

Impact of earthquakes on adolescent future expectations: Insights from a study in Türkiye

Osman Küçükkelepçe¹, Fatma Sena Konyalıoğlu², Osman Kurt³, Fedli Emre Kılıç⁴, Erdoğan Öz²

¹Department of Public Health, Adıyaman Provincial Health Directorate, Adıyaman, Türkiye; ²Department of Public Health, Ministry of Health of the Republic of Türkiye, Ankara, Türkiye; ³Department of Public Health, İnönü University, Faculty of Medicine, Malatya, Türkiye; ⁴Department of Pediatrics, Adıyaman University, Faculty of Medicine, Adıyaman, Türkiye

ABSTRACT

Objectives: While earthquakes impact the future expectations of entire societies, adolescents bear a hefty burden due to their transitional stage of life and the intricacies of adolescence itself. Our study examined the factors influencing the future expectations of adolescents residing in the region six months after the earthquake.

Methods: A face-to-face survey was conducted involving 385 individuals aged 11 to 17 affected by the February 6 earthquake in Turkey. The survey included sociodemographic inquiries, questions regarding earthquake experiences, and the administration of the Future Expectation scale to all participants.

Results: Participants who lost their family members, who were trapped under the debris, and whose family members were trapped under the debris had significantly lower future expectations. Moreover, happier individuals, who perceived themselves as healthier and more socialized, had significantly higher future expectations. Female individuals had significantly lower future expectations in all subdimensions of the scale. Lastly, adolescents who changed their career aspirations post-earthquake exhibited higher scores in all subdimensions of the scale compared to those who did not undergo such changes.

Conclusions: Adolescents confronted with traumatic events like earthquakes, particularly those who have lost relatives, often experience a negative impact on their future expectations. However, during subsequent phases, adolescents who report happiness, improved health, and increased socialization tend to harbor more positive outlooks for the future. This underscores the significance of implementing psychosocial rehabilitation efforts following earthquakes.

Keywords: Adolescent, disaster, earthquake, future expectation, psychosocial impact

Earthquakes, among the most frequent natural disasters, profoundly impact both the physical infrastructure and inhabitants of affected regions, resulting in building collapses, structural damage, injuries, and fatalities. In one of the world's most active earthquake zones, Turkey has endured numerous devastating tremors throughout its history [1]. The

most recent of these occurred on February 6, 2023, when seismic events measuring 7.7 and 7.6 magnitudes struck Kahramanmaraş in southeastern Turkey and the adjacent territories of northern Syria [2]. These earthquakes left an indelible mark on the affected communities, comprising approximately 15 million inhabitants. The resultant devastation led to the loss of

Received: February 28, 2025 Accepted: May 11, 2025 Available Online: June 3, 2025 Published: XX XX, 2025

How to cite this article: Küçükkelepçe O, Konyalıoğlu FS, Kurt O, Kılıç FE, Öz E. Impact of earthquakes on adolescent future expectations: Insights from a study in Türkiye. Eur Res J. 2025. doi: 10.18621/eurj.1648649

Corresponding author: Osman Küçükkelepçe, MD., PhD., Phone: +90 416 225 01 95, E-mail: osmankkelepce@hotmail.com

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over 50 thousand lives and left more than 115 thousand individuals injured [3]. Moreover, the psychological toll on survivors, grappling with the trauma of the catastrophe and the loss of loved ones, remains profound. Adolescents, in particular, constitute a vulnerable demographic profoundly impacted by these adversities.

According to the World Health Organization, adolescence encompasses the transitional phase between childhood and adulthood, typically spanning from ages 10 to 19. This developmental stage is characterized by ongoing cognitive, emotional, physical, and psychological growth [4]. Adolescents shift from concrete to abstract thinking, grapple with concerns about the future, seek autonomy from their families, and begin to formulate life plans [5, 6].

Future expectations denote an individual's anticipation of forthcoming events and their likelihood of occurrence, shaping their behavior and developmental trajectory [7-9]. This anticipation is particularly salient during adolescence, characterized by heightened focus on the future. When contemplating the future, adolescents predominantly ponder aspects such as education, career, family, material possessions, and lifestyle choices [10]. While many adolescents maintain a positive outlook, socioeconomically disadvantaged groups, individuals facing stressors, and those grappling with mental health issues tend to harbor more pessimistic views [10-12]. Moreover, future expectations exhibit associations with variables such as race and gender [12]. Notably, adolescents harboring positive future expectations tend to perceive life as more meaningful, demonstrate greater internal locus of control in decision-making, and cultivate warmer interpersonal relationships [13]. Conversely, negative future expectations can precipitate adverse outcomes, including heightened engagement in risky behaviors such as substance abuse and suicidal tendencies among adolescents [14].

Positive experiences can increase individuals' levels of future expectations [15]. However, traumatic experiences with wide-ranging effects, such as war, disasters, and pandemics, can damage adolescents' expectations for the future [16]. Additionally, it is possible to have positive expectations due to the desire to minimize the effects of the experienced event. Conversely, some adolescents may cultivate positive ex-

pectations as a coping mechanism to mitigate the impact of such adversities. Consequently, following catastrophic events like earthquakes, there arises a pertinent need to scrutinize adolescents' outlook on the future and explore its associated factors.

In this study, we aim to assess the future expectations of adolescents residing in the Adıyaman province, which bore the brunt of the earthquakes that struck on February 6, 2023, centered in Kahramanmaraş. This study hypothesizes that the future aspirations and outlooks of adolescents are significantly influenced by the multifaceted impact of seismic events, particularly on their social environments, demographic characteristics, and the extent to which they were personally affected by the earthquake.

METHODS

Study Design and Sampling

This cross-sectional study was conducted from August to October 2023 in Adıyaman province, in the South-eastern Anatolia region of Turkey. The study population comprised adolescents aged 11-17 who had experienced the earthquake in Adıyaman city center or surrounding districts. The sample size was calculated as 384 using the Epi Info program (version 7.2.5) with a 95% confidence interval, 5% margin of error, 50% expected frequency, 1.0 design effect and unknown population. The inclusion criteria encompassed individuals residing in tents or containers and those present in Adıyaman at the time of the earthquake. However, individuals absent from Adıyaman during the earthquake were excluded. In the study, 420 individuals were interviewed to achieve the required sample size, and 385 participants agreed to participate. Once the necessary sample size was reached, the interviews were concluded. 29 individuals were excluded from the study due to their absence from Adıyaman at the time of the earthquake, while an additional six individuals withdrew their consent to participate. No other exclusion criteria were applied. Data collection took place in the residences of earthquake survivors whose homes sustained minimal or no damage in Adıyaman city center and districts and in temporary settlement areas housing individuals whose homes were destroyed or severely damaged. Addition-

ally, adolescents seeking assistance from health units or family health centers in temporary settlement areas were included.

Questionnaire Design, Validity, and Reliability

Before starting the study, participants are first given verbal information about the study and then their written consent is obtained. Following obtaining written consent from participating earthquake survivors, survey forms were administered via face-to-face interviews. These forms, covered sociodemographic characteristics (such as age, gender, parental education and employment status, household income, marital status of parents, number of siblings, and current residence), earthquake-related experiences (including being inside during the earthquake, being trapped in debris, experiencing the loss of a family member, changing residence post-earthquake, alterations in career aspirations, and emotional responses), and other factors (such as social interactions, monetary and in-kind social support, and perceived health status). Additionally, the survey included the Future Expectations Scale for Adolescents (FESA) to assess participants' outlook on the future.

The Future Expectations Scale for Adolescents (FESA), developed by McWhirter *et al.* in 2008, is a Likert-type scale comprising 25 items. It encompasses four sub-dimensions: 'Work and Education', 'Marriage and Family', 'Religion and Society', 'Health and Life'. Responses to scale items range from 'I definitely do not believe' (scored 1 point) to 'I definitely believe' (scored 7 points). [17] The Turkish adaptation of the scale, validated by Tuncer in 2011, also comprises 25 items organized into four sub-dimensions. Specifically, 'Work and Education' encompasses 11 items, 'Marriage and Family' includes seven items, 'Religion and Society' comprises three, and 'Health and Life' contains four items. The Cronbach's alpha coefficient for the Turkish adaptation of the scale was calculated to be 0.925. [15]. An increase in the score obtained from the scale reflects a more optimistic outlook towards the future.

Ethical Approval

Ethics committee approval was obtained from Non-Interventional Research Ethics Committee of Firat University, with a decision dated 27.07.2023 and numbered 2023/10-27. Written consent was obtained

from all participants, and the study followed the principles outlined in the Declaration of Helsinki.

Statistical Analysis

Data analyses were performed using SPSS (Statistical Package for the Social Sciences; SPSS Inc., Chicago, IL) version 22. Descriptive statistics are presented as frequencies and percentages for categorical variables, and as mean $\pm$ standard deviation (Mean $\pm$ SD) for continuous variables. The normality of continuous variables was assessed using the Kolmogorov-Smirnov test. Group comparisons were conducted using the Mann-Whitney U-test for two groups and the Kruskal-Wallis test for more than two groups. The Spearman correlation test was utilized to explore relationships between continuous variables. Statistical significance was set at <0.05 for all analyses.

RESULTS

The study included a total of 385 participants, comprising 158 (41%) female and 227 (59%) male, with an average age of 14.2 ± 1.9 years (range: 11 to 17 years). During the earthquake, 95.1% of the adolescents were inside a building, while 7% were trapped under debris. Additionally, 58.4% of participants experienced the loss of a family member. Regarding housing, 52.2% of adolescents resided in their own homes, 28.1% rented accommodation, and 19.7% lived in containers. Further participant characteristics are outlined in Table 1.

The predominant emotion reported by adolescents in the past month was stress, with 29.6% indicating this feeling, while the least common emotion expressed was excitement, reported by only 2.6% (Fig. 1).

Significant gender differences were observed, with girls scoring lower than boys in the domains of marriage and family ($P=0.011$), health and life ($P=0.001$), and total score ($P=0.016$). Additionally, adolescents with mothers educated up to secondary school level or below exhibited higher health and life scores compared to those with mothers educated to high school level or above ($P=0.005$). Scores in religion and society ($P=0.02$) and health and life ($P=0.002$) were significantly lower for adolescents with working mothers than those with nonworking mothers. A disparity was also noted based on income

Table 1. All characteristics of participants

		Data
Age (years)		14.2±1.9
Gender	Female	158 (41.0)
	Male	227 (59.0)
Mothers' education status	Middle school and below	181 (47.0)
	High school and above	204 (53.0)
Fathers' education status	Middle school and below	106 (27.5)
	High school and above	279 (72.5)
Mothers' employment	Yes	103 (26.8)
	No	282 (73.2)
Fathers' employment	Yes	322 (83.6)
	No	63 (16.4)
Income	Less than expenses	126 (32.7)
	Equal to expenses	184 (47.8)
	More than expenses	75 (19.5)
Parents' marital status	Married	363 (94.3)
	Seperated	22 (5.7)
Number of siblings	None	7 (1.8)
	1	32 88.3)
	2	103 (26.8)
	3	138 (35.8)
	≥4	105 (27.3)
Place of presence during earthquake	Inside	366 (95.1)
	Outside	19 (4.9)
Being trapped under the debris	Yes	27 (7.0)
	No	358 (93.0)
Family member being trapped under the debris	Yes	190 (49.4)
	No	195 (50.6)
Loss of family member due to earthquake	Yes	225 (58.4)
	No	160 (41.6)
Change of residence after the earthquake	Yes	171 (44.4)
	No	214 (55.6)
Current place of residence	Owner	201 (52.2)
	Rental	108 (28.1)
	Container	76 (19.7)
Level of fear during earthquake	Not afraid	11 (2.9)
	Little afraid	23 (6.0)
	Afraid	37 (9.6)
	Very afraid	65 (16.9)
	Extremely afraid	249 (64.7)

Table 1 contunied. All characteristics of participants

		Data
Change of career aspirations	Yes	89 (23.1)
	No	296 (76.9)
Frequency of socializing with friends or family	None	72 (18.7)
	1-2 times a week	244 (63.4)
	3-4 times a week	50 (13.0)
	5-6 times a week	12 (3.1)
	Every day	7 (1.8)
Perception of good health status	Very bad	20 (5.2)
	Bad	30 (7.8)
	Not good or bad	98 (25.5)
	Good	121 (31.4)
	Very good	116 (30.1)
Social support	Yes	69 (17.9)
	No	316 (82.1)
Work and Education		57.5±17.8
Marriage and Family		32.9±10.6
Religion and Society		15.7±5.7
Health and Life		20.3±6.1
Total score		126.3±35.2

Data are shown as mean±standard deviation or number (percent).

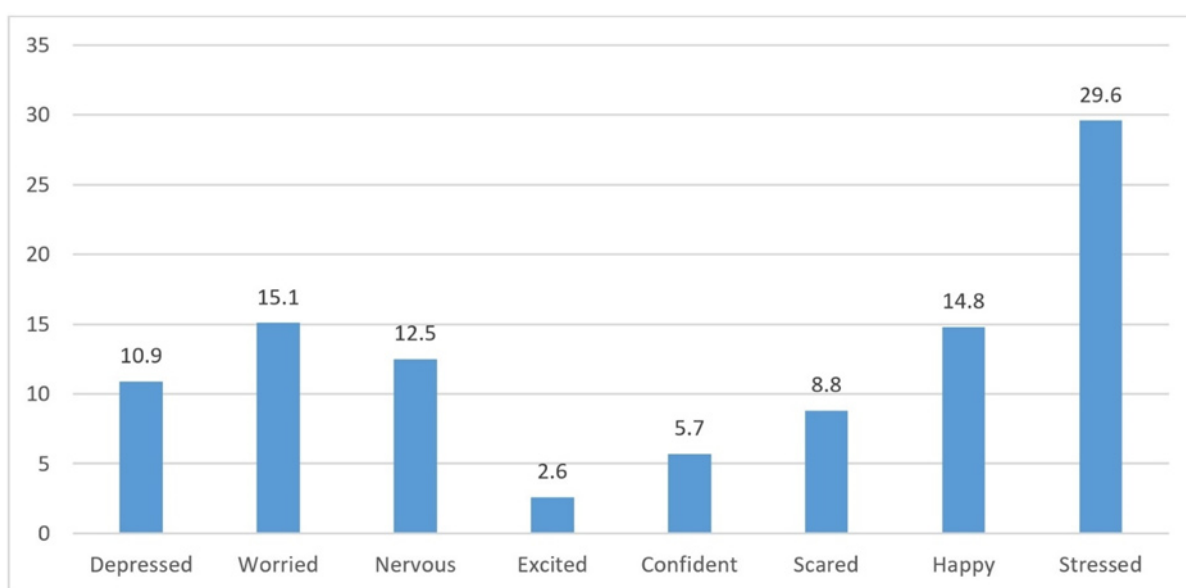
**Fig. 1.** Mood perception in the last month.

Table 2. Comparison of scale scores according to all characteristics

		Work and education		Marriage and family		Religion and society		Health and life		Total score	
		Mean±SD	P value*	Mean±SD	P value*	Mean±SD	P value*	Mean±SD	P value*	Mean±SD	P value*
Gender	Female	55.7±19.1	0.216	31.2±11.0	0.011	15.1±5.8	0.066	19.0±6.4	0.001	120.9±37.5	0.016
	Male	58.8±16.7		34.0±10.2		16.1±5.5		21.2±5.6		130.1±33.0	
Mothers' education status	Middle school and below	57.7±18.4	0.611	33.8±10.7	0.124	15.9±5.5	0.386	21.2±5.8	0.005	128.6±35.4	0.141
	High school and above	57.3±17.2		32.1±10.5		15.5±5.8		19.5±6.2		124.3±34.9	
Fathers' education status	Middle school and below	56.5±18.5	0.515	32.5±10.5	0.538	16.1±5.4	0.397	20.0±5.8	0.320	125.0±33.6	0.371
	High school and above	57.9±17.5		33.0±10.7		15.5±5.7		20.4±6.2		126.8±35.8	
Mothers' employment	Yes	56.1±19.3	0.652	31.7±10.9	0.209	14.6±6.0	0.02	18.5±6.8	0.002	120.9±39.3	0.143
	No	58.0±17.2		33.3±10.5		16.1±5.5		20.9±5.6		128.3±33.3	
Fathers' employment	Yes	58.2±17.3	0.162	32.9±10.8	0.665	15.7±5.6	0.629	20.3±6.1	0.517	127.1±35.3	0.243
	No	54.2±19.7		32.6±9.6		15.4±5.7		20.0±5.7		122.2±34.6	
Income	Less than expenses	56.1±19.4	0.788**	33.1±11.6	0.727**	15.3±6.3	0.673**	21.3±6.0 ^a	0.029**	125.8±38.3	0.931**
	Equal to expenses	58.0±17.4		33.0±10.5		16.0±5.3		19.9±6.3 ^b		126.9±34.8	
	More than expenses	58.8±15.9		32.1±9.5		15.6±5.3		19.5±5.5 ^b		125.9±30.6	
Parents' marital status	Married	58.0±17.6	0.047	33.2±10.6	0.006	15.8±5.6	0.261	20.4±6.0	0.046	127.4±34.8	0.016
	Seperated	49.7±19.8		26.8±10.3		14.1±6.6		17.7±6.5		108.3±36.6	
Place of presence during earthquake	Inside	58.1±17.1	0.066	33.1±10.5	0.049	15.9±5.5	0.005	20.4±5.9	0.134	127.6±34.0	0.016
	Outside	45.8±25.6		27.6±12.6		11.2±7.1		17.8±7.7		102.3±47.5	
Being trapped under the debris	Yes	43.6±24.3	0.003	25.9±12.6	0.001	11.9±6.3	0.001	15.1±8.6	0.001	96.4±49.6	0.001
	No	58.6±16.8		33.4±10.3		16.0±5.5		20.7±5.6		128.6±32.8	
Family member being trapped under the debris	Yes	54.4±18.3	< 0.001	31.5±10.0	0.016	15.2±5.7	0.057	19.4±5.9	0.002	120.6±34.5	0.002
	No	60.5±16.8		34.2±11.1		16.1±5.6		21.1±6.1		131.9±34.9	
Loss of family member due to earthquake	Yes	53.8±18.0	< 0.001	30.2±9.6	< 0.001	14.8±5.8	< 0.001	19.0±5.8	< 0.001	117.7±32.8	< 0.001
	No	62.7±16.1		36.6±10.9		17.0±5.2		22.1±6.0		138.4±34.8	

Table 2 continued. Comparison of scale scores according to all characteristics

		Work and education		Marriage and family		Religion and society		Health and life		Total score	
		Mean±SD	P value*	Mean±SD	P value*	Mean±SD	P value*	Mean±SD	P value*	Mean±SD	P value*
Change of residence after the earthquake	Yes	53.7±19.6	0.001	31.2±10.9	0.008	14.9±6.0	0.036	19.2±6.3	0.002	118.9±37.8	0.001
	No	60.6±15.6		34.2±10.2		16.3±5.3		21.2±5.7		132.2±31.8	
Current place of residence	Owner	59.5±16.2	0.189	33.5±10.3	0.533	16.1±5.3	0.312	20.8±5.4	0.381	129.9±32.1	0.267
	Rental	55.9±16.9		32.2±10.0		15.2±5.4		19.6±6.5		122.9±33.9	
	Container	54.7±22.2		32.1±12.3		15.2±6.7		19.7±7.0		121.7±43.2	
Change of career aspirations	Yes	48.3±19.2	<0.001	29.6±9.9	0.001	14.2±6.0	0.002	18.7±6.1	0.005	110.8±36.3	<0.001
	No	60.3±16.4		33.8±10.7		16.1±5.5		20.7±6.0		131.0±33.5	
Social support	Yes	55.1±21.3	0.703	33.0±11.9	0.629	15.4±6.2	0.844	19.8±7.1	0.970	123.4±42.2	0.956
	No	58.0±16.9		32.8±10.3		15.7±5.5		20.4±5.8		126.9±33.5	

SD=standard deviation, Mann Whitney U test, **Kruskal Wallis analysis was applied. ^{a,b}The group where the difference originates, a>b

level, with those experiencing income deficits scoring higher in health and life ($P=0.029$). Furthermore, significant differences were found concerning parental marital status, with higher scores observed in work and education ($P=0.047$), marriage and family ($P=0.006$), health and life ($P=0.046$), and total score ($P=0.016$) for adolescents whose parents were married compared to those with separated parents.

Adolescents who were present inside buildings during the earthquake reported higher scores in marriage and family ($P=0.049$), religion and society ($P=0.005$), and total scores ($P=0.016$) compared to those outside. Conversely, those trapped under debris exhibited lower scores in work and education ($P=0.003$), marriage and family ($P=0.001$), religion and society ($P=0.001$), health and life ($P=0.001$), and total score ($P=0.001$) compared to their counterparts.

Similarly, family members trapped under debris were associated with lower scores in work and education ($P<0.001$), marriage and family ($P=0.016$), health and life ($P=0.002$), and total score ($P=0.002$) compared to those with untrapped family members. Furthermore, adolescents who lost relatives in the earthquake reported lower scores in work and education ($P<0.001$), marriage and family ($P<0.001$), religion and society ($P<0.001$), health and life ($P<0.001$), and total score ($P<0.001$) compared to those without such losses. Lastly, adolescents who changed their career aspirations post-earthquake exhibited higher scores in work and education ($P<0.001$), marriage and family ($P=0.001$), religion and society ($P=0.002$), health and life ($P=0.005$), and total score ($P<0.001$) compared to those who did not undergo such changes (Table 2).

Significant variations in emotional experiences over the last month were observed, particularly about the total score of future expectations ($P<0.001$). Notably, individuals reporting excitement and happiness exhibited the highest scores, with a disparity between this group and others (Fig. 2).

A significant positive correlation was observed between the subdimensions of the scale scores and the total score. Additionally, age showed a significant negative correlation between the health and life sub-dimensions and the total score. Moreover, a significant positive correlation was found between the number of siblings and the health and life sub-dimension. Notably, an increase in the fear experienced during the

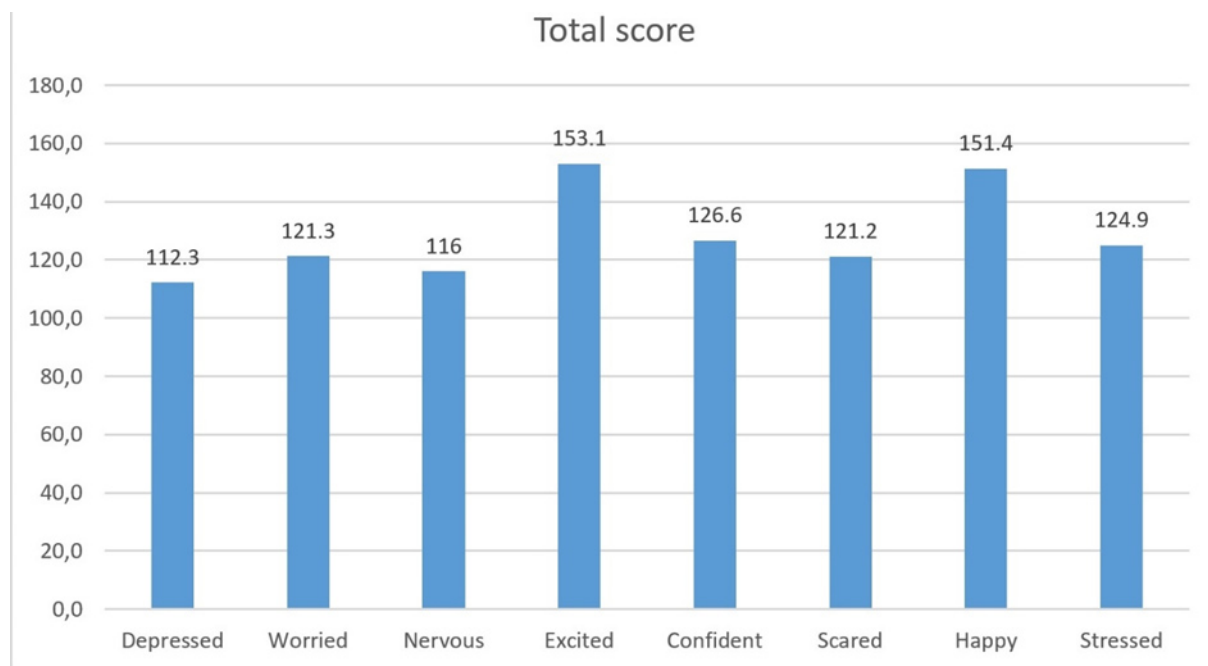


Fig. 2. Distribution of the total scores according to the mood perception in the last month.

Table 3. Correlation of scale scores

		Work and education	Marriage and family	Religion and society	Health and life	Total score
Marriage and family	r	.638				
	P value	.000				
Religion and society	r	.599	.725			
	P value	.000	.000			
Health and life	r	.694	.711	.624		
	P value	.000	.000	.000		
Total score	r	.889	.880	.792	.827	
	P value	.000	.000	.000	.000	
Age	r	-.083	-.087	-.030	-.138	-.101
	P value	.104	.090	.559	.007	.049
Number of siblings	r	.065	.085	.063	.110	.071
	P value	.201	.097	.220	.031	.162
Level of fear during earthquake	r	.030	.077	.090	.118	.078
	P value	.557	.134	.077	.020	.127
Frequency of socializing with friends or family	r	.147	.196	.119	.159	.178
	P value	.004	.000	.019	.002	.000
Perception of good health status	r	.434	.323	.213	.279	.392
	P value	.000	.000	.000	.000	.000

earthquake was associated with a significant increase in the health and life subscale score. Furthermore, an increase in the frequency of socializing with friends or family was linked to significant increases in the scale subscale and total score. Finally, an enhanced perception of good health status corresponded to significant increases in the scale sub-dimension and total score (Table 3).

DISCUSSION

This study assessed the future expectations of adolescents living in Adıyaman after the February 6 earthquake. It was observed that adolescents exposed to the earthquake had lower levels of future expectations compared to studies conducted in Turkey using the same scale but not related to earthquakes [18-20]. This situation could be evidence that the earthquake negatively impacts adolescents' expectations for the future in this country.

A literature review reveals no direct studies examining the impact of earthquakes on adolescents' future expectations. However, there are studies examining the relationship between earthquakes and hopelessness. For example, a study conducted in a different city affected by the same earthquake observed a dominant sense of hopelessness among adolescents [21]. Another study found that hopelessness regarding the future increased after the earthquake [22]. In another study involving earthquake exposure, it was found that individuals' trauma levels were positively correlated with their levels of hopelessness [23]. According to these findings, hopelessness and lack of expectations for the future in adolescents are significant issues that can arise from traumatic life events.

The February 6 earthquakes predominantly struck at night, catching most individuals indoors. Those outside during the earthquake exhibited lower expectations regarding marriage, children, overall health, and life, and general future prospects compared to those inside buildings at the time of the event. Furthermore, individuals who found themselves trapped under debris experienced even lower levels of future expectations than those who avoided entrapment. This trend is unsurprising, given the traumatic experiences endured by those trapped, including fear of death and panic. Contrary to expectations, individuals not inside

buildings during the earthquake also reported diminished future expectations. Factors such as being in chaotic post-earthquake environments, witnessing search and rescue efforts, and severely injured or deceased individuals may have contributed to a heightened sense of hopelessness regarding the future among this group. Additionally, individuals with family members trapped under debris, those who lost relatives in the earthquake, and those compelled to relocate their residences afterward also expressed lower future expectations. It is plausible that these individuals, facing the insecurity of their safety and that of their loved ones, harbored pessimistic outlooks on the future. In a study conducted on adolescents affected by the Marmara earthquake, it was found that those who had family members who died or were injured due to the earthquake had higher levels of hopelessness compared to those who did not have such experiences. However, no difference was observed in hopelessness levels based on the damage to the house [24]. A qualitative study reported that losing relatives and one's home harmed future expectations [21]. Another study found that those who were trapped under rubble, lost a family member, witnessed the collapse of buildings, or saw someone severely injured during the earthquake had higher levels of trauma post-earthquake [25]. Exposure to trauma negatively affects individuals' expectations for the future [26].

In this study, conducted within 6 to 8 months after the earthquake, the majority of adolescents reported feeling stressed in the past month. Those who felt stressed, depressed, tense, anxious, or scared had lower levels of future expectations compared to those who felt happy or excited. The negative emotions felt by adolescents are likely symptoms of mental health issues. According to the literature, mental health problems such as depression and post-traumatic stress disorder (PTSD) can increase in adolescents after an earthquake, affecting their psychological functioning, perceptions, and expectations for the future [18, 27, 28]. Another study conducted on university students in Turkey who were exposed to a different earthquake also reported that those with higher levels of hopelessness about the future experienced higher levels of stress [29].

In this study, experiencing intense fear during the earthquake was associated with higher expectations for a healthy and long life. Consistent with this result,

the literature also shows that fear of death is related to the desire for a long life [30]. Additionally, in the current study, spending time outside with close friends and family, socializing, and perceiving oneself as healthier were associated with higher future expectations. Similarly, the literature indicates that social support from friends is related to higher hopes for the future [31]. Improving adolescents' socialization and peer relationships in the school environment, where they spend a significant portion of their day, and encouraging the social support they provide will play an important role in enhancing adolescents' future expectations. Socializing and spending quality time with parents positively affect the well-being of children and adolescents [32]. Well-being is a condition that enhances hope for the future [33]. Therefore, spending more time outside with close ones and high self-rated health scores is expected to be associated with higher future expectations in the present study.

Gender disparities were evident in the total future expectation score, as well as in the marriage and family, and health and life sub-dimensions, with lower scores observed among girls. This suggests that girls have lower expectations regarding marriage, family, and overall health and life than boys. Previous literature presents conflicting findings on gender-based future expectations [17, 34]. While some studies indicate that young women prioritize family-oriented goals. In contrast, young men focus more on career aspirations, while others suggest that girls may have lower expectations regarding marriage and family than boys [7, 17, 35, 36]. Such discrepancies may stem from variations in gender roles across different communities. When examining the relationship between age and future expectations, it was found that general future expectations and the expectation of a long and healthy life increase as age decreases. Similarly, a study conducted during the pandemic found that younger adolescents had higher overall future expectations and expectations for a long and healthy life [37]. Another study highlighted that older adolescents prioritize future goals related to education, career, and family more than younger adolescents.⁷ In the current study, more siblings were also associated with the expectation of a healthy and long life. However, another study found that, although not statistically significant, those with siblings had lower future expectation levels [18]. While siblings can be a source of support or conflict,

they are mostly considered supportive family members [34].

In the current study, the education and employment status of the mother influenced adolescents' levels of future expectations. At the same time, no difference was found based on the father's education and employment status. A study using the same scale found no difference based on the mother's education status [18]. Another study found that adolescents with working parents had higher future goals and educational planning [38]. In this study, those with lower household income had higher health and life expectations. Economic difficulties did not hinder adolescents' hopes for a healthy and long life. However, other studies have shown that lower socio-economic status of families led adolescents to view the future more fatalistically and pessimistically [15, 39]. In the present study, a difference was observed based on the parents' marital status, with those having married parents showing higher future expectations, except in the religion and community sub-dimension. Although no direct study examines this relationship, the literature shows that adolescents with both parents are more resilient and optimistic than those with separated parents [40, 41].

Limitations

Although there are studies in the literature evaluating the hopelessness levels of adolescents after earthquakes, this study is the first to assess future expectations directly. Because the face-to-face interview method was used, issues such as skipping questions or not understanding them were avoided. However, the study's cross-sectional design limits the ability to determine the direction of causality. Since the study was conducted in a single province, the results cannot be generalized to all adolescents nationwide.

CONCLUSION

Plans, goals, and expectations for the future are essential concepts during an adolescent's developmental stages. Positive future expectations encourage high resilience and a successful transition into adulthood. Conversely, negative future expectations are associated with risky behaviors in adolescents. Therefore, interventions are necessary to improve the future expectations of adolescents affected by earthquakes. School guidance and psychological counselors can be

beneficial by helping adolescents replace negative emotions with positive ones and increasing their hope for the future. Based on the findings of this study, interventions can prioritize those more affected by the earthquake (those experiencing negative emotions like stress, those who have lost family members, or those who were trapped under rubble) and girls. Additionally, future studies should evaluate the future expectations of adolescents at later stages after the earthquake to assess changes over time.

Ethical Statement

This study was approved by the Fırat University Non-Interventional Research Ethics Committee (Decision no. 2023/10-27, date: 27.07.2023).

Authors' Contribution

Study Conception: OK, FSK, EÖ; Study Design: OK, FSK, EÖ, FEK; Supervision: FSK, EÖ; Funding: N/A; Materials: OK, FSK, EÖ; Data Collection and/or Processing: OK, OKurt, FEK; Statistical Analysis and/or Data Interpretation: OK, OKurt, FSK; Literature Review: OK, FSK, EÖ; Manuscript Preparation: OK, FSK, OKurt, FEK and Critical Review: OK, FSK, FEK.

Conflict of interest

The authors disclosed no conflict of interest during the preparation or publication of this manuscript.

Financing

The authors disclosed that they did not receive any grant during the conduction or writing of this study.

Generative Artificial Intelligence Statement

The author(s) declare that no artificial intelligence-based tools or applications were used during the preparation process of this manuscript. The all content of the study was produced by the author(s) in accordance with scientific research methods and academic ethical principles.

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