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Rebuilding wellbeing: Understanding the role of self-criticism, anger rumination, and death distress after the February 6, 2023, Türkiye Earthquake

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ABSTRACT

This study investigated self-criticism, anger rumination, and death distress in wellbeing after one of the most devastating natural disasters of this century. The study included 399 participants from 56 different cities across Türkiye. Participants were from 3 groups: those who themselves or one of their nuclear families are earthquake survivors (group 1), those who had a loved one other than a nuclear family member who was an earthquake survivor (group 2), and those who were deeply affected by the earthquake through media networks (group 3). Results showed that women experienced higher death distress and anger rumination and lower mental wellbeing compared to men post-earthquake. Individuals in group 1 had significantly lower mental wellbeing and higher death distress than groups 2 and 3. However, the effect size of this significant differentiation depending on earthquake experience was small. Moreover, anger rumination and death distress fully mediated the link between self-criticism and mental wellbeing.

On 6 February 2023 devastating earthquakes struck Türkiye and Syria. Following the two earthquakes of magnitude 7.7 and 7.6 centered in Kahramanmaraş province in Türkiye, 11.020 aftershocks occurred in 1 month period. About 13 million individuals in 11 Turkish provinces were affected by this horrific disaster. According to the Türkiye Disaster and Management Authority, 45.089 Turkish citizens have lost their lives (AFAD, 2023). 26 thousand buildings in Türkiye's earthquake zone have been reduced to rubble. In the post-earthquake inspections, it was determined that there were almost 215 thousand heavily damaged or collapsed buildings that needed to be demolished urgently (CSB, 2023). Thousands of people have lost their homes, many even lost their loved ones. Millions across the Turkish nation suffered from the pain of such a tremendous disaster. As the grief sets in, coping with post-earthquake affects is another major challenge facing Türkiye.

Major traumatic events affect many individuals and their wellbeing (Galea, 2007). Several studies on literature draw attention to the negative aftermath of major traumatic events (such as war, epidemic, natural disaster) on survivors' wellbeing and mental health. (Haydon & Salvatore, 2021; Meffert & Ekblad, 2013; Tracy et al., 2011). A previous study on trauma and its long term psychological consequences showcases that although trauma-related mental disorders are observed to decrease over time in trauma victims, the severity of mental disorders in individuals who have been exposed to trauma intensively remains the same (Steel et al., 2002). Furthermore, research found that, even 6 years after the earthquake, survivors of the major earthquake disaster in Türkiye in 1999, have a significantly lower quality of life than the general population (Ceyhan & Ceyhan, 2007). A similar result was found in a longitudinal study that earthquake survivors continue to experience depression, somatization, and anxiety 9 months after the earthquake, while at the same time having poorer wellbeing and quality of life levels (Wang et al., 2000). Studies conducted around the world reported that major earthquakes negatively influence the wellbeing and quality of life of the survivors (Giuliani et al., 2014; Gupta & Agrawal, 2010; Oishi et al., 2015; Wang & Wang, 2023).

In the case of 6 February earthquakes, the traumatic impact of the earthquake deeply affected not

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only the earthquake victims but also their loved ones and other people who witnessed this disaster through the media and social media. Understanding the factors that have a negative impact on individuals' wellbeing in the aftermath of disasters is critical for intervention to improve and preserve the mental wellbeing of trauma victims and people experiencing secondary trauma. Some of these negative factors accounting for mental wellbeing after a major earthquake may include self-criticism, anger rumination, and death distress.

Correlates of mental wellbeing

Self-punishment and negative self-talk occur when someone has high expectations and goals for themselves but is unable to achieve them. This act is known as self-criticism in psychology literature (Blatt, 1995). Many studies highlight that reducing self-criticism is important to enhance individuals' mental wellbeing (Kotera et al., 2019; Sommers-Spijkerman et al., 2018; Yehuda et al., 1994). One study in particular found a strong negative relationship between self-criticism and an individual's feelings of security and contentment (Gilbert et al., 2008). Self-criticism has been shown to be harmful to mental health in studies conducted with trauma survivors. Previous research found that self-criticism in trauma victims may increase PTSD symptoms (Cox et al., 2004; Crapolicchio et al., 2021), interfere with depression treatment and cause relapse of depression symptoms (Zeeck et al., 2020), can increase self-harming behaviors and suicidality (Baetens et al., 2015; Campos et al., 2013; Glassman et al., 2007; Shahmoradi et al., 2021). Hence it is fair to say that self-criticism may predict some of the variance in mental wellbeing of trauma survivors. Moreover, a study conducted with adolescent earthquake survivors identified self-criticism as one of the observed negative outcomes and suggested that professionals can reduce self-criticism to improve mental wellbeing post-earthquake (Liu et al., 2023).

Rumination can stimulate negative feelings that might impair an individual's wellbeing when they are recovering from trauma (Satici et al., 2022). When confronted with a traumatic event, rumination may increase anger (Christ et al., 2020). Anger rumination is defined as intrusive thoughts that occur during ongoing and repetitive cognitive processes following a happening of anger (Sukhodolsky et al., 2001). Anger rumination causes individuals to relive their anger that was triggered by past events (Satıcı, 2014). Despite their desire to stop rumination, their minds remain preoccupied with negative thoughts that arise (Langlois et al., 2000). Anger is a highly prevalent emotion among trauma patients and preoccupation with anger can interfere with treatment. According to research, trauma victims who exhibit anger and rumination are more likely to be diagnosed with PTSD (Ehlers et al., 1998). Another study found increase in anger related posts on social media after an earthquake, indicating that anger might be a one of the emotional responses to an earthquake and authorities should address the anger in public after natural disaster as a part of crisis management (Li et al., 2020). Additionally, many studies in the literature suggest that anger rumination should be addressed in interventions to improve trauma survivors' mental wellbeing (Glück et al., 2017; Li et al., 2020; Orth et al., 2008; Powell et al., 2021).

Given its inevitable nature, death can be upsetting and distressing for many individuals. In the context of death distress, anxiety, depression, and obsession stand out among the many facets of death (Abdel-Khalek, 2012). After exposure to a traumatic event (such as a major earthquake), individuals' mental health may be in serious distress (Kristensen et al., 2012). Death anxiety (i.e., unpleasant reaction to the death and dying of oneself or significant others), death depression (i.e., sadness or solemn reflection on one's own death, the deaths of others, or the concept of death in general), and death obsession (i.e., repetitive thoughts or ruminations, persistent ideas or intrusive images centered on the death of oneself or significant others) can be exacerbated in trauma survivors (Abdel-Khalek, 2012; Hugo et al., 2015; Yıldırım & Güler, 2021). Moreover, fear of death is regarded as a symptom for diagnosing trauma in those suffering from psychological distress (Gershuny & Thayer, 1999). Given the foregoing, death distress stands out as a significant component, particularly for the mental wellbeing of trauma survivors.

The aim of this study is to investigate some possible predictors for the mental wellbeing of individuals after the 6 February 2023, earthquake in Türkiye. The study hypothesizes that anger rumination and death distress might mediate the link between self-criticism and mental wellbeing in post-earthquake. According to the literature, self-criticism is linked to anger rumination (Ariyazangane et al., 2022; Costa & McCrae, 1992; Smart et al., 2016). Finding of Pedersen et al. (2011) experimental study also show that individuals' anger affect is increased by self-critical and self-focused rumination. What is more, ruminations on anger may

increase anxiety and obsessions with death. According to a study conducted with suicidal individuals, anger and violent thoughts may increase the likelihood of suicide (Selby et al., 2007). As a result, we might argue that anger rumination enhances thoughts of death. Moreover, another study found that anger increased by traumatic experiences aggravate Prolonged Grief Disorder (PGD) and PTSD symptoms (Lenferink et al., 2022). All things considered, literature points out to some links between self-criticism, anger rumination, death distress and mental wellbeing of traumatic event survivors. Altogether, literature shows some relationships between self-criticism, anger rumination, death distress, and the mental wellbeing of traumatic event survivors. Yet, there is no study in the literature that directly investigates this link.

Additionally, mental wellbeing studies in post-earthquake survivors report some significant differences between genders. For example, women were significantly had higher levels in stress response (Anderson & Manuel, 1994), perception of risk (Kung & Chen, 2012), and PTSD (Dell'Osso et al., 2011). Several studies conducted in Türkiye after the major earthquake in 1999, also found that negative effects of the earthquake were significantly higher in women post-earthquake such as PTSD symptoms and depression levels (Başoğlu et al., 2002; Livanou et al., 2002; Salcioglu et al., 2003). Hence this study also aims to investigate this study's variables in regard to gender. Therefore, we proposed the following hypotheses:

H1. The study variables will significantly differ with regard to gender.

H2. The study variables will significantly differ with regard to different experiences of the earthquake.

H3. Self-criticism will be negatively related to mental wellbeing.

H4. The relationship between self-criticism and mental wellbeing will be serially mediated by anger rumination and death distress in negative direction.

Method

Participants and procedure

Snowball sampling method was used to recruit participants. The study questionnaires were created in Google Forms and distributed to participants who were known to be affected by the earthquake by the authors. Following Goodman's (1961) suggestions on snowball sampling, every individual who participated in the study recruited another individual who was affected by the earthquake. We informed the participants that they can withdraw from the study at any time. In total 399 individuals (Female = 289, Male = 110) participated from 56 different cities in Türkiye. Many participants (64.9%) were affected by the earthquake via media and social media ($N = 259$), 23.8% percent had a loved one other than their nuclear family who is an earthquake survivor ($N = 95$), and the rest 11.3% were them or their nuclear family members who were earthquake survivors ($N = 45$). The mean age of the participants was 27.20 years ($SD = 9.71$; range = 18–68). 60.2% of the participants had an undergraduate degree or were enrolled in one; the other participants consisted of 1.3% elementary school graduates, 6.5% high school graduates, and 32.1% postgraduates. Also, the majority of perceived socioeconomic level was middle class. (66.9%). Further details are found in Table 1.

Ethics

The Helsinki Declaration was followed during the study's execution. The authors received permission from the Yıldız Technical University Ethical Board before beginning data collection (Report number: 20230502059). Informed consent was obtained from all the individual participants that were included in the study.

Measures

Self-criticism Rumination Scale (SCRS) was developed by Smart et al. (2016). The Likert-type scale has ten items, ranging from *not at all* (1) to *very much* (4). Some sample items are *I often worry about all of the mistakes I have made* and *I can't stop thinking about how I should have acted differently in certain situations*. Scores on the scale range from 10 to 40, with a greater score indicating a higher amount of self-critical rumination. Turkish adaptation of the SCRS was made by İngeç et al. (2020), who reported the scale was reliable ($\alpha = 0.89$) and valid.

Anger Rumination Scale (ARS) was developed by Sukhodolsky et al. (2001). The 19 itemed scale ranges from *never* (1) to *always* (4). Some sample items are *I think about certain events from a long time ago and they still make me angry* and *When someone makes me angry, I can't stop thinking about how to get revenge on them*. ARS consists of four sub-scales of angry afterthoughts, thoughts of revenge, angry memories and understanding of causes. Total scores on the scale range from 19 to 76, with a greater score indicating a higher amount of anger rumination. The original ARS's

Table 1. Sample characteristics.

Variable	Frequency	%
Gender		
Female	289	72.4
Male	110	27.6
Educational status		
Primary school	5	1.3
High school	26	6.5
University	240	30.2
Master/Ph.D.	128	32.1
Perceived socio-economic status		
Poor	66	16.5
Moderate	267	66.9
Good	66	16.6
Previous earthquake experience		
Yes	192	48.1
No	207	51.9
How were you affected by the earthquakes on February 6 and its aftermath?		
Myself and/or someone from my nuclear family are earthquake survivors.	45	11.3
A loved one of mine (other than my nuclear family) is an earthquake survivor.	95	23.8
I am affected via media and social media.	259	64.9

internal consistency reliability coefficient was 0.93, while the test-retest reliability coefficient was 0.77. The Turkish adaptation of the ARS was made by Satıcı (2014), who reported Cronbach's alpha internal consistency values for the subscales in the Turkish version between 0.64 and 0.78.

Death Distress Scale (DDS) was developed by Dadfar and Lester (2020). The 9 itemed scale ranges from *never* (1) to *always* (5). Some sample items are *I can't get the notion of death out of my mind* and *I find it greatly difficult to get rid of my thoughts about death.* DDS consists of four sub-scales of death anxiety, death depression and death obsession. A higher score on the scale indicates higher level of death distress, with total values ranging from 9 to 45. Turkish adaptation of the DDS was made by Yıldırım and Güler (2021) and had a high estimate of internal reliability.

Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS), developed by Stewart-Brown et al. (2009), was adapted into Turkish by Demirtaş and Baytemir (2019). The short and 7 itemed version of WEMWBS ranges from *never* (1) to *always* (5). Some sample items are *I have been feeling relaxed* and *I am optimistic about the future.* A higher score on the scale indicates higher level of mental wellbeing, with total values ranging from 7 to 35. Cronbach's alpha reliability coefficients for the first study group were 0.84 and 0.86 for the second study group in the Turkish adaptation study.

Data analysis

The IBM SPSS Statistics 22 and JASP 0.11.1 were used for all data analysis. Additionally, an independent samples *t*-test was conducted to investigate whether the study variables significantly differed according to gender (H1) and a one-way ANOVA analysis conducted to investigate whether the study variables significantly differed according to the personal experience of the earthquake (the three sub-groups of the sample) (H2).

We tested the hypotheses in two steps, using AMOS 24 and Anderson and Gerbing (1988) guidelines to evaluate the mediation function of how self-criticism influences mental wellbeing, as well as how anger rumination and death distress affect mental wellbeing as mediators. As covariates, gender and the presence of earthquake experience were controlled for. The indirect impact of each mediator can be separated using this process (Van Jaarsveld et al., 2010). Structural equation model (SEM) with latent variables was performed to investigate the links between self-criticism and mental wellbeing, while testing anger rumination and death distress as mediators. SEM method with latent variables have some advantages over regression and path analysis. SEM method is well preferred in survey research because of its beneficial properties such as a more flexible set of assumptions, the use of CFA to reduce measurement error, a visually appealing interface, the testing of the entire model as opposed to individual coefficients (AmirAlavifar & Anuar, 2012). Hence, we tested H3 and H4 with latent variables and SEM method.

The measuring model was examined initially. The hypothetical model was then used to investigate and assess the indirect relationships between self-criticism and mental wellbeing through anger rumination and death distress. The model fit indexes included SRMR, CFI, NFI, GFI, and IFI. As previously advised, SRMR and RMSEA values less than 0.08 and CFI, NFI, GFI, and IFI values greater than 0.90 indicate a satisfactory match (Hoyle & Panter, 1995).

Results

The mean scores and standard deviations for self-criticism, anger rumination, death distress, and mental wellbeing, and all reliability coefficients were within acceptable criteria (Table 2). The study's variables were normally distributed (Brown, 2006). Findings based on gender are as follows: self-criticism $t(397) = -2.91$, $p = 0.004$; anger rumination $t(397) = -1.91$, $p = 0.057$; death distress $t(397) = -4.88$, $p < 0.01$; and mental wellbeing, $t(397) = 2.46$, $p < .001$. Results showed that death distress was higher for women ($M = 24.80$, SD = 7.35) than men (22.42, SD = 7.15). Self-criticism was also higher for women ($M = 26.84$, SD = 6.72) than men ($M = 23.22$, SD = 6.38 for men) while mental wellbeing was significantly lower in women ($M = 23.32$, SD = 5.29) than men ($M = 24.80$, SD = 5.61). There were no differences in anger rumination between men and women.

There were significant differences in death distress, $F(2,396) = 4.26$, $p = 0.015$, and mental wellbeing, $F(2,396) = 5.60$, $p = 0.004$, between groups of different experiences of the earthquake. Post hoc comparisons showed that individuals who themselves or their nuclear family members are earthquake survivors have a higher level of death distress and a lower level of mental wellbeing than those with a loved one other than a nuclear family member who is an earthquake survivor and those who are affected by the earthquake via media sources (Table 3). However, the calculated effect size of having different experiences of the earthquake is small ($n^2 = 0.01$).

Measurement model

The four latent (self-criticism, anger rumination, death distress and mental wellbeing) and observed variables that composed the measurement model were evaluated. The measurement model fitted the data well: χ^2 (38, $N = 399$) = 140.621, $\chi^2/df = 3.71$; SRMR = 0.042 CFI = 0.959; NFI = 0.945; GFI = 0.942; IFI = 0.959. Factor loadings ranged from 0.41 to 0.92 and were significant. As a result, it was determined that each indication was representational of its variables.

Structural model

A partially mediated model with direct connections between self-criticism and mental health was tested. In this model, the paths from anger rumination to mental wellbeing ($\beta = 0.097$, $p > .05$) and self-criticism to death distress ($\beta = 0.004$, $p > .05$) was insignificant. Hence, we tested a fully mediated model without a direct link from self-criticism to mental wellbeing. The fully mediated model's goodness-of-fit statistics showed a satisfactory match to the data for χ^2 (59, $N = 399$) = 234.992, $p < .001$; $\chi^2/df = 3.98$; SRMR = 0.066; RMSEA = 0.087; GFI = 0.919; CFI = 0.931; NFI = 0.910; IFI = 0.931. Due to the satisfactory goodness of fit and the absence of any insignificant paths, the fully mediated model was accepted. Figure 1 displays the findings from the fully mediated model.

Discussion

The purpose of this study was We aimed to better understand mental wellbeing among individuals who experienced one of the worst natural disasters in the recent century, the 6 February 2023, Türkiye earthquakes. Results of this study in regard to gender indicated that women had significantly higher levels of death distress and self-criticism, and significantly lower mental wellbeing than men. Previous studies in the literature also reported higher levels of stress, depression and PTSD symptoms in women compared to men (Anderson & Manuel, 1994; Dell'Osso et al., 2011; Livanou et al., 2002). In this way, our results are parallel to the

Table 3. Means, standard deviations, and one-way analyses of variance in three sub-groups based on different experiences of the earthquake.

Measure	Group 1		Group 2		Group 3			
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*(2, 396)	η^2
Self-criticism	24.42	7.14	24.91	6.82	23.64	7.58	2.33	0.03
Anger rumination	53.07	10.24	49.35	12.83	47.54	12.08	1.80	0.02
Death distress	27.22	7.01	26.62	6.90	25.31	9.72	4.26*	0.01
Mental wellbeing	22.09	5.50	22.74	5.31	24.37	5.35	5.60**	0.01

Note. **$p < .01$; *$p < .05$. Group 1 = Them or their nuclear family members are earthquake survivors; Group 2 = A loved one other than nuclear family members is an earthquake survivor; Group 3 = They have been affected by the earthquake via media sources.

Table 2. Descriptive statistics.

	Descriptive statistics and reliabilities							Correlations		
Variables	Mean	SD	Skewness	Kurtosis	α	ω	$\lambda 6$	1	2	3
1. Self-criticism	24.14	0.37	0.21	−0.72	0.91	0.91	0.91	–		
2. Anger rumination	48.59	0.61	−0.07	−0.58	0.94	0.94	0.95	0.64**	–	
3. Death distress	25.84	0.34	0.27	−0.06	0.81	0.74	0.87	0.36**	0.45**	–
4. Mental wellbeing	23.72	0.27	−0.20	0.22	0.87	0.87	0.86	−0.57**	−0.42**	−0.35**

Note. **$p < .01$.

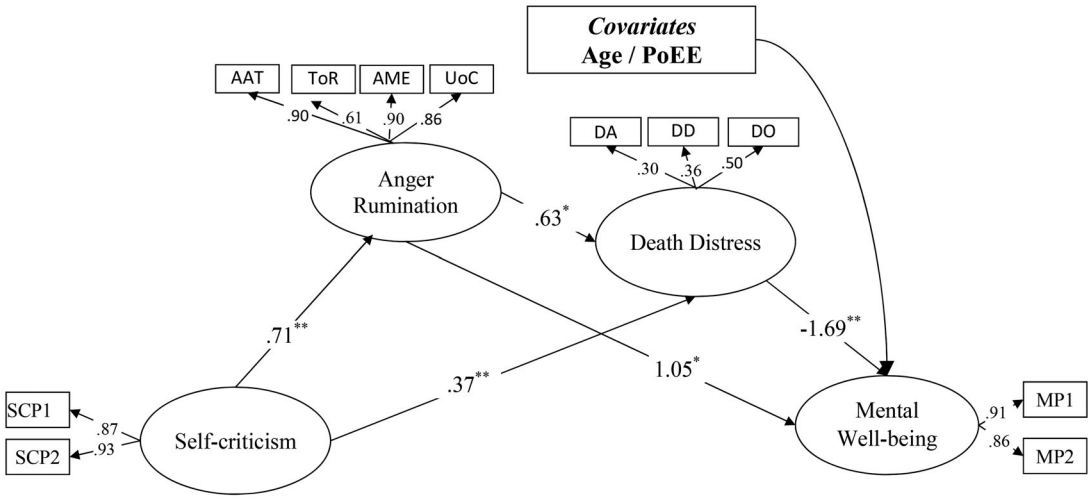


Figure 1. Structural equation modeling for the serial mediation model. *Note*. *$p<.05$; **$p<.01$; SCP: parcel of self-criticism; AAT: angry afterthoughts; ToR: thoughts of revenge; AME: angry memories; UoC: understanding of causes; DA: death anxiety; DD: death depression; DO: death obsession; MP: parcel of mental well-being; PoEE: presence of earthquake experience.

previous findings. These findings highlight the importance of gender issues being addressed in crisis and post-earthquake management, as Krishnaraj (1997) discussed after the earthquake in Latur, India.

We hypothesized that, depending on the experience of the earthquake, participants study variables would significantly differ. The results demonstrate that H2 was supported. Participants who were earthquake survivors or had a nuclear family member who was had significantly higher death stress and lower mental wellbeing than those who had a loved one other than a nuclear family member who was an earthquake survivor or those who were affected by the earthquake via the media. However, the effects size of this statistical difference between groups were small. These findings draw attention to secondary trauma experiences. When secondary trauma and direct trauma experiences compared, research found that direct trauma experiences affect individuals more negatively (Steel et al., 2002). Our comparison analysis showed a similar result, but with the note that the effect size was small in this study. These findings might be a contribution to the literature on secondary trauma. The importance of secondary earthquake experiences was discussed in previous research also (Long & Wong, 2012; Smith et al., 2014). Direct trauma exposure should be considered in post-earthquake crisis management, but it is recommended that secondary trauma exposure should not be ignored.

To test H3 and H4 a mediation analysis with SEM method with latent variables were conducted. Self-criticism and self-blame are a common response in trauma victims (Shaver & Drown, 1986), especially for those who survived from sexual assaults (Janoff-Bulman, 1979; Lassri et al., 2018; Peter-Hagene & Ullman, 2018). Our research found that self-criticism negatively accounted for the mental wellbeing of earthquake survivors. Previously, negative affect of self-criticism was reported among adolescents who survived an 8.0-Magnitude Earthquake in China (Wu et al., 2014). However, our findings further explained the indirect link between self-criticism and mental wellbeing post-earthquake, by investigating anger rumination and death distress as its mediators.

In our cross-sectional study, self-criticism positively accounted for anger rumination, which positively accounted for death distress, and finally, death distress negatively accounted for mental wellbeing. Excessive or ongoing self-criticism can have detrimental effects on one's mental health and wellbeing, including a rise in the chance of anger rumination (Costa & McCrae, 1992; Smart et al., 2016). Self-criticism can cause individuals to concentrate excessively on their perceived failings and errors, which might lead to negative emotions like shame, guilt, and anger (Smart et al., 2016). Because self-criticism involves a persistent focus on one's defects and weaknesses, which might result in feelings of anger and resentment, research has shown that individuals who self-criticize are more likely to experience anger rumination (Ariyazangane et al., 2022, 2023). In addition, self-criticism may result in a lack of self-compassion and self-forgiveness, two crucial aspects of emotional regulation (Braehler & Neff, 2020; Wakelin et al., 2022). Individuals may get caught in a cycle of critical self-talk and self-blame when they are unable to forgive themselves for their errors, which might exacerbate their anger ruminations.

The effects of anger ruminating on one's mental health can be detrimental (Li et al., 2020; Powell et al., 2021). An increase in death distress is one of these negative effects. Anger rumination may result in unpleasant emotional states including resentment, bitterness, and animosity (Berry et al., 2005). When a person is confronted with the reality of death, whether it be their own or the death of a loved one, these feelings can be extremely challenging to control (Esnaashari & Kargar, 2018). The realization of how fleeting and fragile life is might bring on feelings of helplessness and vulnerability, which might further amplify unfavorable feelings and heighten death distress. Additionally, an individual's capacity to deal with loss and death may be hampered by anger rumination. Individuals may find it challenging to move on and accept the death of a loved one if they continue to keep their attention on negative feelings and circumstances (Morina, 2011). As a result, the grieving process may take longer and more people may experience distress and anxiety.

Findings above highlight the importance of understanding the underlying structure of mental wellbeing in trauma experiences. Based on literature and our findings, wellbeing enhancing practices such as self-compassion (Braehler & Neff, 2020; Wakelin et al., 2022), psychological flexibility and emotion regulation (Ariyazangane et al., 2022, 2023; Besharat et al., 2013; Bodner et al., 2015; Ganjari et al., 2020) might improve mental wellbeing after a mass trauma via reducing the effects of self-criticism, anger rumination and death distress. Such positive interventions are very much needed to recover from the negative aftermath of the earthquake and improve survivors' mental wellbeing.

There are some limitations on this study. Self-report measures were used to collect the data, which might have decreased internal validity. The distribution of the gender of this study's sample was not equal considering the number of men and women participated in the study. The mean scores of death distress, self-criticism and mental wellbeing significantly differed depending on gender, therefore when generalizing this study's results gender should be addressed. We gathered information from 56 of Türkiye's 81 cities; next research may aim to gather information from a wider sample size. The majority of participants are either recent grads or undergraduate students. The ability to generalize the results for the study field may be impacted by these limitations. The cross-sectional design of this study is another limitation. Another limitation of this study is that although it investigated mental wellbeing in post-earthquake participants, no measures regarding PTSD were used. Future research should incorporate longitudinal designs to provide more comprehensive outcomes. Additionally, this study investigated death distress and mental wellbeing among different types of earthquake experiences. We suggest future studies examine the gender factor in these subgroups since death distress and mental wellbeing significantly differed based on gender.

This study adds to our understanding of mental wellbeing post-earthquake. Moreover, the outcomes of this study examined the serial mediation of anger rumination and death distress between self-criticism and mental wellbeing. This may aid researchers and counselors/psychotherapists in better understanding the aftermath of a major traumatic event and how to help survivors. We encourage future studies to use experimental techniques to examine the path found significant in the present study. Additionally, we suggest future studies investigate wellbeing enhancing practices such as self-compassion, psychological flexibility, and emotion regulation that might help reduce the effects of self-criticism, anger rumination, and death distress. We also suggest counseling or psychotherapy groups for trauma victims to address self-criticism, anger rumination, and death distress to improve mental wellbeing.

In conclusion, this study represents the first examination in the psychology literature of the mental health of earthquake survivors and those who suffered secondary traumatic stress after the 6 February 2023, Türkiye earthquakes. Results showed that, in comparison to men, women participants significantly displayed higher death distress, higher levels of self-criticism, and lower mental wellbeing. Death distress and mental wellbeing differed significantly depending on whether the earthquake was experienced firsthand or secondarily. Although direct traumatic exposure may have adverse effects, secondary experiences should not be disregarded given that the effect size was small. Moreover, anger rumination and death distress fully mediated the path from self-criticism to mental wellbeing. Facing death and loss, as in this earthquake, might make it difficult for individuals to emotionally regulate. For individuals with a self-critical predisposition, feelings of anger and death distress may be experienced more intensely, which may negatively affect the individual's mental wellbeing.

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Data availability statement

Data will be available on request.

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