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Strength-based parenting improves depression outcomes and promotes posttraumatic growth in earthquake survivors: a longitudinal study

Hacer Belen[1*] and Aslı Tunca[2]

Abstract

Traumatic life experiences such as earthquakes are impactful on individuals' mental health and positive psychological characteristics are key assets for the preservation of mental health after stressful situations. Strength-based parenting and optimism are considered among those strengths to combat psychological problems including depression. The current study aimed to examine the longitudinal mediating effects of optimism between strength-based parenting and depression (model 1) and post-traumatic growth (model 2). Participants included 137 university students ranging in age between 18 and 53 (M = 21.83, SD = 5.41). Results demonstrated that strength-based parenting at baseline significantly and negatively correlated with depression while positive correlations were found with optimism and post-traumatic growth at a six-month follow-up. Moreover, optimism (T2) mediated the relationship between strength-based parenting (T1) and depression (T2) and post-traumatic growth (T2). Thus, this study identified the positive qualities and strengths to combat the adverse psychological effects of traumatic experiences including earthquakes, and deepened the current understanding of how strength-based parenting longitudinally contributes to individuals' positive psychological strengths, processes, and mental health after "the disaster of the century."

Keywords Strength-based parenting, Optimism, Depression, Post-traumatic growth, Earthquake

Introduction

Traumatic events test individuals' psychological strengths and ability to maintain emotional balance [1]. In this context, in recent years, major earthquakes in Turkey have seriously affected the mental health of students continuing their university education [2]. On 6 February 2023, the biggest earthquake disaster that the Republic of Turkey has ever experienced took place. 7.7 and 7.6 magnitude earthquakes occurred 9 h apart with the center in Kahramanmaraş. The effects were felt in 11 provinces and approximately 50,000 people lost their lives. Immediately after the earthquake, the Higher Education Institution of the Republic of Turkey opened its student dormitories to accommodate the needs of earthquake survivors and switched all universities across the country to distance education. It was also announced that universities in four provinces with high levels of destruction would continue to offer distance education in the future. Students who could not overcome the negativity of the transition to distance education that started with the full

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closure of COVID-19, could not return to their universities with the devastation of the earthquake this time. Thus, students in these provinces had to cope with the traumatic effects of the earthquake as well as the difficulties of distance education.

The recovery of individuals after traumatic events and the factors affecting this process are among the important research topics [3–4–5–6]. Such research can help individuals and societies better prepare for traumatic incidents and recover faster from these experiences [7–8]. Posttraumatic Growth (PTG) theory [9] argues that individuals are not only psychologically damaged after traumatic events but also can enter a meaningful development and growth process through cognitive restructuring. In this process, individual factors (e.g., resilience, hope, cognitive flexibility, and effective coping strategies) and environmental factors (e.g., social support, positive family environment, and strong social ties) play a role in a critical interaction [5–9]. The basic principles of positive psychology [10] emphasize that protective factors should be evaluated together for individuals to realize their potential. In this context, in this study, strength-based parenting (SBP) and optimism were considered protective factors affecting the depression and posttraumatic growth (PTG) processes of university students who experienced the Kahramanmaraş earthquake.

SBP is a parenting approach that focuses on recognizing, developing, and supporting children's strengths and is a concrete application of positive psychology in parenting [11–12]. The approach has great potential for positive forces such as increasing individuals' resilience, social-emotional wellness, and well-being, and provides a strong context to support PTG processes while increasing individuals' capacity to cope with stress [11, 12, 13–14]. Fredrickson's [15] broaden-and-build theory guides in understanding the positive effects of SBP on individuals. According to this theory, positive emotions expand individuals' cognitive and behavioral repertoires, increase their flexibility, and enable them to cope more effectively with challenging situations. The supportive family environment provided by SBP may contribute to the construction of protective factors such as optimism and resilience by increasing individuals' positive emotions. Indeed, studies show that SBP increases resilience, reduces depression symptoms, and supports post-traumatic growth [11–13, 14, 15, 16]. However, how the effects of strength-based parenting on depression and post-traumatic growth are shaped through mediating variables, especially optimism, has not yet been adequately examined.

Optimism is an important psychological trait that enables individuals to expect positive outcomes in the future and supports them to cope effectively with stressful situations [17]. PTG theory states that after traumatic events, optimistic individuals have lower levels of depression, cope with stress more effectively, and are more likely to show PTG [18]. In addition, optimism is recognized as an important protective factor with broad and long-term effects against traumas [19–20]. Moreover, research has shown that optimism is a stronger predictor of mental health compared to other psychological factors (such as hope, resilience, and resistance) [21–22]. Therefore, optimism was selected as a critical mediating variable in this study to explain the mechanisms of the effects of SBP on depression and PTG.

In the study, a longitudinal design was adopted, and measurements were made at two different time points to understand the long-term effects of SBP. The results of the study aim to provide important contributions that SBP and optimism can be used in interventions to reduce depression levels of individuals in posttraumatic processes. It will guide parents and psychological counselors to develop more effective strategies to support individuals' PTG capacities and alleviate their depression levels.

Strength-based parenting (SBP) and depression

Traumatic experiences such as earthquakes are known to cause many psychological disorders [23–24–25]. Especially depression is one of the leading negative mental health indicators after earthquakes [26–27]. Xu, Wang, and Tang [28] examined adolescents exposed to the Lushan earthquake in China and found high levels of posttraumatic stress and depression symptoms. Similarly, after the 7.8 magnitude earthquake in Nepal, people experienced psychological problems such as depression and posttraumatic stress disorder. After the 1999 earthquake, one of the most devastating earthquakes in Turkey's history, the rate of major depression in earthquake victims was found to be 31% [29].

Depression is a common mood disorder that negatively affects individuals' daily life activities [30]. Depression can have serious negative consequences on academic achievement [31], social relationships [32], physical health, and general psychological status [33]. Therefore, reducing the symptoms of depression and preventing depression is critical for improving overall psychological health and increasing life satisfaction [34]. In this study, it was considered that SBP may be an effective way to prevent or combat depression.

Both attachment theory and positive psychology theory argue that parents' supportive and responsive behaviors will positively affect children's emotion regulation and stress-coping skills [35–36]. SBP is a positive parenting approach that recognizes and supports children's strengths and can increase their psychological resilience [37]. This approach improves children's emotional and social skills so that they can become more adaptable to stressful situations [38]. Previous studies have generally

focused on adolescence and have shown that SBP is protective against depression [11–13]. There is insufficient evidence on the effectiveness of SBP against depression in university students. Moreover, its effects on individuals who have experienced earthquake trauma are unclear. In this study, it is argued that SBP negatively predicts depression levels of university students who were victims of earthquakes.

SBP and post traumatic growth (PTG)

Positive transformations can occur after traumatic experiences and these transformations are conceptualized as post-traumatic growth in the literature [18]. Although individuals who experience major traumas such as earthquakes may initially experience serious psychological disorders, over time, this situation can lead individuals to add meaning to their lives and support their personal development [37]. Following traumas, individuals may develop a more flexible and integrated recovery process depending on cognitive restructuring, emotional processing, and social support mechanisms [9–37]. This process can enable individuals to find positive meaning and transform the effects of trauma into opportunities for growth by adding new goals to their lives [38].

PTG has been investigated in different age groups, traumatic events, and cultures; its validity and universality have been proven [39]. There is also a growing literature on the antecedents and consequences of the construct. Optimism, coping strategies, level of social support, religious commitment, socio-demographic characteristics, and cognitive schemas are some of the variables tested about PTG [40–41–42–43–44]. Parenting styles stand out as another important factor associated with PTG. In this context, it is not difficult to establish the relationship between SBP and PTG. Because SBP is a parenting approach that emphasizes the development of the child's key assets to be used during adversities by creating positive experiences [45]. Studies reveal that SBP makes individuals more resilient by strengthening their coping skills with stress [12–16]. It also shows that SBP supports PTG after traumas and helps individuals develop a stronger psychological resilience to trauma [46 – 16]. However, none of these studies have examined the relationship between SBP and PTG from a long-term perspective. In this study, it was hypothesized that SBP would support earthquake survivor students' perceptions of PTG in the long term.

Mediation role of optimism

Optimism can be defined as the tendency to expect favorable outcomes for the future [17]. The positive effects of optimism on psychological health have been widely documented in the literature [47]. Decreased symptoms of depression, and better coping mechanisms are associated with increased well-being, emotional resilience, and improved quality of life [48–49]. In studies examining the post-traumatic effects of optimism, it was found that it reduced stress symptoms and alleviated trauma-related depression in samples of different age groups [50–51–52]. In addition, the long-term effects of optimism were also revealed in the trauma literature and it was found to be a strong feature that shows stability compared to other individual characteristics [19–20]. The Broaden-and-Build Theory [15], which explains the expansion and resilience-building processes of positive emotions, provides an important framework for understanding how optimism improves individuals' general psychological health by increasing their capacity to cope with stressful situations. Optimistic individuals may become more resilient to the negative effects of depression; they may experience PTG through reframing, acceptance, and positive sense-making strategies [53–54–55].

In addition to the positive effects of optimism on mental health, there are also extensive studies on its developmental antecedents [56–57]. Theories of personality development have emphasized the long-term consequences of parenting practices and demonstrated the positive effects of warm, supportive family environments on adulthood [58–59]. Research shows that parental warmth and behavioral control are associated with higher levels of psychosocial functioning and that these factors provide important advantages in developing optimism [60–61–57]. However, it has been determined that negative childhood traumas decrease optimism levels [62], while authoritative parenting increases optimism [63]. Although SBP, a positive parenting model, has been addressed together with optimism in a limited number of studies, the current findings support the positive effects of SBP on optimism. For example, Arslan et al. [14] found that adolescents' perceptions of SBP positively predicted their optimism levels and optimism played a mediating role in the relationship between SBP and school belonging. SBP is an approach that aims to consciously identify and develop positive states, processes, and qualities in children [12]. In this context, it is predicted that SBP will increase the optimism levels of earthquake survivor students, which will decrease their depression levels and increase their posttraumatic growth levels.

Current study

Major disasters such as earthquakes test the mental health of individuals, so identifying protective factors is necessary for planning effective psychological counseling and guidance activities and interventions. In this context, the potential of SBP as a protective factor to support individuals' psychological recovery after trauma is important. However, in the existing literature, previous studies on adult samples are underrepresented and the mechanisms

of SBP and posttraumatic experiences are not fully understood. Moreover, it is a fact that longitudinal results in traumatized samples remain unclear. Therefore, in this study, it was hypothesized that SBP at baseline would positively predict optimism at follow-up, b) SBP at baseline would positively predict depression at follow-up, c) SBP at baseline would positively predict post-traumatic growth at follow-up, d) optimism would have a longitudinal mediating role in the relationship between SBP and depression, and e) optimism would have a longitudinal mediating role between SBP and PTG.

Materials & method

Participants and data collection

The sample was drawn from one of the universities in eastern Turkey and composed of 137 university students ranging in age between 18 and 53 (M = 21.83, SD = 5.41):63.5% women and 37.5% men, 18–27 years old (126 participants (91.9%)), 28–43 (9 participants (6.6%)), 44–53 years old (2 participants (1.7%)). As for socioeconomic status, the majority of the participants perceived themselves as having a medium socioeconomic level (59.9%), low and very low (25.5%), and high/very high (14.6%). 8% of the participants reported a loss of loved ones due to the earthquake. Participants also reported their homes as either undamaged or lightly damaged (29.2%), moderately damaged (42.3%), severely damaged (8.1%), and collapsed (20.4). Data collection was conducted longitudinally and in two phases (T1 and T2). The initial sample was recruited using the snowball sampling technique. Students in one of the universities directly affected by the earthquake were contacted via email lists and invited to participate in the study. They were also requested to circulate the survey link among university students directly affected by the 2023 Earthquake. The inclusion criteria included being a university student in Malatya province and directly affected by the earthquake on 6th February, while exclusion criteria included age under eighteen. Data were collected through an online survey webpage (T1) and six months after the first recruitment, the participants were re-contacted and requested to respond to the questionnaires for the second wave (T2). For both of the data collection procedures, participants were informed about the purpose of the study, the rights to withdraw during or after the involvement, and ensured anonymity and confidentiality of storage, and the disposal of the personal information.

Measures

Strength-based parenting (SBP)

SBP scale is a two-factor (SBP-knowledge and SBP-use), 14-item self-report questionnaire on which the items are rated with a seven-point Likert scale (1 = strongly disagree and 7 = strongly agree). The scale was used to assess individuals' levels of strength-based parenting they received as they grew up [64]. The global score of the scale is acquired by the sum of the item scores of the respondents and greater scores on the scale demonstrate greater receptivity to strength-based parenting. Psychometric properties of the Turkish version of the SBP scale were conducted by Sağkal and Özdemir [65] and the current study reports Cronbach's alpha of 0.97.

Optimism-pessimism scale (OPS)

OPS is a two-factor (Optimism and Pessimism), 16-item self-report measure on which the items are rated with a five-point Likert scale (1 = Not at all appropriate, 5 = Completely appropriate). The global score of the scale is acquired by the sum of the item scores of the respondents and greater scores on the scale demonstrate higher levels of optimism and pessimism. Psychometric properties of the scale indicated that it is a valid and reliable measurement tool with Cronbach's alpha of 0.87 and test-retest reliability coefficient of 0.87 for optimism [66] and the current study reports Cronbach's alpha of 0.88.

Posttraumatic growth inventory (PTGI)

PTGI is a five-factor and 21-item self-report measure on which the items are rated with a six-point Likert scale (0=– I did not experience this as a result of my crisis, 5 = I experienced this change to a very great degree as a result of my crisis). The global score of the scale is acquired by the sum of the item scores of the respondents and greater scores on the scale demonstrate higher levels of positive psychological changes due to adverse life events [9]. Psychometric properties of the scale indicated robustness of the measure with Cronbach's alpha of 0.92 and test-retest reliability of 0.83 [67] and the current study reports Cronbach's alpha of 0.93.

Depression, anxiety and stress scales (DASS-21)

DASS-21 is a three-factor, 21-item self-report measure on which the items are rated using a four-point Likert scale (0 = Not applicable to me, 4 = Completely applicable to me). The global score of the scale is acquired by the sum of the item scores of the respondents and greater scores on the scale demonstrate higher levels of depression, anxiety, and stress. However, in this study, only the depression sub-dimension (7 items) was included in the analyses. Psychometric properties of the Turkish version of the scale were conducted by Yılmaz, Boz, and Arslan reporting Cronbach's alpha of 0.82 [68] and the current study reports Cronbach's alpha of 0.86 for the dimensions of depression.

Statistical analyses

Two mediation analyses were performed using PROCESS Macro by Hayes. The Macro employs ordinary

Table 1 Descriptive statistics and intercorrelations between study variables

	M	SD	Skew	Kurt	1	2	3	4
1. Strength-based Parenting T1	58.73	21.67	-0.10	-0.60	1			
2. Optimism T2	26.93	6.56	-0.31	-0.20	0.26**	1		
3. Post-traumatic Growth T2	59.36	19.36	-0.22	-0.05	0.18*	0.47***	1	
4. Depression T2	8.91	5.71	0.16	-0.97	−0.24**	−0.38***	0.02	1

Note. Skew = Skewness; Kurt = Kurtosis; ***p <.001; **p <.01; *p <.05

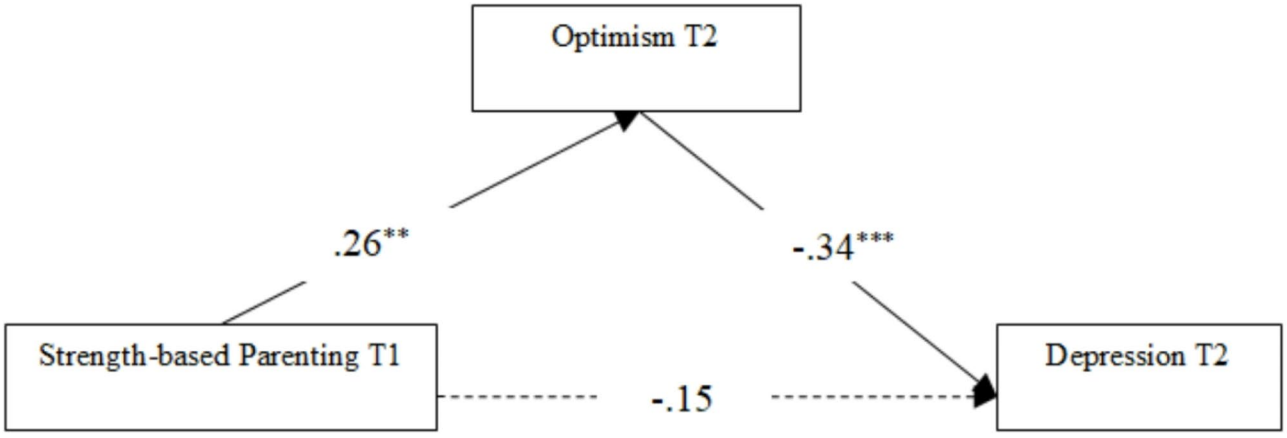

Fig. 1 Model 1, the mediating effect of optimism between strength-based parenting and depression. *Note*. Path coefficients were standardized; insignificant path lines were dashed; ***p <.001; **p <.01; *p <.05

least squares regression for total, direct, and indirect effects and calculates confidence intervals via the bootstrap inference method. The effects were evaluated as significant when the confidence interval did not include zero. In model 1, the focus was on the impact of strength-based parenting (T1) on depression (T2) and whether the direct path would be mediated by optimism (T2). In model 2, the impact of strength-based parenting (T1) on the post-traumatic growth of earthquake survivors and the mediating effect of optimism (T2) on the direct path were examined.

Results

Preliminary analyses

In Table 1, means, standard deviations, skewness, and kurtosis analyses were presented. As presented, no severe violations of normal hypotheses were encountered (e.g., skewness from −0.31 to -0.10, kurtosis from −0.97 to -0.05) [69]. The correlations displayed that SBP at baseline (T1) was significantly and positively related to optimism and post-traumatic growth at follow-up (T2) while negative correlations were found with T2 depression scores.

In order to examine the mediator role of optimism in models 1 and 2, a mediation analysis was employed using the PROCESS macro for SPSS (Hayes, 2015; Model 4 for mediation). To analyze the mediation model of the relationship between SBP and depression (model 1) and posttraumatic growth (model 2), the bias-corrected bootstrap method was performed based on 5.000 bootstrap iterations and confidence intervals (CI) of 95%.

Based on the mediation analysis, an effect of strength-based parenting at baseline on depression and post-traumatic growth at follow-up was observed in both models 1 and 2 (Figs. 1 and 2). As demonstrated in Fig. 1, including optimism T2 in model 1 as a mediator, strength-based parenting significantly predicted optimism (β = 0.26, p <.01), and optimism predicted depression (β=-0.34, p <.001) with the full mediator effect of optimism between the variables, indirect effect =-0.087, [-0.172, -0.159].

As presented in Table 2, the results of mediation analysis indicated that the total effect of SBP on depression was −0.06, SE = 0.02, p <.01, CI [-0.10, -0.24]. The direct effect of SBP on depression was insignificant demonstrating the full mediating effect of optimism (β= −0.04, SE = 0.02, p >.05, CI [-0.08,0.01]). Additionally, there was a significant indirect effect of SBP on depression through optimism, β=−0.09, SE = 0.04, CI [-0.17, -0.16].

As demonstrated in Fig. 2, including optimism T2 in model 2 as a mediator, strength-based parenting significantly predicted optimism (β = 0.26, p <.01), and optimism significantly predicted post-traumatic growth (β = 0.45, p <.001) although the path between strength-based parenting and post-traumatic growth became insignificant (β = 0.06, p >.05) demonstrating the full mediation effect of the optimism between the variables, the indirect effect of 0.115, [0.027, 0.223].

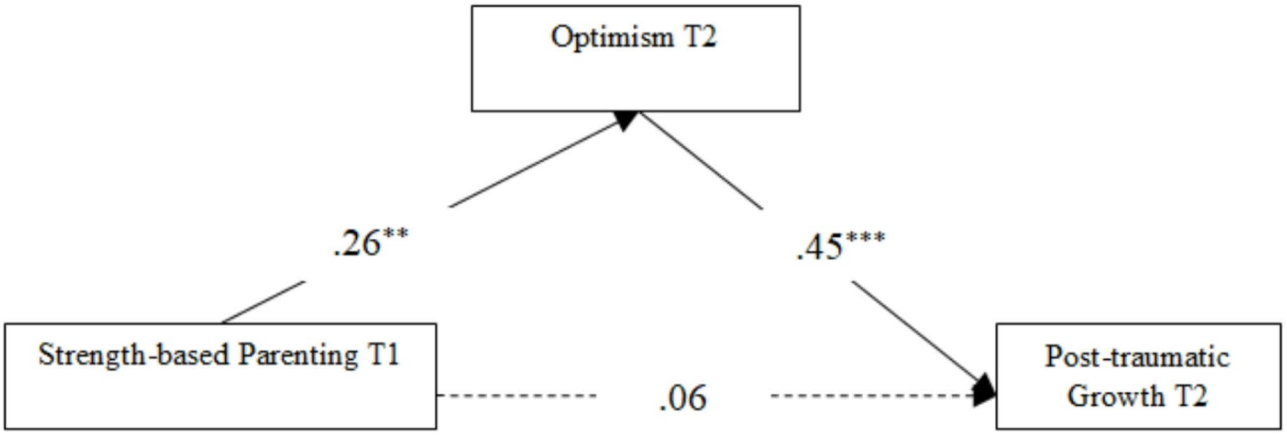

Fig. 2 Model 2, the mediating effect of optimism between strength-based parenting and post-traumatic growth. *Note.* Path coefficients were standardized; insignificant path lines were dashed; ***p <.001; **p <.01; *p <.05

Table 2 Mediation model of the effect of optimism, strength-based parenting and depression of earthquake survivors

Dependent variable = Depression T2	β	SE	95% CI
Direct effect of SBP (T1) on mediator Optimism (T2)	0.26	0.03	[0.03,0.13]
Direct effect of SBP (T1) on Depression T2	-0.04	0.02	[-0.08,0.01]
Direct effect of Optimism (T2) on Depression T2	-0.34	0.07	[-0.44,-0.16]
Indirect effect of SBP (T1) on Depression T2	-0.09	0.04	[-0.17,-0.16]
Total effect on Depression T2	-0.06	0.02	[-0.10,-0.24]

Table 3 Mediation model of the effect of optimism, strength-based parenting and post-traumatic growth of earthquake survivors

Dependent variable = Post-traumatic growth T2	β	SE	95% CI
Direct effect of SBP (T1) on mediator Optimism (T2)	0.26	0.03	[0.03,0.13]
Direct effect of SBP (T1) on PTG (T2)	0.06	0.07	[-0.08,0.20]
Direct effect of Optimism (T2) on PTG (T2)	0.45	0.23	[0.88,1.80]
Indirect effect of SBP (T1) on PTG (T2)	0.12	0.05	[0.027,0.22]
Total effect on PTG (T2)	0.16	0.08	[0.01,0.31]

Table 3 presents the results of the second mediation analysis indicating that the total effect of SBP on posttraumatic growth was 0.16, SE = 0.08, p <.05, CI [0.01,0.31]. The direct effect of SBP on posttraumatic growth was insignificant demonstrating the full mediating effect of optimism (β = 0.06, SE = 0.07, p >.05, CI [-0.08,0.20]). Additionally, there was a significant indirect effect of SBP on posttraumatic growth through optimism (β = 0.12, SE = 0.05, CI [0.027,0.22].

Discussion

Earthquakes are natural disasters that might cause adverse psychological health outcomes due to traumatic experiences. However, such traumatic experiences not only result in negative consequences but positive changes might follow as an aftereffect including post-traumatic growth. Thus, this study aimed to understand the longitudinal impact of strength-based parenting on depression and post-traumatic growth of earthquake survivors and whether such a relationship is mediated by optimism. The study demonstrated (a) SBP at baseline positively predicted optimism at follow-up, (b) SBP at baseline positively predicted depression at follow-up, (c) SBP at baseline positively predicted post-traumatic growth at follow-up, (d) optimism played a longitudinal mediating role in the relationship between SBP and depression, and (e) optimism played a longitudinal mediating role between SBP and PTG.

In summary, results indicated that SBP at baseline is associated with earthquake survivors' levels of optimism, PTG, and depression at six months of follow-up and that optimism fully mediated the relationship between strength-based parenting, depression, and post-traumatic growth. The results are in line with previous studies on the relationship of SBP with depression [11], optimism [62], and PTG [16]. Moreover, the literature supports the finding that strength-based parenting predicts optimism [70] and optimism predicts both posttraumatic growth [71] and depression although the current findings highlight that the influence of SBP through optimism on post-traumatic growth is stronger compared to depression. In support, previous studies identified two vital roles of

strength-based parenting: (1) SBP has a *buffering role* that is inversely related to depression, anxiety, and psychological stress (2) a *building role* that is positively related to self-efficacy and positive concepts [46]. Although the current study supports both of the roles of SBP on mental health, the findings underscore the stronger effect of the building role of strength-based parenting compared to the buffering role. Furthermore, the role of optimism in posttraumatic growth is important as well. Literature suggests that optimistic individuals maintain a positive perspective for the future and such a perspective helps them to overcome stressful experiences and have positive gains following adverse life events [50, 72].

The first mediation model offered support for the mediator role of optimism in the relationship between strength-based parenting and depression. This finding suggests that individuals who reported greater levels of received strength-based parenting at baseline also reported increased levels of optimism and decreased levels of depression six months later. Thus, for earthquake survivors, strength-based parenting longitudinally promoted optimism and better mental health. Optimism is considered one of the positive psychological qualities and refers to the expectations of favorable future outcomes and that things will turn out well [50]. Optimistic individuals are prone to acknowledge the positive aspects of adverse situations which might protect them from the detrimental psychological impacts of the traumatic experience including depression [52].

The second model offered support for the mediating effect of optimism on the relationship between strength-based parenting and post-traumatic growth. To our knowledge, this is the first study to evaluate such relationships between the constructs. Moreover, to date, longitudinal research on such relationships, and with earthquake survivors is rather rare. In this manner, the results of the current study demonstrated that optimism mediated the effect of strength-based parenting at T1 on post-traumatic growth at T2. This finding suggests that increased levels of strength-based parenting received by the parents longitudinally promote greater levels of optimism, which in turn promote greater levels of positive changes after traumatic experiences. Strength-based parenting adheres to a style of parenting that identifies and cultivates positive qualities in children and encourages them to continue enhancing such strengths [73]. Conceptually, post-traumatic growth refers to positive changes in individuals' lives following struggles and adversity [74]. Thus, current findings support previous research that strength-based parenting practices constitute a ground for the development of positive psychological strengths including optimism [9, 14–75] and post-traumatic growth as well. An array of studies reported increased levels of post-traumatic growth in the participants after serious earthquakes [76–77–78]. However, the longitudinal findings of the current study explain that some of the increased scores could be explained by important positive psychological strengths including strengths-based parenting and optimism.

Limitations

Several limitations should be mentioned in the current study. First, this study administered self-report measures on a sample consisting of university students which may limit the generalizability of the results considering potential biases of such measures, especially given the sensitive nature of earthquake experiences. Future studies might employ other measures coupled with self-report questionnaires administered on community samples to obtain more accurate data. Moreover, data were collected in two time-points which might not capture the detailed trajectory of the variables. Thus, further studies might include additional follow-ups. Second, strength-based parenting was assessed with the reports of university students. It might be fruitful to include parent-reported data to ensure the validity of the results. Third, the current study employed optimism as the only mediating variable with no confounding variables controlled. Future studies might include other potential variables as mediators such as religious coping and positive reappraisal coping and confounding variables including previous mental health and socioeconomic status. Finally, we started collecting data approximately one year following the main Kahramanmaras earthquakes although there have been major aftershocks since then. The best time point after the traumatic experiences to evaluate post-traumatic growth is not clear. Thus, the full effects may take time to manifest and earlier assessments may not have detected the full extent of post-traumatic growth. Further studies might employ the regular measurements of post-traumatic growth to determine the trajectory of PTG over time.

Notwithstanding the limitations, the results of the current study add to the existing literature on strength-based parenting, optimism, post-traumatic growth, and mental health. To date, this is the first study to examine the longitudinal influence of strength-based parenting on optimism, post-traumatic growth, and depression for earthquake survivors. Thus, this study deepens the current understanding of how strength-based parenting longitudinally contributes to individuals' positive psychological strengths and mental health after "the disaster of the century." In this manner, it is important to decipher the findings of this study as a basis for the development of interventions for the adverse psychological effects of disasters. The findings of the current study highlight that SBP through optimism contributed to posttraumatic growth after the earthquake experience and played a protective role against the negative impact of depression.

Thus, SBP and optimism as positive psychological strengths should be included in pre- and post-earthquake interventions to combat the detrimental psychological after-effects. In these interventions, parents might get training in recognizing and encouraging their children to use their strengths and materials may be provided identifying a SBP environment. Such training will create insights for parents for effective strength-based parenting practices. Moreover, such a strength-based environment might create awareness in individuals to develop or improve their strengths including optimism, and contribute to individuals' positive processes such as post-traumatic growth.

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Author contributions
Dr. Hacer Belen: Design; analysis of data; drafting the article, revising it critically for important intellectual content; Dr. Aslı Tunca: Design; collection of data; drafting the article, revising it critically for important intellectual content.

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Data availability
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy restrictions.

Declarations

Ethics approval and consent to participate
This study was approved by the Institutional Review Board of the Bursa Uludag University in accordance with the Helsinki Declaration 2013. This is a statement to confirm that all methods were carried out in accordance with relevant guidelines and regulations. The researchers considered the ethics of conducting research throughout the research process. Before the data collection, all individuals were informed of the research objectives, data collection method, and the right of acceptance to participate or refuse in the research. Informed consent to participate in the study was provided via the first page of the online survey and all of the participants agreed to participate in the study.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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