Material and Method

Study Design

This cross-sectional study was conducted between March 15 and May 15, 2025. Reporting adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies.

Population and Sample

The study population consisted of adults who had directly experienced the February 6, 2023 Kahramanmaraş earthquakes and had lost at least one close other (spouse, first-degree relative, or close friend) as a direct consequence of the earthquake. Individuals under 18 years of age, those who had not been physically present in the earthquake zone, and those who reported no earthquake-related bereavement were excluded.

Sample size was calculated using G*Power 3.1.9.7 software, with simple linear regression used as a conservative proxy for the primary regression coefficient of interest (medium effect size $f^2 = 0.15$, $\alpha = .05$, power = .80), yielding a minimum requirement of 85 participants. The final sample (N = 413) also exceeds commonly recommended sample sizes for multiple regression with the present number of predictors, well above the commonly recommended 10:1 cases-per-predictor ratio.

Outcome Measures

Data Collection Instruments: Personal Information Form. This 9-item form, developed by the researcher based on the relevant literature, assessed sociodemographic characteristics and earthquake-related loss.

Coping Self-Efficacy for Trauma Scale (CSE-T): The CSE-T (15) assesses an individual's perceived capacity to manage traumatic experiences. The scale comprises 9 items rated on a 7-point Likert-type scale (1 = not at all capable, 7 = totally capable); total scores range from 9 to 63, with higher scores indicating greater coping self-efficacy. The Turkish adaptation was carried out by Halaçoğlu (16), who reported a Cronbach's alpha of .94. In the present study, Cronbach's alpha was .90.

Traumatic Grief Inventory (TGI): The TGI (17) assesses the severity of traumatic bereavement responses and comprises 18 items rated on a 5-point Likert-type scale (1 = never, 5 = always); total scores range from 18 to 90, with higher scores indicating more severe grief symptoms. The Turkish adaptation was carried out by Baş et al. (18), who reported a Cronbach's alpha of .94. In the present study, Cronbach's alpha was .88.

Post-Traumatic Growth Scale–Short Form (PTG-S): The PTG-S is the growth subscale of the Post-Traumatic Growth and Depreciation Inventory–Expanded Short Form (PTGDI-X-SF) developed by Platte et al. (19). The full PTGDI-X-SF comprises two parallel 10-item subscales that assess positive (post-traumatic growth) and negative (post-traumatic depreciation) changes following trauma exposure. In the present study, only the PTG-S was administered to measure positive psychological changes. The depreciation subscale was not included. Items are rated on a 6-point Likert-type scale (0 = no change because of my crisis, 5 = very great degree of change because of my crisis). Total scores range from 0 to 50, with higher scores indicating greater post-traumatic growth. The Turkish adaptation was carried out by Türk et al. (20), who reported a Cronbach's alpha of .81 for the PTG-S. In the present study, Cronbach's alpha was .92.

Data Collection Procedure

Snowball sampling was employed because of its established utility for reaching trauma-exposed populations with limited accessibility (21). An online survey was created using Google Forms and distributed via the researcher's personal social media accounts; participants were subsequently invited to share the link within their networks. The survey included an introductory page detailing the study's purpose, inclusion criteria, estimated completion time (12–15 minutes), voluntary participation, and data confidentiality. IP address tracking was used to prevent duplicate responses.

Data Analysis

Statistical analyses were conducted using IBM SPSS Statistics version 26. Cases with missing responses on any of the primary outcome scales were excluded from all analyses (listwise deletion). Distributional assumptions, evaluated using skewness and kurtosis values (Kline's [22] thresholds: |skewness| < 3.0, |kurtosis| < 10.0) and the Kolmogorov-Smirnov and Shapiro-Wilk tests, were satisfied for all primary variables. Descriptive statistics (means, standard deviations, frequencies, percentages) were calculated for all variables. Group differences in CSE-T, PTG-S, and TGI scores by sociodemographic characteristics were examined using independent samples t-tests and one-way ANOVA, with Tukey's HSD applied for post-hoc pairwise comparisons. Bivariate associations among the three continuous scale scores were assessed using Pearson's correlation coefficient. Two multiple regression analyses were then conducted to examine whether coping self-efficacy for trauma predicted post-traumatic growth and traumatic grief, each with the corresponding outcome as the dependent variable, coping self-efficacy as the primary predictor, and perceived income level, number of disaster-related losses, and post-earthquake relocation as covariates. The two regression models were estimated simultaneously in IBM SPSS Amos 26, allowing the residual covariance between post-traumatic growth and traumatic grief to be estimated. Coefficients were tested using critical ratios (z).The residual association between the two

outcomes was evaluated after accounting for the predictor and covariates. Statistical significance was set at α = .05, with 95% confidence intervals reported for all regression estimates.

Results

Sample Characteristics and Group Comparisons

Of the 470 respondents who completed the online survey, 57 (12.1%) were excluded due to incomplete responses on the primary outcome scales, yielding a final analytical sample of 413 participants. Because these respondents discontinued the survey before reaching the outcome measures, a systematic demographic comparison with the final sample was not possible and is addressed in the Limitations section.

The mean age of participants was 33.15 ± 11.33 years. Of the participants, 50.6% were male, 60.8% were single, 58.1% were university graduates, and 54.5% reported income matching their expenses. Most lived in nuclear families (72.9%), 63.0% were unemployed, 42.4% had children, and 21.3% had relocated to another province following the earthquake. Regarding earthquake-related loss, 66.8% reported a single bereavement, 16.5% reported two bereavements, and 16.7% reported three or more.

Group comparisons indicated that CSE-T scores differed significantly by gender, marital status, education level, employment status, perceived income level, and number of disaster-related losses, with males, married individuals, university graduates, and employed participants reporting higher scores. PTG-S scores differed significantly by post-earthquake relocation status and perceived income level, and TGI scores differed by perceived income level and number of disaster-related losses (Table 1), with individuals reporting income less than expenses showing the lowest CSE-T scores and the highest TGI scores.

Table 1. Comparison of Participants' Sociodemographic Characteristics with Mean Scores of CSE-T, PTG-S, and TGI

	n (%)	CSE-T $\bar{X} \pm SD$	Test Value, p	PTG-S $\bar{X} \pm SD$	Test Value, p	TGI $\bar{X} \pm SD$	Test Value, p
Gender							
Female	204(49.4)	36.99±10.63	t=-2.613[a] p=**0.009**	35.92±7.52	t=1.178[a] p=0.239	56.37±14.99	t=1.309[a] p=0.192
Male	209(50.6)	39.59±9.55		35.03±7.86		54.48±14.38	
Marital Status							
Single	251(60.8)	37.49±10.46	t=-2.085[a] p=**0.038**	35.04±7.68	t=-1.401[a] p=0.161	56.47±16.22	t=1.804[a] p=0.072
Married	162(39.2)	39.58±9.58		36.13±7.71		53.79±11.85	
Education Level							
Secondary school[1]	42(10.2)	35.04±9.52	F=3.771[b] p=**0.021**	36.66±5.81	F=0.833[b] p=0.435	58.47±6.28	F=1.754[b] p=0.175
High school[2]	131(31.7)	38.04±10.01		35.12±7.74		55.75±13.74	
University[3]	240(58.1)	39.83±10.21		35.74±8.14		53.81±12.31	
Perceived Income Level							
Income less than expenses[1]	45(10.9)	31.00±10.94	F=15.050[b] p=**0.001**	40.13±3.50	F=9.742[b] p=**0.001**	63.06±15.03	F=11.228[b] p=**0.001**
Income equal to expenses[2]	225(54.5)	39.81±10.94		35.05±7.93		52.78±14.91	
Income more than expenses[3]	143(34.6)	38.23±7.33		34.66±7.83		57.15±13.07	
Family Type							
Nuclear family	301(72.9)	38.24±10.29	t=-0.214[a] p=0.831	35.85±7.84	t=1.689[a] p=0.093	55.52±14.69	t=0.237[a] p=0.813
Extended family	112(27.1)	38.48±9.87		34.46±7.25		55.13±14.79	
Employment Status							
Yes	153(37.0)	39.57±9.10	t=2.028[a] p=**0.043**	34.88±9.07	t=-1.186[a] p=0.236	54.99±13.40	t=-0.448[a] p=0.654
No	260(63.0)	37.56±10.70		35.81±6.76		55.66±15.43	
Post-earthquake Relocation							
Yes	88(21.3)	39.79±10.12	t=1.551[a] p=0.123	37.11±5.09	t=2.936[a] p=**0.004**	53.77±13.34	t=-1.183[a] p=0.207
No	325(78.7)	37.90±10.16		35.03±8.22		55.86±15.04	
Number of Disaster-related Losses							
1 person[1]	276(66.8)	38.85±9.18	F=6.250[b] p=**0.002**	35.28±7.70	F=0.858[b] p=0.425	55.65±14.91	F=3.963[b] p=**0.020**
2 people[2]	68(16.5)	34.47±13.72		36.58±8.18		51.44±13.20	
3 or more[3]	69(16.7)	39.91±9.04		35.14±7.21		58.36±14.70	

Note. Bold p values are statistically significant (p < .05). Superscript numerals (1, 2, 3) denote group ordering used for Tukey HSD post-hoc pairwise comparisons in variables with three levels (Education, Perceived Income, Number of Disaster-related Losses). CSE-T = Coping Self-Efficacy for Trauma Scale; PTG-S = Post-Traumatic Growth Scale–Short Form; TGI = Traumatic Grief Inventory. a Independent samples t-test. b One-way ANOVA.

Descriptive Statistics and Correlations

Mean total scores were 38.30 ± 10.17 for CSE-T, 35.57 ± 7.70 for PTG-S, and 55.41 ± 14.70 for TGI. A moderate, statistically significant positive correlation was found between CSE-T and PTG-S (r = .359, p < .001), indicating that higher coping self-efficacy for trauma was associated with greater post-traumatic growth. A moderate, statistically significant negative correlation was observed between CSE-T and TGI (r = –.303, p < .001), indicating that higher coping self-efficacy was associated with lower traumatic grief symptoms. A weak but statistically significant positive correlation was found between PTG-S and TGI (r = .190, p < .001), indicating that higher post-traumatic growth was associated with higher traumatic grief symptoms (Table 2).

Table 2. Pearson Correlations Among CSE-T, PTG-S, and TGI Scores

	$\bar{X}$ ± SD	CSE-T	PTG-S	TGI
CSE-T	38.30 ± 10.17	1	.359* p < .001	–.303* p < .001
PTG-S	35.57 ± 7.70		1	.190* p < .001
TGI	55.41 ± 14.70			1

*Note. * p < .001. CSE-T = Coping Self-Efficacy for Trauma Scale; PTG-S = Post-Traumatic Growth Scale–Short Form; TGI = Traumatic Grief Inventory.*

Multiple Regression Analyses

Two multiple regression analyses were conducted to examine whether coping self-efficacy for trauma predicted post-traumatic growth and traumatic grief, with perceived income level, number of disaster-related losses, and post-earthquake relocation specified as covariates in each model (Figure 1, Table 3). After adjustment, coping self-efficacy for trauma positively predicted post-traumatic growth (β = +.459, B = 0.348, SE = 0.034, 95% CI [0.281, 0.415], p < .001, R^2 = .256) and negatively predicted traumatic grief (β = –.298, B = –0.431, SE = 0.069, 95% CI [–0.567, –0.295], p < .001, R^2 = .158). A positive and significant residual association remained between post-traumatic growth and traumatic grief (r = +.365, p < .001), indicating that the two outcomes share variance not explained by the model.

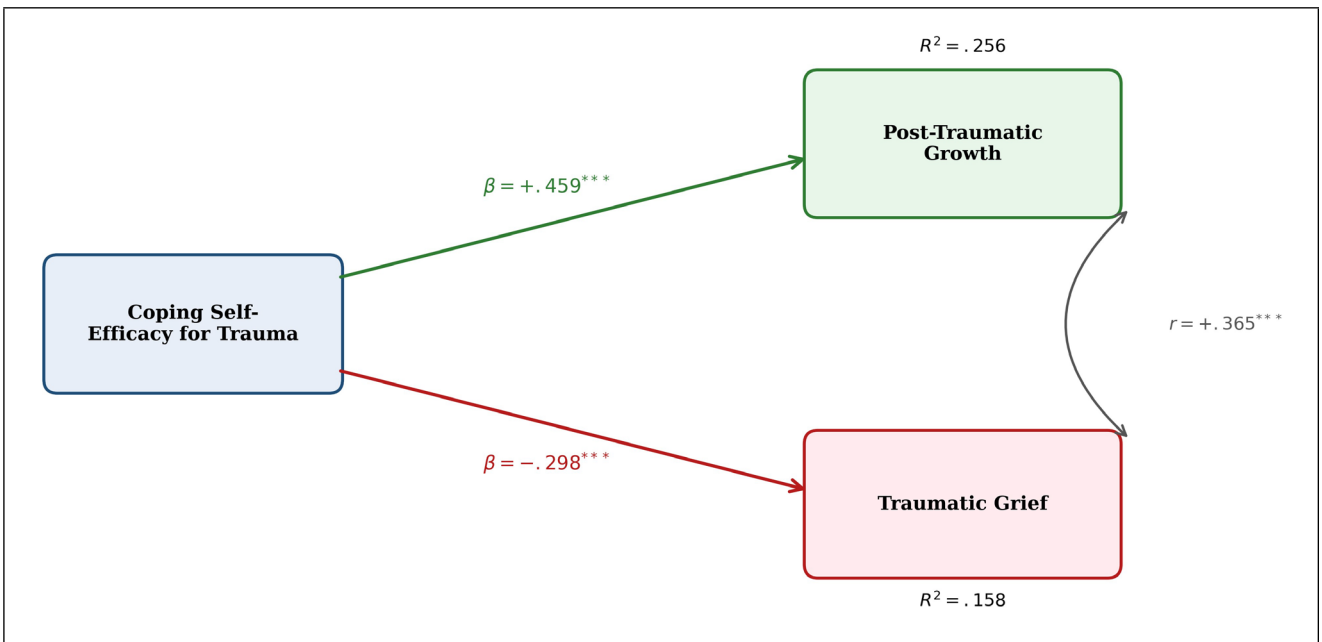

Figure 1. Coping Self-Efficacy for Trauma as a Predictor of Post-Traumatic Growth and Traumatic Grief: Covariate-Adjusted Regression Coefficients and Residual Outcome Association

*Note. Standardized regression coefficients (β) and explained variances (R^2) adjusted for perceived income level, number of disaster-related losses, and post-earthquake relocation. The curved double-headed arrow represents the residual correlation between post-traumatic growth and traumatic grief after partialling out coping self-efficacy and the covariates. N = 413. ***p < .001.*

Table 3. Multiple Regression Analyses: Coping Self-Efficacy for Trauma Predicting Post-Traumatic Growth and Traumatic Grief, Adjusted for Covariates

Parameter	*B*	SE	*β*	*z*	*p*	95% CI (B)
Direct effects on PTG-S						
CSE-T → PTG-S	0.348	0.034	.459***	10.21	< .001	[0.281, 0.415]
Income = expenses	−0.181	0.755	−.012	−0.24	.811	[−1.665, 1.304]
Income < expenses	8.139	1.190	.330***	6.84	< .001	[5.799, 10.478]
Losses = 2	2.946	0.933	.142**	3.16	.002	[1.113, 4.780]
Losses ≥ 3	0.236	0.920	.011	0.26	.798	[−1.573, 2.045]
Relocated	2.002	0.830	.107*	2.41	.016	[0.370, 3.634]
Direct effects on TGI						
CSE-T → TGI	−0.431	0.069	−.298***	−6.23	< .001	[−0.567, −0.295]
Income = expenses	−4.214	1.533	−.143**	−2.75	.006	[−7.228, −1.200]
Income < expenses	2.949	2.417	.063	1.22	.223	[−1.802, 7.700]
Losses = 2	−7.029	1.894	−.177***	−3.71	< .001	[−10.753, −3.305]
Losses ≥ 3	2.855	1.869	.073	1.53	.127	[−0.818, 6.529]
Relocated	−0.207	1.686	−.006	−0.12	.902	[−3.521, 3.107]
Residual covariance						
PTG-S ↔ TGI	32.75	—	.365***	7.95	< .001	—
Explained variance						
R^2 for PTG-S	.256					
R^2 for TGI	.158					

*Note. N = 413. Model adjusted for perceived income level (3 levels; reference = income more than expenses), number of disaster-related losses (3 levels; reference = 1 person), and post-earthquake relocation (binary; reference = no). CI = confidence interval; CSE-T = Coping Self-Efficacy for Trauma Scale; PTG-S = Post-Traumatic Growth Scale–Short Form; TGI = Traumatic Grief Inventory. * p < .05. ** p < .01. *** p < .001.*

Discussion

The present study examined whether coping self-efficacy for trauma predicts post-traumatic growth and traumatic grief in earthquake survivors who experienced disaster-related loss. Three key findings emerged: coping self-efficacy for trauma was positively associated with post-traumatic growth and negatively associated with traumatic grief, and post-traumatic growth and traumatic grief showed a low positive association with each other. Regression analyses adjusted for sociodemographic covariates confirmed both associations of coping self-efficacy with these outcomes, and a significant residual association remained between post-traumatic growth and traumatic grief after adjustment.

The positive relationship between coping self-efficacy for trauma and post-traumatic growth is consistent with findings from both Turkish and international research. In a sample of survivors from the same earthquake, self-efficacy has been shown to mediate the relationship between earthquake fear and post-traumatic growth (23). Among disaster volunteers, a strong positive association between coping self-efficacy and post-traumatic growth has similarly been reported, with trauma centrality serving as a full mediator (8). Psychological resilience has also been found to be positively associated with hope and post-traumatic growth among 2023 Turkey-Syria earthquake survivors (24). These patterns are consistent with self-efficacy theory, which holds that individuals who believe in their capacity to manage adversity are better positioned to derive meaning from traumatic experiences and to achieve personal growth (6).

The negative relationship between coping self-efficacy for trauma and traumatic grief extends prior findings on the inverse association of self-efficacy with grief. In an internet-based intervention, loss-related coping self-efficacy has been shown to reduce grief symptom severity and to mediate the grief recovery process (25). Among survivors of the same earthquake, self-efficacy, alongside social support and hope, similarly served as a multiple mediator of the relationship between mental health and resilience (7). These converging findings are consistent with the interpretation that individuals with higher coping self-efficacy for trauma may be better positioned to regulate the emotional demands of bereavement and may therefore report less severe traumatic grief

symptoms. From a clinical perspective, these findings identify self-efficacy enhancement as a potentially modifiable target in grief-focused interventions for disaster survivors. Psychiatric nurses can operationalize this target through brief psychoeducation on trauma reactions, structured skills training in arousal regulation and behavioral activation, motivational interviewing, and facilitated peer-support groups for bereaved survivors.

The positive association between post-traumatic growth and traumatic grief, reflected both at the bivariate level (r = .190) and as a significant residual association (r = .365) after adjustment for coping self-efficacy and sociodemographic covariates, aligns with a growing body of evidence that challenges the assumption that psychological distress and growth are mutually exclusive. Among Kahramanmaraş earthquake survivors, PTSD and post-traumatic growth have been reported to coexist (13). One year after the 2023 earthquakes, higher PTSD levels were similarly found to be associated with greater post-traumatic growth (14). International evidence further corroborates this pattern: among Pohang earthquake survivors, PTSD fully mediated the relationship between earthquake exposure and post-traumatic growth (26), and among Van earthquake survivors, post-traumatic stress symptoms mediated the relationship between traumatic loss and post-traumatic growth (27). These findings are theoretically consistent with Tedeschi and Calhoun's (12) model, which posits that post-traumatic growth emerges precisely from the struggle with highly distressing experiences. Critically, the fact that the association between growth and grief persisted even after coping self-efficacy and demographic covariates were partialled out suggests that their coexistence is not merely an artifact of sharing common psychological or contextual resources. It likely reflects a deeper interdependence mediated by processes such as meaning-making (28) or the centrality of the lost relationship to the survivor's evolving self-concept (29). Together, the regression results identify coping self-efficacy for trauma as a parsimonious, modifiable correlate of both adaptive and grief-related responses to disaster-related loss, with potential value as an intervention target in psychosocial support programs.

Several of the observed patterns may reflect the cultural context of Turkey. Collectivist values, kinship networks, and communal mourning practices (such as ritualized condolence visits, communal Qur'anic recitations, and fortieth-day commemorations) may help explain the simultaneous experience of growth and grief: when bereavement is processed through shared rituals rather than as a private emotional task, the two responses may be more integrated than mutually exclusive. Religious frameworks prominent in Turkish culture, including patient endurance in adversity and belief in reunion in the afterlife, may operate as parallel coping resources alongside personal coping self-efficacy and may be consistent with the observed lower levels of traumatic grief (30). These collective practices may also be associated with growth, potentially through processes such as externalizing and validating the loss. Notably, individuals with the lowest perceived income reported the lowest coping self-efficacy and the highest traumatic grief, a pattern consistent with resource-based vulnerability theories. They also reported the highest post-traumatic growth, which may reflect greater reliance on spiritual and meaning-centered coping in the absence of material resources. Of note, the bivariate income–grief pattern was attenuated after covariate adjustment in the regression model (Table 3), suggesting that part of this association is accounted for by the number of disaster-related losses and post-earthquake relocation, whereas the income–growth pattern remained robust to adjustment. Future research should incorporate standardized measures of spiritual coping and collective resilience to clarify their relative contributions.

Limitations of the Study

Snowball recruitment through online platforms is subject to two related constraints. Network-based selection may produce a sample more homogeneous than the broader earthquake-affected population, and exclusive online delivery likely underrepresents survivors with limited digital access, who are disproportionately older, rural, and of lower socioeconomic status. The findings should be interpreted as reflecting predominantly younger, more educated, and digitally connected survivors. Mixed-mode sampling in future research would help clarify generalizability. The cross-sectional design precludes causal inference and limits conclusions about how these relationships evolve over time, particularly given that data were collected approximately two years post-earthquake, when the temporal dynamics at earlier and later recovery stages remain unknown. Finally, reliance on self-report measures without clinical diagnostic interviews may have introduced response bias and limited diagnostic precision. Additionally, the 57 respondents excluded due to incomplete outcome data could not be systematically compared with the final sample, as they discontinued the survey before reaching the primary measures; the possibility of attrition bias therefore cannot be ruled out.

Conclusion

This study showed that coping self-efficacy for trauma appears to be a psychological resource associated with both lower traumatic grief and greater post-traumatic growth in earthquake survivors who experienced disaster-related loss. The model accounted for approximately 26% of the variance in post-traumatic growth and 16% of the variance in traumatic grief. The concurrent positive association between post-traumatic growth and traumatic grief further indicates that these constructs are not mutually exclusive outcomes but can be experienced simultaneously, reflecting the inherent complexity of post-traumatic adjustment.

These findings carry important theoretical and clinical implications. Theoretically, the study extends Bandura's (6) self-efficacy theory to disaster-related bereavement, providing empirical support for the predictive role of self-efficacy in relation to divergent post-traumatic outcomes. Clinically, psychiatric nurses can target Bandura's four sources of coping self-efficacy through brief group psychoeducation on trauma reactions, arousal-regulation skills training (paced breathing, grounding, sleep hygiene), graded behavioral activation to rebuild mastery, motivational interviewing to reframe coping cognitions, and facilitated peer groups in which bereaved survivors observe adaptive coping by similarly affected peers. Established protocols such as Psychological First Aid and Skills for Psychological Recovery fit within the nursing scope of practice and have been used in earthquake contexts.

Future research should employ longitudinal designs to track the trajectory of these constructs across post-disaster time points, and incorporate mixed-methods approaches and culturally sensitive variables such as spiritual coping and collective identity to advance understanding of post-traumatic adjustment in Turkish earthquake survivors.

Declarations

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Ethics Committee Approval

This study was approved by the Non-Interventional Clinical Research Ethics Committee of Kütahya Health Sciences University (Decision No: 2025/04-22, Date: 11 March 2025). All procedures were conducted in accordance with the ethical principles of the Declaration of Helsinki.

Informed Consent

Electronic informed consent was obtained from all participants prior to data collection.

Author Contributions

R.A.: Conceptualization, methodology, data collection, formal analysis, writing – original draft, writing – review and editing, visualization.

Conflict of Interest

There is no conflict of interest.

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Data and Material Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Reporting Guideline

STROBE statement for cross-sectional studies.

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