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Being a Father after the Earthquake: A Structural Equation Modeling of Father Involvement

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Abstract

Based on cross-sectional data collected from 789 fathers residing in container settlements in Hatay and Kahramanmaraş following the February 6, 2023, earthquakes, this study offers an evidence-based framework for post-disaster parenting policies. In the context of Türkiye, there is a limited number of comprehensive structural model studies that examine the impact of post-earthquake life perception on father involvement through child-centered views, paternal approaches, social capital, and societal expectations. The study employed the Father Involvement Scale and a Post-Earthquake Fatherhood Questionnaire developed by the researchers. Measurement validity was confirmed through confirmatory factor analysis, and direct and indirect effects were estimated using structural equation modeling. Findings indicate that post-earthquake life perception directly increases arbitrary occupation and indirectly enhances primary care, attention and closeness by strengthening social capital, child-centered views and less traditional paternal approaches. Child-centered views emerged as a central mediating variable, positively predicting all dimensions of father involvement. Conversely, more traditional/protective fathering practices were associated with lower levels of primary care and arbitrary occupations. Social capital exhibited strong and positive associations with all dimensions of involvement, whereas community expectations did not emerge as a significant independent predictor when controlling for other variables. The overall model demonstrated an acceptable fit, and the results underscore the importance of prioritizing interventions that enhance social capital and child-centered views to support father involvement. The study recommends longitudinal and multi-site replications to test the causal structure and generalizability of the proposed model in the future.

1. Introduction

Being a father entails not only a biological bond but also the performance of culturally constructed practices (Güloğlu, 2018). Consequently, fatherhood practices vary across different social organizations. Global trends such as democratization and secularization, along with the erosion of patriarchal family structures, have compelled fathers to develop new forms of fathering that align with contemporary conditions. The role of the father within the family and associated fatherhood practices have been undergoing a process of modernization. In this context, the traditional image of the breadwinning father is increasingly being replaced by a more emotionally involved and supportive paternal figure, reflecting rising societal expectations for such engagement.

Correspondingly, the meaning of fatherhood has evolved in tandem with broader social transformations. The concept of father involvement has gained increasing prominence, serving as a key analytical lens through which paternal roles are redefined. Father involvement, conceptualized through its dimensions of accessibility, engagement, and responsibility, encapsulates contemporary societal expectations of fatherhood. These transformations render it both legitimate and meaningful for fathers to actively participate in their children’s physical care, be readily accessible in times of need, and assume responsibility for all aspects of their children's lives.

In today’s social order, the voluntary and intentional enactment of father involvement by rational actors is no longer viewed as anomalous or exceptional. Against this backdrop, the present study examines how father involvement was reconfigured in the aftermath of the earthquakes in the southeastern provinces of Hatay and Kahramanmaraş in Türkiye. The findings suggest that father involvement is shaped by multiple interrelated factors, including community expectations, paternal social capital, paternal approach, and fathers’ child-centered views, all of which are influenced by the broader post-earthquake life experience.

1.1 Father Involvement

Father involvement, in its simplest form, refers to fathers' active participation in their children's developmental processes. Considering the historical assignment of childrearing responsibilities to mothers, paternal engagement in these processes represents a relatively recent phenomenon. The concept, introduced by M. Lamb (2000), emphasizes fathers' assumption of responsibility in their children's lives, their participation in caregiving tasks, and their presence when children are in need. More specifically, father involvement can be defined as a father's undertaking of responsibility for his child and his contribution to the child's social, emotional, and cognitive development (Hasar & Arısan, 2025). Through this involvement, fathers make meaningful contributions to their children's development. A growing body of research has documented the positive effects of father involvement across a wide range of domains, including academic achievement, language development, self-confidence, emotional resilience, social skills, cognitive growth, gender role socialization, and the development of a sense of security (Arslan, 2022; Demir, 2022zübüyük & Özbey, 2020; Taşkın, 2011; Uzun et al., 2019; Uzunöz & Tükel, 2020).

1.2 Factors Influencing Father Involvement

As a sociological phenomenon, father involvement is shaped by the interaction of numerous individual, structural and relational variables. These include ethnicity (Cabrera et al., 2000), educational attainment (Nord et al., 1997), gender role orientation (Pleck, 2010), maternal attitudes (Feinberg, 2003), work-life balance (Waldfogel, 2006), quality of the father-child relationship and attachment (Grossmann et al., 2002), quality of time spent with the father (Cabrera et al., 2014), presence of paternal role models (Marsiglio et al., 2000), access to economic resources and income level (Yeung et al., 2001), intrafamilial communication (Tamis-LeMonda et al., 2004), psychological well-being (Paulson & Bazemore, 2010), child's developmental stage (Lamb & Tamis-LeMonda, 2004), family structure (Carlson & McLanahan, 2004), legal circumstances (Hook & Wolfe, 2013), religious beliefs and values (Mahoney et al., 2001), father's own childhood experiences (Pleck, 1997), post-disaster living conditions (Park, 2010), social capital (Putnam, 2000), and paternal approach (Lamb & Tamis-LeMonda, 2004).

These variables do not exert a uniform influence across all cultural contexts; rather, the constellation of influential factors may differ significantly across societies. In particular, post-disaster conditions are known to reconfigure family relationships and patterns of solidarity among family members. Therefore, this study focuses on four key dimensions that shape father involvement in disaster-affected contexts: Fathers' View of the Child, paternal approach, community expectations, and social capital. These four factors enable an analysis of father involvement that captures both its cognitive/emotional and social/relational dimensions, thereby facilitating a multidimensional understanding of paternal engagement in the aftermath of disasters.

1.3 The Earthquakes

The earthquakes that struck Kahramanmaraş and surrounding regions in Türkiye on February 6, 2023, resulted in the loss of over 50,000 lives and rendered approximately 200,000 buildings uninhabitable (Ministry of Interior, 2024). In the aftermath, many survivors initially resided in tent settlements and were later relocated to container cities, where they were compelled to remain for extended periods (a considerable number of individuals are still known to reside in such container-based accommodation).

Consequently, the lifeworlds (Lebenswelt) of the affected individuals were fundamentally altered by the earthquake. Daily routines were disrupted, and in the wake of this extraordinary event, relationships with both their environment and their children had to be renegotiated and reconstructed.

1.4 The Impact of Post-Earthquake Life on Father Involvement

Changes in the father-child relationship suggest that post-earthquake living conditions may significantly influence father involvement. Studies have shown that trauma resulting from disasters can diminish the quality of care provided

to children, thereby increasing the likelihood of emotional and behavioral problems (Juth et al., 2015). In families where fathers were diagnosed with post-traumatic stress disorder (PTSD) after the earthquake, children were also found to exhibit significantly higher levels of PTSD symptoms. Furthermore, fathers' increased irritability and emotional distance in the post-disaster period have been reported to negatively affect children's mental health (Kılıç et al., 2003). A significant correlation has also been documented between negative paternal relationships and psychological distress experienced by children (Proctor et al., 2007).

Post-earthquake restructuring of the family system has been widely acknowledged, with specific emphasis on the new and heightened responsibilities assigned to fathers in this context (Tekin Babuç & Gökçe, 2024). Taken together, these findings underscore the impact of earthquakes on the father–child relationship and, by extension, on the broader dynamics of father involvement in children's lives.

Parents can support their children's autonomy by encouraging decision making, problem solving, and independent actions. Such parenting styles are known to have positive effects on children's social relationships and emotional regulation capacities. In particular, positive guidance, reduced negative control, and heightened parental sensitivity have been found to significantly foster children autonomy (Linkiewich et al., 2021). Supporting a child's individuality has been shown to enhance emotional regulation skills and psychological resilience (Dennis et al., 2025), leading to reports of children being happier, calmer, and emotionally balanced (Neubauer et al., 2021).

Beyond promoting individuality, broader parental parenting styles also shape children's developmental trajectories. Studies have indicated that overprotective parenting is associated with increased academic anxiety (Li et al., 2024) and is significantly linked to the formation of early maladaptive schemas. Notably, when exhibited by fathers, such parenting patterns have been found to hinder children's ability to make independent decisions (Bruyster & Pilkington, 2023) and are correlated with higher levels of depression, social anxiety, and general anxiety (Urone et al., 2024). Furthermore, these parenting styles may undermine self-confidence and obstruct the development of problem-solving skills (Choirunnisa et al., 2025);

Punitive parenting has been shown to contributes to behavioral and emotional problems in children (Cobham et al., 2016). The quality of the relationship that fathers establish with their children is both a determining factor and a potential risk variable influencing children's behavioral adjustment and social competence. Conversely, positive parenting behaviors have been found to enhance psychological resilience in children (Kuru & Ungar, 2025). Environmental influences play a significant role in shaping human behavior, and this remains true in post-disaster settings. Following the earthquake, unemployment and economic hardship experienced by fathers made it more difficult for them to fulfill their familial roles. Additionally, societal expectations have created psychological pressure on fathers (Çocuk Vakfı, 2012). In earthquake-affected families, fathers' roles within the household have undergone notable transformations, and the community's supportive or exclusionary stance has been found to influence the level of father involvement (Sevim, 2024). Post-disaster societal expectations often cast fathers in roles that emphasize strength, stability, leadership and recovery (Peek et al., 2021). While such expectations may positively reinforce paternal protectiveness, they can also limit fathers' capacity to provide emotional support (Peek & Fothergill, 2009).

Social support in post-disaster contexts refers to the new relational environment individuals form, such as friendships, neighborhood ties, and other community-based relationships. These newly constructed social networks contribute to the transformation of social capital. Defined as membership within a group and access to associated resources (Bourdieu, 1986), social capital may significantly influence father involvement. Empirical studies have identified social capital as one of the most critical variables for promoting recovery (Aldrich, 2012). In post-disaster periods, family, kinship, and neighborhood ties have been shown to provide the most effective forms of assistance (Hsueh, 2019). Furthermore, social capital has been found to exert positive effects on disaster response efforts (Xiong & Li, 2024) and

to play a meaningful role in recovery domains, excluding housing, in post-disaster settings (Shahid et al., 2022). It has also been associated with an increase in individuals' subjective well-being (Ahumada et al., 2024). The destructive impact of an earthquake extends beyond the physical realm; it also has profound emotional repercussions, affecting not only those who directly experience the disaster but also their interactions with others in their social environment. For families that have endured such traumatic events, changes in everyday life practices across social, cultural, and economic domains are to be expected. At this juncture, it is likely that the role, perception, and practices of fatherhood, as well as the father's orientation toward the family and the child, will also undergo transformation.

This study proceeds from the assumption that father involvement -which is typically associated with paternal interest, closeness, and responsibility toward one's child(ren)–may be affected by, and possibly reshaped in response to, the post-disaster context. The literature has identified and empirically documented a wide range of paternal characteristics that influence father involvement in childcare. Drawing upon this body of work, the present study defines a set of internal and external variables hypothesized to affect father involvement in post-earthquake conditions in Türkiye. Based on these constructs, a hypothetical model was developed (Fig. 1).

The variables included in the hypothesized model were identified based on both the observed transformations in fathers' living and environmental conditions following the earthquake and the existing literature. Accordingly, the present study examines how conceptually defined variables -fathers' post-earthquake life perception, fathers' view of the child, paternal approach, societal expectations of fathers, and social capital directly and indirectly influence father involvement.

The overarching aim of this study is to reveal the shifts and transformations in father involvement following the earthquake, and thereby explore how and in what ways fathering practices have been reshaped in this context. In this regard, the study is expected to offer valuable insights into improving father involvement and facilitating the reconstruction or adaptation of paternal roles in the aftermath of a disaster.

2. Method

2.1 Participants and Procedure

Prior to the commencement of this study, ethical approval and data collection permission were obtained. Data were collected from container settlements located in the city centers of Hatay and Kahramanmaraş, both of which were severely affected by the earthquake that struck Kahramanmaraş on February 6, 2023. Before the data collection phase, the entire population of fathers with children aged 3 to 6 years residing in these container settlements was identified as the study universe. Based on a sample size estimation from this universe, the study aimed to recruit at least 720 fathers. The final sample comprised 789 volunteer fathers selected through a random sampling procedure from randomly chosen container settlements. Among these participants, 402 fathers (51%) resided in Hatay, while 379 fathers (49%) lived in the container settlements of central Kahramanmaraş. The participants' ages ranged from 21 to 68 years (M = 37.19, SD = 6.95), and the number of children they had varied between 1 and 9 (M = 2.51, SD = 1.23).

2.2 Data Collection Instruments

Father Involvement Scale

In the present study, the Father Involvement Scale developed and validated by Sımsıkı and Şendil (2014) was employed to assess the level of father involvement in the aftermath of the earthquake. The scale comprises 37 items distributed across three subdimensions: "Primary Care" (8 items; sample item: I put my child to bed at bedtime), "Attention and Closeness" (12 items; sample item: I hug my child), and "Arbitrary Occupation" (17 items; sample item: I watch

movies/cartoons with my child). The response format follows a five-point Likert-type scale: “5: Always True,” “4: Mostly True,” “3: Sometimes True,” “2: Rarely True,” and “1: Never True.” The scale contains no reverse-coded item. The total scores ranged from 37 to 185. Higher scores indicate a higher level of father involvement in the respective sub-dimension or overall.

The internal consistency of the original scale was tested using Cronbach’s alpha coefficients: .82 for the Primary Care dimension, .85 for Attention and Closeness, .89 for Arbitrary Occupation, and .92 for the overall scale. In the current study, Cronbach’s alpha values ranged between .81 and .92 for the subdimensions and the overall scale. These results indicate that the scores obtained using this instrument are reliable. In this study, the variables constituting the subdimensions of the Father Involvement Scale were conceptualized as internal variables.

Post-Earthquake Fatherhood Questionnaire

In the present study, a questionnaire instrument was developed and administered to examine how fathers perceived the earthquake and container-city life, what their children meant to them, the extent to which their parenting practices were shaped by their social environment, their fatherhood typologies, and the degree of their cultural capital in the context of fatherhood. The Post-Earthquake Fatherhood Questionnaire consists of five sections: “Societal Expectations of Fathers” (4 items; sample item: Social rules/norms/values influence child-rearing practices), “Social Capital” (6 items; sample item: I know influential people (bureaucrats, politicians, etc.) who can help me resolve a problem), “Fathering Practices” (7 items; sample item: Fatherhood is about meeting material needs), “Fathers’ View of the Child” (5 items; sample item: I always consider my child’s opinion when making decisions), and “Post-Earthquake Life Perception” (16 items; sample item: While living in the container, my communication with my child was negatively affected). The items in the Parental Approach and Fathers’ View of the Child sections were rated on a 10-point scale (1 = lowest, 10 = highest). Higher scores in the Parental Approach section reflect a more traditional paternal orientation, whereas lower scores reflect a more modern orientation. Conversely, higher scores in the Fathers’ View of the Child section indicate a more protective attitude, whereas lower scores indicate a more autonomy-oriented perspective toward the child. The Social Capital, Societal Expectations of Fathers and Post-Earthquake Life Perception sections used a five-point Likert-type scale with the following options: 5 = Strongly Agree, 4 = Agree, 3 = Undecided, 2 = Disagree, and 1 = Strongly Disagree. A higher score in the Social Capital section reflects a greater inclination of the father to seek support for his child’s future, whereas a lower score indicates a weaker tendency. A higher score in the Societal Expectations of Fathers section signifies greater paternal sensitivity to societal influences on childrearing, whereas a lower score suggests less sensitivity. Finally, a higher score in the Post-Earthquake Life Perception section indicates that the father perceives his expected life with his children to have become more difficult following the earthquake, whereas a lower score suggests that he perceives it to have become easier.

Internal consistency was assessed to estimate the reliability of the Post-Earthquake Fatherhood Questionnaire. The Cronbach’s alpha values for the survey sections ranged between .61 and .73, indicating an acceptable level of reliability for the questionnaire data. In this study, the variables derived from the Post-Earthquake Fatherhood Questionnaire were conceptualized as external and mediating variables in the model.

2.3 Data Analysis

In the hypothesized model, numerous observed, latent, internal, and external variables were identified. Accordingly, a hybrid analytical approach was adopted, integrating both Confirmatory Factor Analysis (CFA) and path analysis. CFA was employed to assess the fit of the observed variables within the hypothesized model. Prior to this, the suitability of the dataset for CFA was evaluated. Specifically, the Mardia coefficient was examined to test multivariate normality among the variables. Raykov and Marcoulides (2008) emphasized that the number of variables in a model is a critical determinant for multivariate normal distribution and recommended computing the critical value using the formula p ×

(p + 2) (where p denotes the number of observed variables). Based on the number of observed variables in this study, the critical Mardia value was calculated as 960, whereas the empirical Mardia coefficient obtained from the data was 419.66. This indicates that the data exhibited multivariate normality and were therefore suitable for CFA. At this stage, certain modifications were made to the measurement model to ensure that the observed variables were conceptually and statistically consistent with the theoretical framework. In the CFA, a minimum factor loading threshold of .32 was adopted for the observed variables (Çapık, 2014). Observed variables that failed to significantly explain their corresponding latent variables in a hierarchical manner were excluded from the models.

Following the CFA, path analysis was conducted to examine the effects of external variables on the internal variables. In these analyses, standardized direct, indirect, and total effect values were calculated. To assess model fit in both CFA and path analysis, the following thresholds were adopted as critical values: $\chi^2/df \leq 3.00$, root mean square error of approximation (RMSEA) ≤ 0.08, standardized root mean square residual (SRMR) ≤ 0.08, comparative fit index (CFI) ≥ 0.90, and Tucker-Lewis index (TLI) ≥ 0.90 (Browne & Cudeck, 1993; Burak, 2023; Kline, 2011; Özdamar, 2016).

3. Results

3.1 CFA Results

In the initial analysis, the fit indices from the Confirmatory Factor Analysis (CFA) were found to fall outside the acceptable range ($\chi^2/df = 3.88$, CFI = .73, TLI = .72, SRMR = .083, RMSEA = .072). Items representing external variables in the hypothesized model that yielded non-significant factor loadings were gradually removed from the model. During this simplification process, 15 items with non-significant loadings were removed. Following this step, the factor loadings of the remaining items defining the external variables ranged between .36 and .70. However, the fit indices obtained from this reduced model were still outside the acceptable thresholds ($\chi^2/df = 2.99$, CFI = .85, TLI = .84, SRMR = .066, RMSEA = .056).

Subsequently, the model modification indices were examined, and modifications deemed theoretically justified were implemented. After these modifications, the resulting model demonstrated fit indices that fell within acceptable limits ($\chi^2/df = 2.60$, CFI = .91, TLI = .90, SRMR = .055, and RMSEA = .045). The standardized path coefficients derived from the final CFA model are presented in Fig. 2, and the standardized direct, indirect, and total effects of the external variables on the internal variables are reported in Table 1.

3.2 Path Analysis Results

Following the attainment of an acceptable model fit in the confirmatory factor analysis (see CFA section), the hypothesized model was tested using path analysis. Within this framework, the effects of post-earthquake life perception on the mediating variables fathers' view of the child, fathering practices, social capital, and societal expectations of fathers were examined. Additionally, both the direct and indirect predictive relationships between post-earthquake life perception and the three dimensions of father involvement (primary care, attention and closeness, and arbitrary occupation) were tested. Standardized coefficients were reported in all analyses, and statistical significance was evaluated at $p < .001$. The findings of the analysis are presented in Table 1.

Table 1
Standardized Direct, Indirect, and Total Effect Values of Exogenous Variables on Endogenous Variables

Endogenous Variables	Effect	Fathers' View of the Child	Paternal Approach	Societal Expectations of Fathers	Social Capital	Primary Care	Attention and Closeness	Arbitrary Occupation
Post-Earthquake Life Perception	Direct	.80	.18	.17	.26	-	-	.26
	Indirect	-	.55	-	-	.37	.66	.71
	Total	.80	.73	.17	.26	.37	.66	.45
Fathers' View of the Child	Direct	-	.69	-	-	.97	.76	1.31
	Indirect	-	-	-	-	− .44	-	− .45
	Total	-	.69	-	-	.53	.76	.86
Paternal Approach	Direct	-	-	-	-	− .65	-	− .64
	Indirect	-	-	-	-	-	-	-
	Total	-	-	-	-	− .65	-	− .64
Societal Expectations of Fathers	Direct	-	-	-	-	-	-	-
	Indirect	-	-	-	-	-	-	-
	Total	-	-	-	-	-	-	-
Social Capital	Direct	-	-	-	-	.28	.23	.48
	Indirect	-	-	-	-	-	-	-
	Total	-	-	-	-	.28	.23	.48

Post-Earthquake Life Perception

Post-earthquake life perception had a direct, significant, and positive effect on arbitrary occupation ($\beta = 0.26$, $p < .001$). However, no significant direct effects were identified for primary care, attention and closeness. Additionally, post-earthquake life perception exhibited significant positive effects on societal expectations of fathers ($\beta = 0.17$, $p < .001$), social capital ($\beta = 0.26$, $p < .001$), fathers' view of the child ($\beta = 0.80$, $p < .001$), and fathering practices ($\beta = 0.18$, $p < .001$).

Moreover, post-earthquake life perception had significant and positive indirect effects on primary care ($\beta = 0.37$, $p < .001$), attention and closeness ($\beta = 0.66$, $p < .001$), arbitrary occupation ($\beta = 0.71$, $p < .001$), and fathering practices ($\beta = 0.55$, $p < .001$). Consequently, the total (direct and indirect) effects of post-earthquake life perception were also significant and positive for primary care ($\beta = 0.37$, $p < .001$), attention and closeness ($\beta = 0.66$, $p < .001$), arbitrary occupation ($\beta = 0.45$, $p < .001$), and fathering practices ($\beta = 0.73$, $p < .001$).

Fathers' View of the Child

Fathers' view of the child had a direct, significant, and positive effect on the following: fathering practices ($\beta = 0.69$, $p < .001$), primary care ($\beta = 0.97$, $p < .001$), attention and closeness ($\beta = 0.76$, $p < .001$), and arbitrary occupation ($\beta = 1.31$, $p < .001$). Additionally, the fathers' view of the child exerted a significant and negative indirect effect on primary care ($\beta = -0.44$, $p < .001$) and arbitrary occupation ($\beta = -0.45$, $p < .001$) through the mediating role of fathering practices.

Therefore, the total effect of the fathers' view of the child on primary care (β = 0.53, p < .001), attention and closeness (β = 0.76, p < .001), and arbitrary occupation (β = 0.86, p < .001) was found to be significant and positive, considering both direct and indirect pathways.

Paternal Approach

Fathering practices had a direct, significant, and negative effect on primary care (β = − 0.65, p < .001) and arbitrary occupation (β = − 0.64, p < .001). However, no significant direct effects were observed for attention and closeness.

Social Capital

Social capital had a direct, significant, and positive effect on primary care (β = 0.28, p < .001), attention and closeness (β = 0.23, p < .001), and arbitrary occupation (β = 0.48, p < .001).

4. Discussion

This study aimed to examine how father involvement was affected in the aftermath of the earthquakes centered in Kahramanmaraş, Türkiye, on February 6, 2023. In this context, the study investigated how fathers' post-earthquake life perception, fathering practices, fathers' view of the child, social capital, and societal expectations of fathers, both directly and indirectly. According to the findings, post-earthquake life perception had a direct and significant effect on arbitrary occupation (a subdimension of father involvement), as well as on the fathers' view of the child, fathering practices, societal expectations of fathers. However, no significant direct effects were observed on the father involvement subdimensions of primary care, attention, and closeness. Nonetheless, post-earthquake life perception had significant indirect effects on these two dimensions.

The child's perception significantly affected both fathering practices and all subdimensions of father involvement. In contrast, societal expectations of fathers did not significantly predict any dimension of father involvement. Additional findings revealed that social capital had a significant effect on all subdimensions of father involvement, while fathering practices had significant effects on primary care and arbitrary occupation but not on attention and closeness. Moreover, child perception, fathering practices, and social capital served as significant mediators between post-earthquake life perception and father involvement subdimensions. Overall, the hypothesized model, derived from the existing literature, was supported by the data and yielded a meaningful framework for research.

According to the findings of the present study, post-earthquake life perception had a direct, significant, and positive effect on arbitrary occupation, a subdimension of father involvement. The literature reports varying results in this regard. For instance, Juth et al. (2015), in their study conducted following the 2006 earthquake in Indonesia, reported that the trauma caused by the disaster led to a decline in the quality of fathers' interactions with their children and contributed to emotional and behavioral issues. In contrast, the current study's findings —that post-earthquake life perception positively affects arbitrary occupations, which encompass interaction, shared experiences, and communication between fathers and children — are particularly striking. This suggests that fathers may have sought to spend more time with their children in response to post-disaster life conditions. Similarly, Hafstad et al. (2012) found that following the 2004 tsunami in Southeast Asia, Norwegian families reported a tendency to spend more time with their children than they had prior to the disaster. This finding aligns with the positive effect observed in the arbitrary occupation dimension in this study. It is important to consider contextual changes when interpreting this outcome. It would be reductive to attribute the increase in father–child time solely to socioemotional transformation. The current study was conducted with fathers residing in container settlements, where altered living conditions, such as increased need for safety, reduced working hours, and confined social spaces, may have contributed to fathers' greater involvement in daily interactions with their children. However, the findings also indicated that post-earthquake

life perception did not have a significant direct effect on the other two subdimensions of father involvement: primary care and attention and closeness. Data were collected from fathers with children aged 3–6 years and a spouse. This developmental stage is characterized by heightened physical (e.g., feeding and hygiene) and socio-emotional needs, which typically fall under the domains of primary care, attention, and closeness. In this context, a study by Arslan and Demircioğlu (2024), conducted independently of any disaster, found no significant differences in primary care or attention and closeness based on the child's age or paternal employment status. However, they reported a significant increase in primary care as fathers' educational levels rose. Taken together, these findings suggest that fathers' roles in primary care, attention, and closeness may not have undergone substantial change after the earthquake. Despite the structural changes brought on by container living, such as increased time spent at home due to unemployment and reduced opportunities for broader social interaction, the provision of physical and socio-emotional care may still be largely assumed by mothers.

According to the findings of the study, post-earthquake life perception had a direct, significant, and positive effect on the fathers' view of the child. In this study, the fathers' view of the child was conceptualized as a construct distinguishing between protective and autonomy-oriented (libertarian) fatherhood profiles. Accordingly, it may be inferred that post-earthquake life perception led fathers to adopt a more protective orientation toward their children than mothers. Existing research suggests that, in disaster contexts, parents tend to assume more protective roles (Hafstad et al., 2012; Tekin Babuç & Gökçe, 2024). Supporting this, Tekin Babuç and Gökçe (2024) reported statements from earthquake-affected fathers in Türkiye indicating that they had become more protective than in the pre-disaster period. Thus, the existing literature supports the findings of this study. However, more empirical evidence is required to fully explain this phenomenon. The destructive impact of the earthquake, the sense of insecurity within the unfamiliar environment of container settlements, and psychological factors such as fear of separation or loss may all contribute to the development of a heightened protective stance among residents. However, it is well established that such hyper-protectiveness constitutes a significant risk factor for the development and future well-being of children, especially those in a critical developmental stage. Numerous studies have underscored that overly protective fathering can adversely affect children's psychological health (Bruyster & Pilkington, 2023; Choirunnisa et al., 2025; Li et al., 2024; Urone et al., 2024).

The present study found a strong and statistically significant effect of post-earthquake life perception on the fathers' view of the child. This makes the findings particularly noteworthy in terms of post-disaster father–child relationships. Although assuming a protective role may appear beneficial during acute crisis phases, the findings further show that the fathers' view of the child serves as a significant mediating variable between post-earthquake life perception and all subdimensions of father involvement. It is important not to overlook previous studies emphasizing that mothers are typically regarded as the primary caregivers responsible for children's physical and emotional needs (Mother Child Education Foundation [AÇEV], 2017; Zimmermann et al., 2022). For example, in a nationwide study involving 3,235 fathers selected through random sampling across 51 of Türkiye's 81 provinces, AÇEV (2017) reported that 91% of fathers stated that mothers were primarily responsible for their children's basic care. Therefore, the observed shift toward a more protective fathering identity in the post-disaster period may reflect a broader movement in which fathers begin to share caregiving responsibilities that were previously attributed almost exclusively to mothers in the pre-disaster period.

Another key finding of this study was that post-earthquake life perception had a significant and positive effect on fathering practices. In the present study, fathering practices were defined and measured in terms of their alignment with either modern or traditional fatherhood profiles. The traditional father is typically characterized not by emotional bonding with the child but rather by authority and economic responsibility. In this model, the father provides for the

family but remains distant from caregiving (Lamb, 2000; Lewis & Lamb, 2003; Pleck, 2010). Within this framework, it may be inferred that post-earthquake life perception reinforced a more traditional paternal typology among fathers.

Furthermore, the findings showed that post-earthquake life perception influenced fathering practices both directly and indirectly through the fathers' view of the child with the latter serving as a significant mediating variable. These results suggest that the shift toward a more protective paternal identity in fathers' perception of their children may facilitate the dominance of traditional fatherhood profiles. The literature highlights a significant and meaningful relationship between protective fatherhood and embodying traditional paternal roles (Zimmermann et al., 2022; Sak et al., 2024). Thus, the mediating role of the fathers' view of the child in the relationship between post-earthquake life perception and fathering practices is consistent with prior research. Finally, the study found that fathering practices had a significant and negative effect on two subdimensions of father involvement: primary care and arbitrary occupation. This outcome can be attributed to the behavioral patterns associated with traditional fatherhood. Indeed, traditional fathers tend to engage with their children through roles centered on authority and financial provision rather than through acts of caregiving or emotional closeness.

Another key finding of this study indicates that post-earthquake life perception has a significant and positive effect on social capital. Social capital is defined as the sum of actual or potential resources linked to a durable network of institutionalized relationships based on mutual acquaintance and recognition (Bourdieu 1980). In the present study, social capital was conceptualized in relation to the father's pursuit of social support for the child's future. Within this framework, it can be suggested that post-earthquake life perception positively influenced fathers' search for social support. This effect may be partly attributed to the experience of living in container settlements after the disaster. These settlements bring together individuals who have endured the same catastrophic event and have often lost much of their economic and familial capital, creating a context of shared fate and mutual dependence. Moreover, previous research has reported that the search for social capital tends to intensify during post-disaster recovery phases, with increases in mutual assistance and community solidarity following events such as earthquakes, typhoons, and floods (Aldrich, 2012; Hsueh, 2019; Xiong & Li, 2024). For example, Aldrich (2012) examined the aftermath of the 1923 Tokyo Earthquake, 1995 Kobe Earthquake, 2004 Indian Ocean Tsunami, and Hurricane Katrina in 2005, reporting that families' efforts to rebuild their social networks intensified during these crises. Similarly, Shahid et al. (2022) highlighted the increased search for social capital following the 2015 Nepal Earthquake and emphasized its role as a more potent source of resilience than financial capital in post-crisis contexts. Thus, the finding that post-earthquake life perception positively influences social capital is consistent with previous research. Furthermore, in the current study, social capital was found to serve as a significant and positive mediator between post-earthquake life perception and all dimensions of father involvement. In other words, the search for social capital appears to enhance father involvement, suggesting that fathers' pursuit of social recovery may lead to more engaged and less constrained forms of fathering.

Another finding of this study indicated that post-earthquake life perception had a significant and positive effect on societal expectations of fathers. In the present study, this construct was defined in relation to the father's sensitivity to his surrounding environment in the child-rearing process, with the environment conceptualized as encompassing networks such as extended family, kinship, and neighborhood relationships. Based on this framework, it may be inferred that, in the aftermath of the earthquake, fathers became more responsive to societal expectations in raising their children. However, despite this direct effect, the findings also revealed that societal expectations of fathers did not serve as a significant mediating variable between post-earthquake life perception and any of the subdimensions of father involvement. Moreover, no significant effect was found between societal expectations and social capital.

The literature suggests that societal expectations of fathers may shift following disasters, and that such events can act as a catalyst for change. Several studies have emphasized that supportive environmental attitudes may promote greater father involvement (Peek et al., 2021; Sevim, 2024). In a study involving families affected by the same

earthquakes explored in this research, Sevim (2024) found that inclusive or exclusionary attitudes within the community significantly influenced fathers' involvement. Accordingly, the finding that post-earthquake life perception significantly affects societal expectations aligns with prior research. Nevertheless, while the literature suggests that increased societal expectations can positively impact father involvement, this association was not supported by the findings of this study. As previously discussed, fathering practices in the aftermath of the earthquake tended to shift toward a more traditional profile, facilitated by the emergence of a more protective paternal identity. Therefore, it can be argued that societal expectations in this context may have contributed not to higher levels of father involvement per se but rather to the reinforcement of traditional paternal roles and protective fatherhood identities. In this sense, societal expectations may exert their influence more on the structuring of paternal roles than on the frequency or quality of father's involvement.

5. Limitations and Recommendations

This study is of considerable importance in terms of its timing, context in which it was conducted, characteristics of the sample, and nature of the findings. However, several limitations should be noted when considering the generalizability and interpretability of these results.

First, the study was conducted with fathers residing in container settlements who had children aged 3–6 years and had not experienced the loss of a spouse or child. Therefore, the findings should be interpreted with caution and are only partially generalizable to other populations. Second, structural factors that have been identified in the literature as influential in shaping father involvement, such as fathers' educational attainment, number of children, gender of their children, age, length of marriage, and income level, were not examined in this study. Moreover, the research assumes that the participating fathers maintained a stable psychological condition despite the trauma of experiencing a major earthquake. As such, the study carries the risk of a homogeneous father profile, and future research should test the measurement invariance of the proposed model across different paternal characteristics. Third, the study was cross-sectional in nature. Thus, causal relationships among the variables cannot be established, as no conclusions can be drawn regarding the temporal progression or changes in the identified constructs. Future research may benefit from testing alternative models using longitudinal designs to better assess the causality.

Fourth, while the proposed model explains a substantial portion of the variance in the father involvement subdimensions (on average 52%), a significant proportion remains unexplained. This suggests the need to incorporate additional variables into future studies. Fifth, all the data in this study were collected through self-reports. Therefore, the results are subject to potential response bias inherent in self-reported data. Based on the findings of this study, the following recommendations can be made for practice and future research.

- In light of the emergence of protective and traditional fatherhood tendencies following the earthquake, psychoeducational programs should be developed -particularly for post-disaster contexts – to promote more effective and healthier father involvement with children.
- Considering the positive effect of social capital on father involvement, father-focused social support networks and solidarity groups should be established within the container settlements.
- Given the constraining influence of societal expectations favoring traditional paternal roles, community-based awareness campaigns should be implemented to engage neighborhoods, kinship networks, and broader social environments.
- Longitudinal research designs should be employed to uncover causal relationships among variables and track changes in father involvement over time in post-disaster contexts.

- The model developed in this study, grounded in the Turkish context, should be tested in other cultural settings that have experienced similar disasters to examine the role of cultural factors.
- To better understand the relationship between protective and traditional fatherhood roles, future research may employ advanced analytical techniques, such as Latent Profile Analysis (LPA), in addition to structural equation modeling, to identify distinct subgroups of fathers.

6. Conclusion

The findings of this study reveal that fatherhood roles undergo significant transformations in the aftermath of disasters. Post-earthquake life perception meaningfully shaped fathers' modes of spending time with their children, their protective orientations, and their pursuit of social capital. In particular, the increase in time spent in arbitrary occupations reflects a deep internal transformation triggered by the disaster. However, it was also observed that fathers' involvement remained limited in domains such as primary care and attention and closeness—areas traditionally attributed to mothers.

The shift toward a protective paternal identity and the reassertion of traditional roles underscore how post-disaster psychosocial conditions can influence gendered caregiving patterns. One of the most striking findings of this study is that social capital functions not only as a facilitator of fathers' social recovery but also as a transformative force in shaping their sense of responsibility toward their children. Taken together, these results suggest that father involvement during crises is shaped not only by individual-level factors but also by broader cultural and structural dynamics. This underscores the necessity of rethinking fatherhood in the context of collective trauma and social reconstruction.

Declarations

Ethical Approval

This study was conducted in accordance with the ethical standards of the institutional and national research committees and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. Ethical approval for this research was obtained from the Kilis 7 Aralık University Ethics Committee.

Approval body: Kilis 7 Aralık University Ethics Committee

Approval number: *09*

Approval date: *13 October 2023*

Scope of approval: The committee reviewed and approved the study titled *"Improving Father Involvement After the Earthquake: The Case of Hatay and Kahramanmaraş"*, which forms the ethical basis of the present research conducted with fathers of 3–6-year-old children living in post-earthquake container settlements.

Local ethics confirmation: Approval was granted by a local ethics committee located in the region where the study was conducted (Türkiye).

Additional permission: Written permission to conduct face-to-face survey data collection in AFAD-managed container cities in Hatay and Kahramanmaraş was obtained from the relevant provincial AFAD authorities.

Document language: The original ethics approval and AFAD authorization documents are in Turkish; the authors provide this statement to confirm the validity and scope of the approvals.

Informed Consent

Informed consent was obtained from all participants involved in the study. Participation was voluntary, and no compensation was provided. All participants were fully informed about the aim of the research, the procedures, their right to withdraw at any time, and the confidentiality of their responses.

How consent was obtained:
Written informed consent was obtained using a consent form approved by the Kilis 7 Aralık University Ethics Committee.
Additionally, when necessary, oral confirmation of consent was obtained to ensure full comprehension, in accordance with the approved consent workflow. No audio or video recordings were made.

Type of data collected:
The study involved only face-to-face, paper-based questionnaire data collection.
No voice recordings, no photographs, and no digital recordings of any kind were taken.

When consent was obtained:
During the data collection period in *November* 2024 in Hatay and Kahramanmaraş container cities.

By whom consent was obtained:
By trained members of the research team responsible for field data collection.

From whom consent was obtained:
Fathers of 3–6-year-old children residing in AFAD-managed post-earthquake container settlements.

Scope of consent:
Participation in the survey, anonymous use of the data for academic research, and publication of aggregated, non-identifiable results.

Vulnerability considerations:
As participants were affected by the February 2023 earthquakes, special care was taken to ensure that consent was voluntary, well understood, and free of any pressure.
No identifying information was collected, and anonymity was fully guaranteed.

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Figures

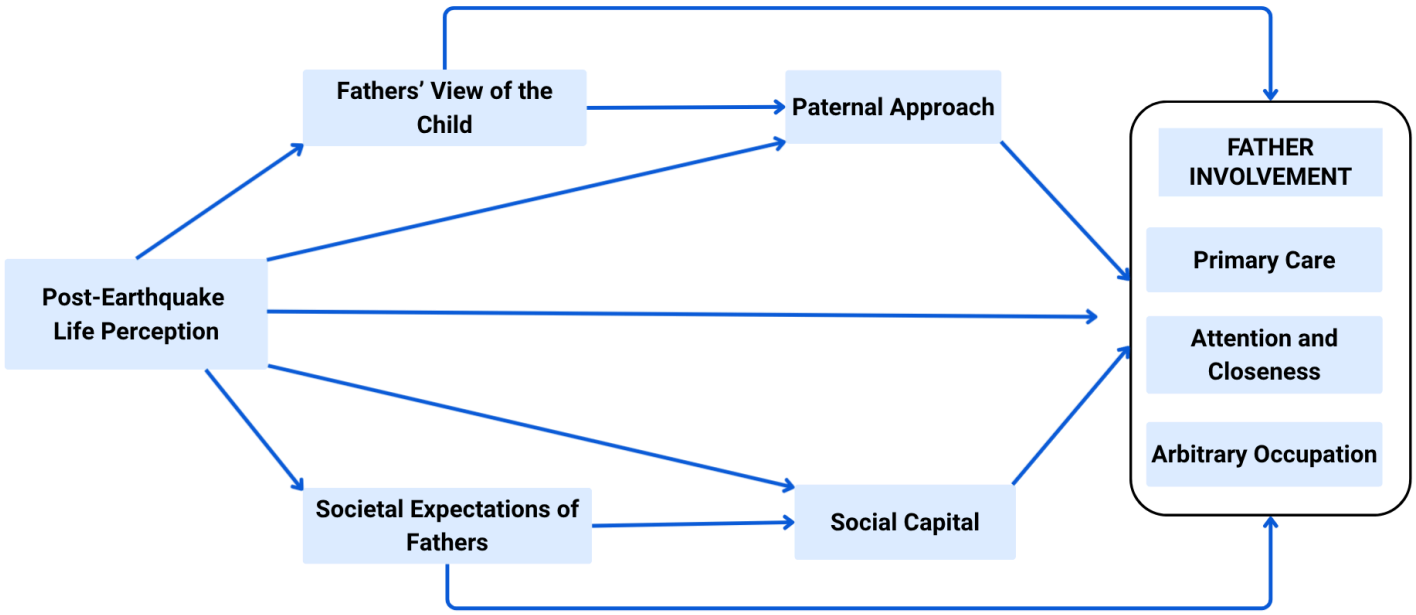


Figure 1

Hypothesized Model

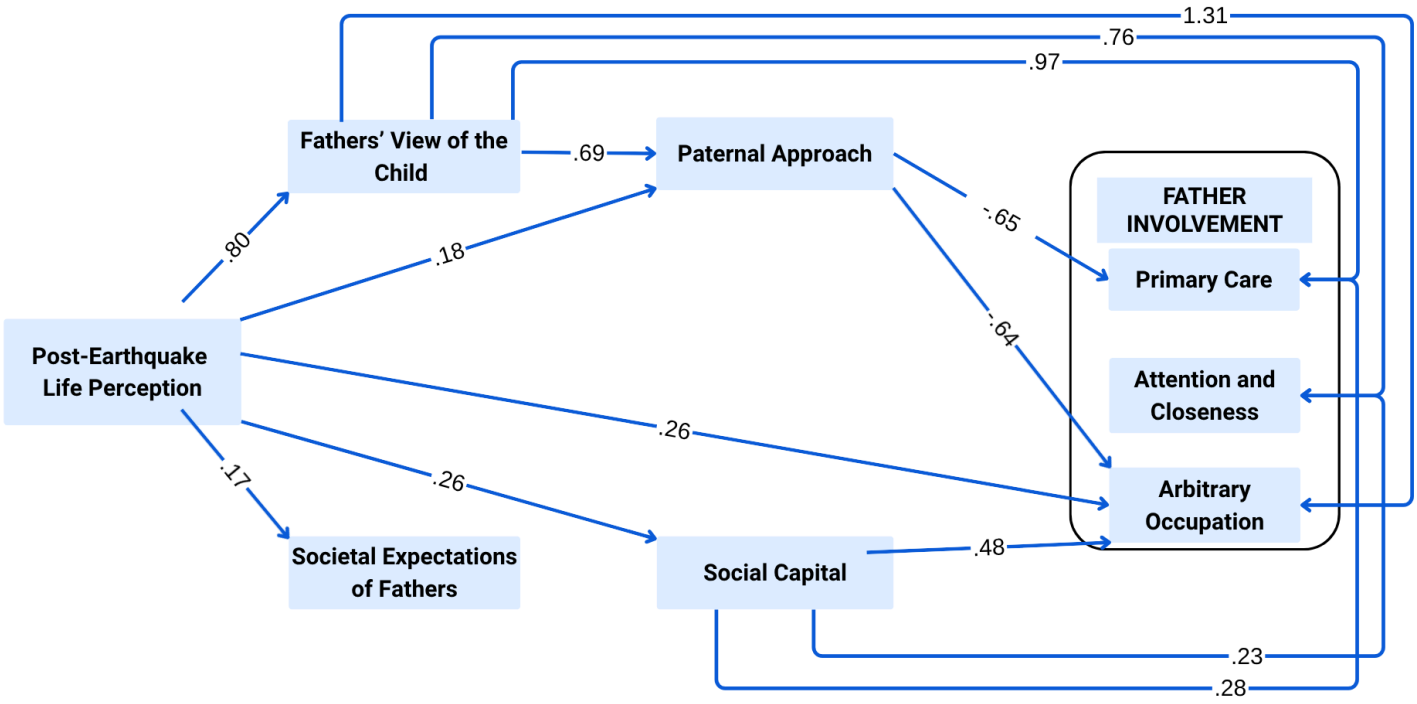


Figure 2

Standardized Path Coefficients