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Psychological impact of the February 6, 2023, Türkiye earthquake: the roles of social support, hope, resilience, and death obsession

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Abstract

Catastrophic events, such as epidemics and natural disasters, can dramatically affect the mental health of individuals, making it crucial to investigate the psychological effects of these events. This study aims to explore the associations between social support, death obsession, hope, and resilience among individuals affected by the February 6, 2023, earthquake in Türkiye, one of the most catastrophic earthquakes of this century. A total of 470 Turkish adults participated in the research. Structural equation modeling was employed to examine the mediating roles of hope and resilience in the relationship between social support and death obsession. The model revealed that resilience and hope serially fully mediated the relationship between social support and death obsession in earthquake-affected individuals (χ^2 (57, $N=470$) = 131.702, $p<0.001$; RFI = 0.92; NFI = 0.94; TLI = 0.95; IFI = 0.97; GFI = 0.96; CFI = 0.97; RMSEA = 0.053; SRMR = 0.066). These findings contribute to our comprehension of the interplay between social support, death obsession, hope, and resilience in the context of earthquakes and are expected to inform future research in this area.

Keywords Earthquake, Social support, Death obsession, Hope, Resilience

Introduction

On February 6, 2023, two destructive earthquakes (Mw 7.7 and 7.6) struck Türkiye within nine hours, affecting 11 provinces and resulting in over 50,000 deaths and widespread displacement [1]. Beyond physical devastation, such large-scale disasters are known to have profound psychological consequences (Satıcı et al., 2022) [2]. Given the profound effect of such events on individuals, it is crucial to understand the potential psychological consequences among those affected by the earthquake and identify factors that can mitigate the adverse effects on their mental health.

Social support and death obsession

After major disasters, survivors often face not only material losses but also existential threats that heighten their awareness of mortality [3]. Previous research has shown that traumatic events involving death or the risk of death can lead to persistent and intrusive thoughts about mortality [4–6]. Similarly, during the COVID-19 pandemic, high mortality rates and widespread uncertainty led individuals to think about death more frequently and increased fears related to death [7, 8]. These findings

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support the notion that traumatic and distressing experiences are accompanied by negative emotions and thoughts related to death.

Death obsession, which requires constant fixation on thoughts of death, is one of the three significant dimensions of death distress, along with death anxiety and death depression [9]. It refers to repetitive thoughts, images, and mental rumination focused on one's own mortality or the death of others [10]. Although death is an unavoidable fact of human nature, thoughts about death can intensify in the wake of large-scale disasters with numerous fatalities, potentially leading to obsessive thoughts [11]. Losing loved ones to catastrophic events such as earthquakes, pandemics, or tsunamis and being exposed to such deaths through media can result in a fixation on mortality (Games & Sari 2020) [6]. Given the loss of tens of thousands of lives due to the February 6, 2023 earthquakes, it is likely that survivors may struggle with obsessive thoughts about death, which can disrupt their daily lives (Dal Zilio & Ampuero 2023). Systematic review indicates that high mortality rates in disasters intensify survivors' perceptions that life is under threat, thereby contributing to the emergence of various psychopathological symptoms (e.g., somatization, alcohol misuse, phobic reactions, and substance use). Furthermore, individuals exposed to life-threatening events such as disasters and who experience traumatic losses are more likely to develop negative emotions and thoughts related to death when they directly confront mortality or witness loss [12]. Such obsessive cognitions about death have been closely associated with post-traumatic stress symptoms, anxiety, and depressive mood [9, 13]. In this context, it is important to examine the extent to which direct or indirect exposure to the earthquake, including confronting death or experiencing life-threatening situations, explains death obsession among affected individuals [14]. Therefore, examining death obsession as a core outcome variable provides deeper insight into how disaster survivors cope with mortality-related thoughts and manage trauma-induced psychological distress. In this context, death obsession can be regarded as an important indicator of maladaptive psychological responses following disasters such as the February 6, 2023 earthquakes in Türkiye.

Traumatic or catastrophic life events have the potential to deplete individuals' personal and environmental resources, thereby adversely affecting their mental health. According to conservation of resources theory, maintaining psychological well-being depends on preventing resource loss, protecting existing resources, and acquiring new ones [15, 16]. Within this framework, social support functions as a central protective factor that helps preserve and expand individuals' resource pools. In this regard, social support may facilitate the development of personal psychological resources such as resilience and hope, which may in turn be associated with lower levels of death-related distress. Additionally, as a strong psychological resource, social support plays a significant role in achieving and sustaining better mental health, preventing mental health problems, and supporting recovery [16, 17].

Social support is generally conceptualized as emotional, informational, or practical assistance provided by family, friends, or significant others [18]. In the aftermath of disasters, social support may play a crucial role in individuals' psychological adjustment. According to the main-effect model, social support contributes to well-being by enhancing positive affect, predictability, and self-worth, whereas the stress-buffering model suggests that it mitigates the negative effects of stress and psychological distress [19, 20]. Accordingly, social support may function as a key protective resource that supports individuals' adaptation following traumatic experiences.

From the perspective of terror management theory, individuals are aware of their mortality, and this awareness may become more salient following catastrophic events involving widespread death [21]. In such contexts, individuals may experience heightened and intrusive thoughts about death. Strengthening protective resources such as social support may help buffer the effects of mortality salience and reduce the intensity of death-related cognitions. Taken together, social support may function as a protective factor associated with lower levels of death-related obsessive thoughts.

In this vein, the proposed model specifies a sequential pathway in which social support may be associated with higher levels of resilience, which in turn may relate to greater hope, ultimately contributing to lower levels of death-related obsessive cognitions in post-disaster contexts.

Resilience and hope

Resilience is a key protective factor that supports individuals' mental health in the aftermath of traumatic events such as earthquakes [22]. It is generally defined as the capacity to manage adversity and stress and to adapt positively despite challenging circumstances [23]. Another definition describes it as the ability to effectively cope with negative life events, recover quickly, and adapt to new circumstances [24]. In other words, resilience refers to personal resources that can positively influence negative consequences [25, 26]. Therefore, resilience emerges as an important concept in the face of life's challenges, especially traumatic experiences. Resilient individuals can cope relatively better with traumatic experiences such as earthquakes and tsunamis [27]. Research shows that resilience is an essential psychological resource that may contribute protect individuals' mental health

following traumatic experiences [22, 28]. Resilient individuals can mitigate the negative consequences of distressing situations and maintain their mental health while facing adversities [29]. Previous research indicates that resilience is a key emotional competency for coping with fears and anxieties related to death [30, 31]. Given the significant emotional impact that constant thoughts of death can have on individuals, high levels of resilience can help them cope with this distress [32]. Studies also show that social support can contribute to higher levels of resilience [33–36]. Receiving strong social support from others can boost resilience against stress and adversity, acting as a protective factor for mental health following an earthquake [33]. Consequently, such support may help reduce death obsession, which might otherwise increase in the aftermath of the earthquake. Therefore, resilience is hypothesized to mediate the relationship between social support and death obsession.

Similar to resilience, hope represents a key psychological resource involving cognitive and motivational processes that support well-being, promote mental health, and facilitate survival [37]. It is described as a positive motivational state based on goal-directed energy and planning to achieve those goals [38]. Another definition conceptualizes hope as the dominance of positive future expectations over negative ones [39]. However, negative future expectations are likely to prevail following large-scale mass destructions such as earthquakes [10]. In this context, hope—encompassing individuals' beliefs, confidence, and perceptions that life is worth living [40]—may deteriorate due to concerns about future disasters, physical health problems, adaptation difficulties, safety threats, and material and emotional losses [41].

Snyder [38] suggested that hope is shaped by both internal (subjective) and external (objective) resources. Accordingly, hope may be influenced by the broader social context and may serve as a protective factor against psychological distress following traumatic experiences [42]. From a relational perspective, the model of growth through relationships posits that social support may facilitate the development of supportive connections that help individuals clarify, pursue, and reaffirm their goals [43]. In this regard, social support may contribute to individuals' levels of hope by enabling access to psychological resources.

Within this framework, resilience may represent a key psychological resource linking social support to hope. It is associated with individuals' ability to adapt to adversity, regulate negative emotions, and maintain a sense of control in the face of uncertainty [23, 26]. In this regard, higher levels of resilience may facilitate the maintenance of positive expectations about the future and sustained goal-directed thinking, both of which constitute core components of hope. Consistent with this perspective, empirical evidence suggests that individuals who cope more effectively with stress and recover from adversity tend to report higher levels of hope [44–46]. Taken together, these findings suggest that social support may be associated with higher levels of resilience, which in turn may relate to greater hope, ultimately contributing to lower levels of death-related obsessive cognitions in post-disaster contexts.

Present study

This study aims to examine the psychological processes of individuals affected by the earthquakes that occurred in Türkiye on February 6, 2023. Large-scale natural disasters such as earthquakes can lead not only to physical losses but also to long-term psychological effects. Existing studies [6, 41, 47–50] have focused on the psychological processes of individuals affected by the 2023 Türkiye earthquakes,however, research examining the roles of social support, hope, resilience, and death obsession in these processes is lacking. In particular, there is a gap in the literature regarding how social support influences individuals' obsessive thoughts about death and the roles of hope and resilience in this relationship. Considering Türkiye's high earthquake risk, large population, and the potential long-term psychological effects of earthquakes, further research in this area is needed.

Building on this gap, the present study seeks to provide a more comprehensive understanding of post-earthquake psychological processes by examining the relationships among social support, resilience, hope, and death obsession. Previous research has demonstrated that social support is associated with both hope [51] and resilience [52]. However, to the best of our knowledge, limited research has examined how these variables are linked to death obsession or how social support relates to death-related obsessive cognitions. Accordingly, this study aims to contribute to the literature by offering a more integrated perspective on the roles of social support, resilience, and hope in shaping death-related psychological outcomes following traumatic events.

In line with the proposed theoretical framework, this study examines whether resilience and hope mediate the relationship between social support and death obsession. Specifically, this study proposes a serial mediation model in which social support is associated with death obsession through resilience and hope. The findings are expected to contribute to the literature on post-disaster psychological processes and may provide practical implications for psychological interventions.

Based on the existing literature, the hypotheses of this research are as follows:

> H1. The relationship between social support and death obsession will be mediated by resilience.

H2. The relationship between social support and death obsession will be mediated by hope.
H3. The relationship between social support and death obsession will be serially mediated by resilience and hope.

Method

Procedure and participants

The study received ethical approval from the Ethics Committee of Yildiz Technical University prior to data collection (Approval Number: 20230402010). Throughout the research process, the principles outlined in the Declaration of Helsinki were strictly followed. To determine the required sample size, the researchers used G*Power [53], a free tool designed for calculating practical sample sizes. Based on this calculation—considering three predictor variables—a minimum of 236 participants was needed to achieve a statistical power of 0.95. This study employed a cross-sectional design, and data were collected using a convenience sampling method. This approach was adopted due to practical and ethical constraints associated with participant recruitment in the post-disaster context. Data were collected in March 2023, when access to the affected population was limited and random sampling was not feasible. Data were collected through an anonymous online survey that included the scale items and an informed consent form. The researchers reached adults from different provinces across Türkiye through their academic and social networks (e.g., WhatsApp, Instagram) and invited them to complete the Google Forms survey. The study included participants who were at least 18 years old, had been directly or indirectly affected by the earthquake, and voluntarily agreed to participate. Data were collected from a total of 470 individuals residing in 65 different provinces across Türkiye, including both heavily affected and indirectly affected regions. The participants had a mean age of 22.75 years ($SD = 6.48$; range = 18–59). Further demographic characteristics of the participants are presented in Table 1.

Table 1 Participants' characteristics

Variable	Frequency	%
Gender		
Female	353	75.1
Male	117	24.9
Educational status		
High school	173	36.8
University	280	59.6
Master/Ph.D	17	3.6
Perceived socio-economic status		
Lower	62	13.2
Middle	376	80.0
Upper	32	6.8
Romantic relationship status		
Single	310	66.0
In a relationship	160	34.0
Number of siblings		
0	25	5.3
1	159	33.8
2	143	30.4
3 and above	143	30.4
Experience an earthquake before		
Yes	306	65.1
No	164	34.9
Loss of a relative due to the earthquake		
Yes	64	13.6
No	406	86.4
Displacement due to the earthquake		
Yes	22	4.7
No	448	95.3
How were you affected by this earthquake?		
Myself and/or my family were affected by the earthquake	65	13.8
My relatives were affected by the earthquake	98	20.9
I was affected by the earthquake through the media and social media channels	307	65.3

Measures

In this study, measurement instruments originally developed in different languages and subsequently adapted into Turkish with established psychometric properties were utilized. These instruments include the Dispositional Hope Scale [54], Turkish adaptation: [37], the Brief Resilience Scale [55], Turkish adaptation: [56], the Multidimensional Scale of Perceived Social Support [57], Turkish adaptation: [58], and the Death Distress Scale [9], Turkish adaptation: [59]. These instruments have also been employed in previous studies conducted with disaster-exposed or trauma-affected samples in Türkiye, providing further support for their contextual relevance and construct validity in post-disaster settings [4–6, 60]. Detailed information regarding the psychometric properties of these measures is provided below.

Dispositional hope scale

Originally created by Snyder et al. [54] and later translated into Turkish by Tarhan and Bacanlı [37], this scale uses an 8-point Likert-type format (8 = definitely true, 1 = definitely false) and consists of 12 items, 4 of which are filler items not scored. The scale has two sub-dimensions: agency thinking (e.g., "I energetically pursue my goals") and pathways thinking (e.g., "I can think of many ways to get out of a jam"). The total possible scores vary from 8 to 64. The reliability coefficient ($\alpha = 0.84$) and construct validity (GFI = 0.96,RFI = 0.90; CFI = 0.96; RMSEA = 0.077) of the Turkish form are at the acceptable level [37]. The reliability coefficient for this study is provided in Table 2.

Table 2 Descriptive statistics, reliabilities, and correlations for the study variables

Variables	Descriptive Statistics and Reliabilities							Correlations		
	Mean	SD	Skewness	Kurtosis	α	ω	λ6	1	2	3
1. Social support	60.11	14.75	−0.38	−0.21	.90	.89	.95	–		
2. Hope	45.97	7.89	−0.42	0.01	.87	.87	.87	0.41**	–	
3. Resilience	18.00	4.90	0.13	0.01	.89	.89	.88	0.21**	0.53**	–
4. Death obsession	6.20	2.80	0.75	0.06	.90	.90	.86	−0.24**	−0.30**	−0.37**

** $p < .01$

Brief resilience scale

This scale, originally created by Smith et al. [55] and later translated into Turkish by Doğan [56], is a unidimensional measure consisting of 6 items (e.g., "I tend to bounce back quickly after hard times"), with a 5-point Likert-type response format (5 = strongly agree, 1 = strongly disagree). Three items are reverse-scored. Scores vary from 6 to 30, with higher scores reflecting higher resilience. The reliability coefficient (α = 0.83) and construct validity (NFI = 0.99; CFI = 0.99; IFI = 0.99; AGFI = 0.96; SRMR = 0.03) of the Turkish form are at the acceptable level [56]. The reliability coefficient calculated for this research is shown in Table 2.

Multidimensional scale of perceived social support

This scale was created by Zimet et al. [57] and adapted into Turkish by Eker et al. [58]. It comprises 3 sub-dimensions, each containing 4 items. The sub-dimensions are significant other (e.g., "I have a special person who is a real source of comfort to me"), friends (e.g., "I can talk about my problems with my friends"), and family (e.g., "I get the emotional help and support I need from my family"). The scale is scored on a 7-point Likert-type scale (7 = very strongly agree, 1 = very strongly disagree), with total possible scores ranging from 7 to 84. Higher scores indicate greater perceived social support. The internal consistency coefficient for the Turkish adaptation was reported as 0.89 [58]. The reliability coefficient calculated in this study is presented in Table 2.

Death distress scale

The original scale was developed by Dadfar and Lester [9], with a Turkish adaptation by Yıldırım and Güler [59]. The scale comprises 9 items rated on a 5-point Likert-type scale (5 = always, 1 = never), measuring death distress across three dimensions: obsession, anxiety, and depression. In the anxiety dimension, 3 items are reverse-scored. Example items include " I am preoccupied by thoughts of death" (obsession), "The thought of death never bothers me" (anxiety), and "Hearing the word death makes me sad" (depression). Higher scores indicate greater levels of death distress. The overall scale demonstrated high reliability (α = 0.91), and the construct validity of the Turkish form was at an acceptable level (GFI = 0.99; TLI = 0.99; CFI = 0.99; IFI = 0.99; AGFI = 0.98; SRMR = 0.04). Internal consistency reliabilities for the subscales were 0.77 for death anxiety, 0.88 for death depression, and 0.91 for death obsession [59]. The reliability coefficient calculated for this study is reported in Table 2.

Data analysis

First, descriptive statistics, including standard deviation, mean, kurtosis, and skewness, were analyzed to assess the data's normality. Second, a correlational analysis was performed to research the relations between the variables of social support, hope, resilience, and death obsession. Third, a two-stage approach proposed by Anderson and Gerbing [61] was employed to evaluate the mediating roles of resilience and hope. In the study, age, bereaved survivors, and displaced individuals were controlled as covariates due to the significant differences in these variables among the participants. In the initial step, the measurement model was assessed to confirm that the observed variables sufficiently represented the latent constructs. In the next step, the structural model was examined, provided the measurement model yielded satisfactory results. Model fit was evaluated using commonly recommended indices. Conventional cutoff criteria were applied, with RMSEA and SRMR ≤ 0.08, $\chi^2/df < 3$, and RFI, NFI, IFI, CFI, GFI, and TLI ≥ 0.90 [62, 63]. Data analysis was performed using JASP 0.11.1, AMOS 24, and IBM SPSS Statistics 22.

Results

Preliminary analysis

Kurtosis (varying between −0.21 and 0.06) and skewness (varying between −0.42 and 0.75) values were analyzed to assess the normality of the distribution. Additionally, statistically significant correlations were found between all variables. The strongest correlation was observed between hope and resilience (r (470) = 0.527, $p < 0.01$), while the weakest correlation was observed between social support and resilience (r (470) = 0.206, $p < 0.01$). A comprehensive summary of descriptive statistics and correlations is presented in Table 2.

Furthermore, a one-way ANOVA was performed to investigate whether levels of social support, death obsession, hope, and resilience differed across three types of earthquake exposure (direct exposure involving self or

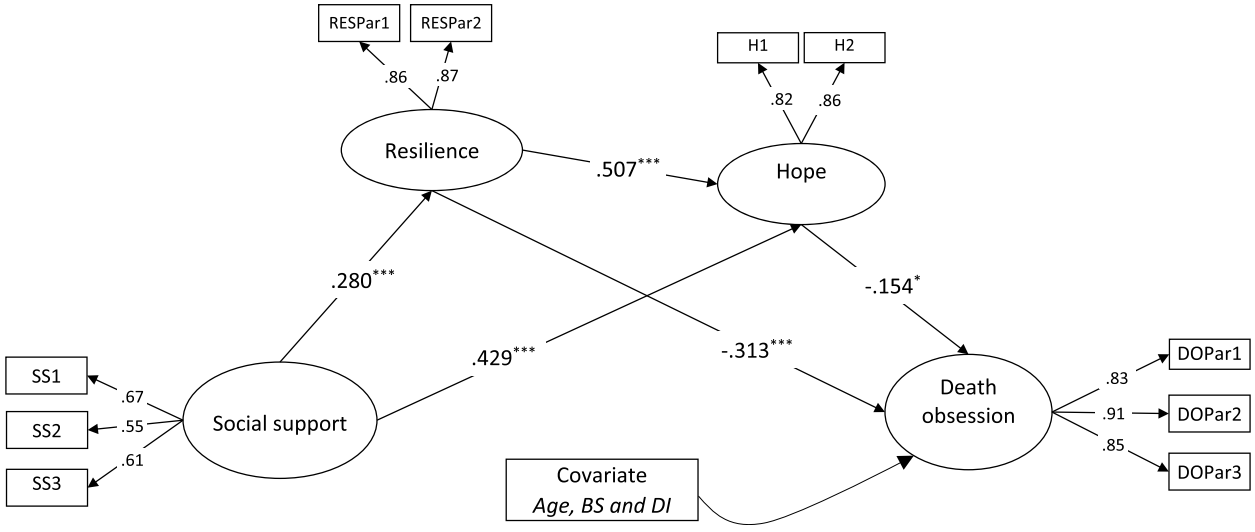


Fig. 1 Structural equation modeling for the serial mediation model. *Note.* $N = 470$; $^{*}p < .05$, $^{***}p < .001$; *SS1*: Family; *SS2*: Significant other; *SS3*: Friends; *DOPar*: parcels of death obsession; *H1*: Alternative ways thinking; *H2*: Actuating thinking; *RESPar*: parcels of resilience; *BS*: bereaved survivors; *DI*: displaced individuals

nuclear family members, indirect exposure through non-nuclear loved ones, and media-based exposure). The findings revealed no statistically significant group differences across any of the examined variables (*all ps* > 0.05).

In addition, common method bias was assessed using Harman's single-factor test. The results indicated that a single factor accounted for 50% of the total variance, which is at the commonly accepted threshold [64]. This finding suggests that common method bias may not pose a serious threat to the validity of the results.

Table 3 Bootstrapping results for the mediating model

Model pathways	Estimated	95% C.I		*p*-value
		Lower	Upper	
Standardized indirect effect				
Social support ➜ Resilience ➜ Death obsession	-.020	-.040	-.008	<.001
Social support ➜ Hope ➜ Death obsession	-.016	-.033	-.002	<.05
Social support ➜ Resilience ➜ Hope ➜ Death obsession	-.005	-.012	-.001	<.05

Measurement model

The model included four latent variables: social support, death obsession, hope, and resilience. Each latent variable was represented by two or three observed variables. The measurement model fit indices were as follows: χ^2 (29, $N = 470$) = 55.53, $p < 0.01$; $\chi^2/df = 1.846$; GFI = 0.98; RFI = 0.96; TLI = 0.98; NFI = 0.98; IFI = 0.99; CFI = 0.99; RMSEA = 0.042; SRMR = 0.029. The fit indices indicated a good fit with the data. Factor loadings varied between 0.54 and 0.91, and all were statistically significant ($p < 0.001$). These results demonstrate that all indicators accurately represent the relevant variables.

Structural equation modeling

Initially, a partial mediation model was tested to examine the roles of resilience and hope in the relationship between social support and death obsession. However, the fit indices of this model did not indicate an acceptable level of model fit (e.g., RMSEA = 0.091; $\chi^2/df = 4.925$), suggesting the need for an alternative model specification. Therefore, a theoretically grounded serial mediation model was subsequently tested.

In the serial mediation model, overall model fit indices indicated a good fit to the data χ^2 (56, $N = 470$) = 121.611, $p < 0.01$; $\chi^2/df = 2.172$; RFI = 0.92; TLI = 0.96; IFI = 0.97; NFI = 0.95; CFI = 0.97; GFI = 0.96; RMSEA = 0.050; SRMR = 0.061). However, the direct pathway from hope to death obsession was not statistically significant ($\beta = 0.031$, $p > 0.05$).

Accordingly, this non-significant path was removed, and a full mediation model was tested. In the final model, significant paths were observed between all variables ($p < 0.05$). The fit indices of the full mediation model also indicated a good fit (χ^2 (57, $N = 470$) = 131.702, $p < 0.001$; $\chi^2/df = 2.311$; RFI = 0.92; NFI = 0.94; TLI = 0.95; IFI = 0.97; GFI = 0.96; CFI = 0.97; RMSEA = 0.053; SRMR = 0.066). These findings suggest that the relationship between social support and death obsession is fully mediated through resilience and hope in a sequential manner.

The final structural model is presented in Fig. 1. Additionally, the significance of the indirect effects was examined using bootstrapping procedures, and the results are reported in Table 3.

Discussion

The main purpose of this research is to understand the psychological effects of the February 6, 2023 earthquakes on individuals and to examine the relationships between social support, resilience, hope, and death obsession in this context. The research aims to contribute to understanding the psychological processes of individuals affected by the earthquake by explaining the dynamics between these variables. Therefore, this study examined whether resilience and hope serve as mediators in the relationship between social support and death obsession. The results of the study indicate that resilience and hope serially fully mediate the relationship between social support and death obsession. These findings extend existing post-disaster mental health research by revealing the serial mediating effects of resilience and hope within the context of a large-scale natural disaster in Türkiye. Previous studies focusing on the February 2023 earthquakes in Türkiye (e.g., [6, 41, 47–50]) primarily examined psychological outcomes such as post-traumatic stress, anxiety, or depression. These large-scale disasters can trigger not only emotional responses in survivors but also deeper existential cognitive processes that heighten awareness of mortality. Indeed, for some individuals, this increased awareness may lead to an intensification of death-related thoughts, which can evolve into a repetitive pattern of mental preoccupation. However, research addressing existential cognitive responses such as death obsession remains scarce (e.g., [4–6]). Therefore, by investigating a less explored dimension of post-disaster cognition, this study fills an important gap in both the Turkish and broader disaster psychology literature.

The primary finding of this research is the significant negative relationship between social support and death obsession. This result aligns with the existing literature [65–67]. Elevated levels of death obsession are linked to a rise in mental health problems [13] and pose a potential risk to the mental health of individuals who have experienced traumatic events [68]. Social support considered a coping mechanism and a protective factor for mental health among individuals affected by major disasters [16], may alleviate obsessive thoughts related to death [20]. According to the stress-buffering model, social support alleviates distress, potentially serving as a buffer against death obsession for individuals [19].

Another important finding is the critical role of resilience within the serial mediation pathway linking social support to death obsession. Although no previous research has explored the mediating role of resilience in the relationship between social support and death obsession, studies have examined the relationships between social support and resilience [69–73] and between resilience and negative death-related emotions and thoughts [74, 75]. A longitudinal research found that psychological resilience increases as social support increases. This study also suggests that social support, which has the potential to increase self-efficacy and self-esteem, significantly supports the development of individuals' emotional and physical well-being [71]. Similar relationships between social support and resilience have been demonstrated in other cross-sectional studies [69, 70, 72, 73]. Thus, increased social support appears to be associated with increased resilience. A review of six scientific articles on resilience highlighted its protective effect against stressful conditions such as negative emotions and intense thoughts related to death [76]. Therefore, individuals with higher psychological resilience are expected to experience dysfunctional thoughts about the painful reality of death less frequently. Combining these insights, social support is associated with higher levels of resilience, which in turn is related to lower levels of death obsession.

The research also revealed that hope contributes to the relationship between social support and death obsession through its role within a serial mediation pathway involving resilience. The research also revealed that hope contributes to the relationship between social support and death obsession through its role as a downstream component within a serial mediation pathway involving resilience. While prior studies have examined the association between social support and death-related emotions and thoughts [20, 65–67], none have addressed the role of hope within a sequential mechanism linking these variables. Previous research suggests that individuals affected by the earthquake in Türkiye may experience disruptions in their future outlook and sense of meaning [41, 47]. In this context, hope—conceptualized as a future-oriented sense of purpose and meaning [38, 77]—may be particularly vulnerable. However, according to the relational development model, social support can foster psychological resilience, which in turn facilitates the reconstruction of meaning and future orientation following trauma [43, 78, 79]. Supporting this perspective, existing studies indicate that social support is positively associated with resilience [69–73] and that resilience is linked to higher levels of hope [44–46]. Within this sequential framework, hope may facilitate individuals' ability to cope with intense and obsessive thoughts about their own death or the death of their loved ones by helping them reframe the meaning of life, strengthen interpersonal bonds, and reinforce a sense of purpose [80, 81]. Consistent with prior research, the findings of the present study suggest that social support is associated with lower levels of death obsession through a sequential process in which resilience enhances hope, ultimately reducing distress related to traumatic experiences.

The findings suggest that the relationship between social support and death obsession is explained through

a serial mediation pathway involving resilience and hope. Current studies in the literature that investigate the relationships between social support, hope, resilience, and death obsession primarily focus on the contexts of health [65–67, 70–72, 79, 82] and pandemics [74, 75], while this study offers a new framework for individuals affected by earthquakes. Furthermore, no previous study has simultaneously examined these four variables. According to the conservation of resources theory, the stronger individuals' personal resources, such as social support, hope, and resilience, after challenging and traumatic experiences, the higher their ability to overcome distressing processes like death obsession and the faster their psychological recovery [15]. Therefore, while the results suggest that social support is associated with higher hope and resilience, which in turn are related to lower death obsession, these findings should be interpreted with caution, as they may primarily apply to young, educated women affected by the earthquake.

These findings should be interpreted in light of the timing of data collection. As the data were obtained during the early post-disaster period (approximately one month after the earthquake), the observed relationships may reflect acute stress responses and immediate coping mechanisms rather than stable, long-term psychological adjustment processes. In this phase, individuals may experience heightened emotional distress, uncertainty, and increased reliance on psychosocial resources such as social support, hope, and resilience. Therefore, the identified associations may be particularly characteristic of short-term adaptation processes following traumatic events.

As a final consideration, cultural and contextual factors should be considered when interpreting these findings. Türkiye is often characterized by relatively strong family ties and community-oriented social structures, which may have amplified the protective role of social support in post-disaster settings. In addition, religious and culturally grounded meaning-making processes surrounding death and suffering may shape individuals' cognitive responses to mortality, thereby influencing levels of resilience, hope, and death obsession. Future cross-cultural and comparative studies are needed to examine whether similar patterns emerge in societies with different social and cultural structures.

Limitations and implications

This study has several limitations that should be considered when interpreting the findings. First, the reliance on online self-report measures may have introduced response and measurement biases, potentially affecting the internal validity of the study. In addition, as all variables were assessed using self-report instruments and collected at a single time point, the results may be influenced by bias, which could inflate the observed relationships due to shared method variance. Another important limitation is the inability to assess participants' psychological state prior to the disaster, which restricts the ability to draw firm conclusions about causal relationships. Consistent with this, the cross-sectional design further limits causal inferences, which should therefore be interpreted with caution. Moreover, although the indirect effects were statistically significant, their relatively small magnitude suggests that the findings should be interpreted with consideration of their practical significance and potential implications for intervention and theory.

The study sample predominantly consisted of young adults and women, which may limit the generalizability of the findings to a broader population. In addition, participants were primarily recruited through online platforms and social networks using convenience sampling, which may have resulted in a sample largely composed of younger, student-like, and psychologically engaged individuals. This may limit the representativeness of the sample, particularly in the context of disaster survivors who may vary in terms of age, socioeconomic status, and level of exposure to trauma. Consequently, the external validity of the findings may be limited, and caution is warranted when generalizing the results to more diverse or more severely affected populations. Therefore, future research should include more diverse age groups, ensure gender balance, and employ more representative sampling methods that better capture the demographic, cultural, and geographical diversity of the target population.

This research investigated the serial mediation of resilience and hope in the relationship between social support and death obsession among individuals affected by an earthquake. These findings can assist counselors/psychotherapists and researchers in better understanding and supporting survivors of major traumatic events. Moreover, counseling and psychotherapy interventions targeting the enhancement of perceived social support, strengthening resilience, and fostering hope and future-oriented meaning could be developed to reduce death obsession in trauma victims. For instance, structured group-based resilience training, meaning-centered therapy, or hope-oriented counseling interventions may help individuals rebuild their sense of control, future orientation, and capacity to connect with others. In post-disaster contexts, early screening efforts may prioritize individuals with low perceived social support, reduced resilience, and diminished hope, as these factors may increase vulnerability to death-related distress. In addition, scalable mental health strategies, such as brief group interventions, community-based psychoeducation programs, and digital or low-intensity support services, may facilitate broader access to care. Finally, culturally sensitive

adaptations of these interventions, taking into account local beliefs about trauma, social connectedness, and meaning-making, may enhance their effectiveness across diverse populations.

Conclusions

This research advances the understanding of the psychological experiences of individuals affected by earthquakes by revealing a serial mediation mechanism in which resilience and hope link social support to death obsession. According to the findings, higher levels of social support, resilience, and hope are associated with lower levels of death obsession. These findings should be interpreted with consideration of the sample characteristics, as they may reflect the experiences of this demographic group rather than the general population. Nevertheless, they offer valuable insights for researchers and mental health professionals. As adverse life events like earthquakes continue to occur, it is believed that the findings of this study will contribute a deeper understanding and provide assistance to those affected by major disasters.

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Authors' contributions
All authors contributed to the study's conception and design. Conceptualization and formal analysis were performed by YK. Investigation and methodology were performed by YK, MED, YE, SAS, GB and ZGA. Data curation, resources, software, supervision and validation were performed by YK, MED, YE, and SAS. The first draft of the manuscript was written by YK. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Data availability
Data will be available on request.

Declarations

Ethics approval and consent to participate
The study protocol has been approved by Yildiz Technical University Scientific Research and Ethical Review Board (Report Number: 20230402010). The study was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its following updates. Informed consent was obtained from all the individual participants that were included in the study.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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