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Biopsychosocial and behavioural effects of earthquake on infant and children, and intervention methods

Depremin bebek ve çocuklar üzerine biyopsikososyal ve davranışsal etkileri ile müdahale yöntemleri

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ABSTRACT

Earthquake is one of the important natural disasters that negatively affect infant and child health in biopsychosocial aspects. Considering the developmental processes of children, they are more likely to experience post-traumatic psychological problems than adults. The aim of this review is to examine the biopsychosocial and behavioural effects of the earthquake on infant and children and the intervention methods in the literature. Psychosocial and behavioural problems such as fear, anxiety, depression, post-traumatic stress disorder, addiction, panic attacks, eating and sleeping problems, attention deficit are frequently observed in infant and children during and after the earthquake. When psychosocial intervention methods to reduce these problems are examined, it is reported in the literature that intervention methods such as accelerating the adaptation process, providing psychosocial support, providing treatment and rehabilitation services, providing needs analysis and needs quickly and regularly, play therapy, painting therapy, mindfulness-based child and family education, yoga and cognitive behavioural therapy are effective.

Anahtar Kelimeler: Child; disaster; earthquake; infant

ÖZET

Deprem bebek ve çocuk sağlığını biyo-psikososyal yönden olumsuz etkileyen önemli doğal afetlerden biridir. Çocukların gelişimsel süreçleri göz önüne alındığında yetişkinlere göre travma sonrası psikolojik problemler yaşama ihtimali daha yüksektir. Bu derlemenin amacı depremin bebek ve çocuklar üzerindeki psikososyal ve davranışsal etkileri ile bunlara yönelik literatürde yer alan müdahale yöntemlerini incelemektir. Deprem süreci ve sonrasında çocuklarda korku, anksiyete, depresyon, travma sonrası stres bozukluğu, bağımlılık, panik atak, yeme ve uyku problemleri, dikkat eksikliği gibi psikososyal ve davranışsal problemler sıklıkla görülmektedir. Bu problemleri azaltmaya yönelik psikososyal müdahale yöntemleri incelendiğinde adaptasyon sürecinin hızlandırılması, psikososyal desteğin sağlanması, tedavi ve rehabilitasyon hizmetlerinin sağlanması, ihtiyaç analizi ve ihtiyaçların hızlı ve düzenli şekilde sağlanması, oyun terapisi, resim terapisi, bilinçli farkındalık temelli çocuk ve aile eğitimi, yoga ve bilişsel davranışçı terapi gibi müdahale yöntemlerinin literatürde etkili olduğu bildirilmektedir.

Keywords: Çocuk; afet; deprem; bebek

Introduction

Disasters are natural events that disrupt the life order of the society, increase the need for external assistance by exceeding the adaptation capacity of individuals, and result in loss of body and property (Mutch, 2013; Norris et al., 2002). Natural disasters affect individuals of all ages with their biological, psychological, social and economic aspects. Negative changes occur in the environmental and mental structure of the individual due to material and moral destruction and losses after the disaster. Earthquake is the most common type of disaster among natural disasters (Alipour & Ahmadi, 2020; Pan et al., 2015; Taş, 2003). When the most important effects of the earthquake, which starts with environmental destruction and then causes psychological destruction, are examined, it leads to an increase in problems such as loss of individuals, change of living conditions, disruption of the existing order of the individual, difficulty in

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adaptation to the process, and this situation causes psychosocial problems such as anxiety and depression (Taş, 2003).

Earthquakes occurring in our country and in the world have caused the loss, injury, disability and homelessness of many individuals and the loss of family and/or close relatives. In survivors, intense stress as a result of exposure to trauma caused an increase in psychological problems such as post-traumatic stress disorder (PTSD), anxiety and depression (Ataç & Özsever, 2021; Alipour & Ahmadi, 2020; Fu et al., 2013; Tanhan & Mukba, 2015). Psychopathological risk factors for individuals affected by the earthquake include age (Ataç & Özsever, 2021; Fu et al., 2013), female gender (Yokoyama et al., 2014), loss of life of a family member or family member (Laor et al., 2002), presence-severity of health problems and cost of health problems (Yokoyama et al., 2014; Norris et al., 2002). In addition, exposure to trauma or severe injuries during the earthquake (Carr et al., 1997), proximity of the place of residence to the epicenter or region of the earthquake (Goenjian et al., 1994), death or severe injury of one or more family members, severe damage to the house or place of residence, economic loss, lack of psychological-social support (Dell et al., 2011; Zhang et al., 2011).

Considering their biopsychosocial developmental processes, infant and children are more likely to experience post-traumatic psychological problems than adults (Ataç & Özsezer, 2021; Tanaka et al., 2016). During and after the earthquake, infant and children may show different cognitive, behavioural and emotional reactions due to differences in their developmental periods. Gender, educational status, developmental characteristics specific to age periods, presence of psychological trauma, medical history, loss of caregivers during and/or after the disaster, delayed social support are important factors determining the effects of the earthquake on infant and children (Oğuzhan, 2023; Wang et al., 2023). Infant and children affected by earthquakes often experience extreme stress as a result of withdrawal, injury, suffering or witnessing the death of individuals (Ekşi et al., 2008). In addition, as a result of the cognitive, affective and behavioural negative effects of the earthquake, symptoms such as bedwetting or finger sucking problems in young age groups, leaving or moving away from the place of residence, losing loved ones or friends, pessimistic feelings and thoughts about the future, hopelessness and loneliness, decreased sense of trust, and introversion often occur in infant and children in the face of the unexpected situation (Tanhan & Mukba, 2015; Mutch, 2013).

Behavioural changes seen in infant and children after the earthquake according to developmental periods

Although earthquakes cause biopsychosocial and behavioral problems in individuals in general, the effects of earthquakes on infant and child health differ especially when examined according to development and age ranges. The effects of the earthquake on infants and children are given below according to their developmental stages and age ranges:

Infancy (0-1 years) period; even if the infants in this period are not directly affected by disasters except for physical injury or disability, the state of anxiety in parents negatively affects the sense of trust of infants. In addition, there is a change in the breastfeeding process specific to this developmental period, a decrease in breastfeeding frequency, a decrease in breast milk due to negative psychosocial effects on the mother, and a negative impact on the breastfeeding process. Susceptibility to infection and a decrease in the baby's weight gain may be observed due to unhygienic storage of breast milk. Problems such as changes in the baby's sleep habits, loss of eating and drinking patterns, and frequent crying spells can also be seen (Özkan & Kutun, 2021; Karabulut & Bekler, 2019; Limoncu & Atmaca, 2018).

Play age (2-5 years) period; children in this period may frequently experience fear, anxiety, confusion, fear of losing a parent or a favourite item, and insecurity. In addition, playing games reminding the losses

experienced as a result of natural disasters, constantly telling what happened, asking questions about the disaster, hyperactivity, sleep problems, crying spells, finger sucking, difficulty in speaking, stress-related health problems may occur. (Özkan & Kutun, 2021; Karabulut & Bekler, 2019; Limoncu & Atmaca, 2018).

School age (6-11 years) period; children in this period may experience loss of trust in adults as a result of seeing that adults are vulnerable to disasters; disobedience to parents or excessive attachment behaviours may be observed; psychological problems, attention deficit, sleeping and eating problems may be observed as a result of loss of friends or separation from them; fear of encountering the disaster again when separated from their family, situations such as not attending school may occur (Özkan & Kutun, 2021; Karabulut & Bekler, 2019; Limoncu & Atmaca, 2018).

Adolescence period (12-18 years); while the individual experiences biological, psychological and social changes specific to this period, he/she may have difficulty in adapting to the new process due to earthquake. As a result of deterioration in living conditions and environmental order, sleep problems, substance abuse may be observed (Özkan & Kutun, 2021; Karabulut & Bekler, 2019; Limoncu & Atmaca, 2018). In addition, symptoms such as eating and drinking disorders, ineffective use of time, impaired attention and concentration, and decreased school success, especially in adolescence, are amon the behavioral symptoms seen after the earthquake (Kipay, 2023; Özkan & Kutun, 2021; Karabulut & Bekler, 2019; Limoncu & Atmaca, 2018; Takeda et al., 2013). It is reported that the earthquake increased the incidence of posttraumatic stress disorder, premenstrual syndrome and premenstrual dysphoric disorder in adolescent girls and caused menstrual irregularities (Takeda et al., 2013; Kipay, 2023). It is stated that after the earthquake, girls have difficulties in accessing the most basic needs of girls such as bathroom and toilet, underwear, sanitary napkins/pads, living in unhygienic conditions and this situation has a negative impact on reproductive health (Takeda et al., 2013; Lebni et al., 2020; Kipay, 2023).

Psychosocial problems seen in infant and children during and after the earthquake

Fear of re-encountering the earthquake, fear of staying indoors, fear of separation from parents are common in infant and children during and after the earthquake, while fear of death is common in adolescents (Latuperissa, Rumaolat, Susanti & Soulissa, 2020; Wang et al., 2020; Raccanello et al., 2017). It is also reported that fear causes an increase in other psychosocial problems (PTSD, anxiety, depression, etc.) and somatic symptoms (weakness, nausea, sleep problems, etc.) (Wang et al., 2020).

In infant and children who experience a traumatic situation such as an earthquake, various psychological problems can be seen at different times with destructive effects. As in adults, the most common long-term effect after the earthquake in infant and children is post-traumatic stress disorder (PTSD), and the continuous reactions of individuals to stress in the post-earthquake process increase the risk of PTSD. Symptoms such as inability to enjoy life, rejection, exclusion, negative thoughts, anger, impulsivity, self-harm may occur (Alipour & Ahmadi, 2020; Pan et al., 2015; Lai et al., 2013).

Anxiety is one of the most common problems in children after earthquake. Studies have reported that post-earthquake anxiety symptoms are high in children and adolescents and that symptoms are associated with gender, age, cultural differences and exposure to earthquake (Xu et al., 2012; Berkem & Bildik, 2001). After the 1999 Marmara earthquake, psychological problems such as communication and externalizing disorders were reported in pediatric patients admitted to child psychiatry outpatient clinics (Berkem & Bildik, 2001). In 2008, in a study conducted with children aged 7-15 years (n=21652) 1 year after the earthquake in Wenchuan, China, with a magnitude of 8.0 on the Richter scale, the prevalence rate of anxiety symptoms was 18.9%; it was stated that anxiety symptoms were associated with gender, age, cultural differences and exposure to earthquake (Xu et al., 2012).

The risk of developing depression in children increases as a result of being injured in an earthquake, witnessing the death of someone, losing a family member, overreaction of parents to the situation (Latuperissa et al., 2020). It was reported that the prevalence of depression in children and adolescents was 46.2% 2.5 years after the earthquake in Haiti in 2010 (Sharma & Kar, 2019), and the prevalence of depression in adolescents was 38.1% after the earthquake in Nepal in 2015 (Cenat & Derivois, 2014).

Another problem frequently encountered in children and adolescents after the earthquake is addiction. As a long-term effect, an increase in smoking, internet and drug addiction can be observed; It is reported that situations such as social isolation, loneliness, and loss after an earthquake increase the tendency to use drugs (Yang, Wu, Qi & Zhou, 2020; Sharifian, Roholamini & Mossavi, 2019; Dağlı, Tunalı Çokluk, Sert & Yüksel, 2018). As a result of deterioration in living conditions and environmental order feelings of guilt, risk of self-harm, loneliness, withdrawal from society, lack of self-confidence, depressive symptoms may be observed (Özkan & Kutun, 2021; Karabulut & Bekler, 2019; Limoncu & Atmaca, 2018).

It is reported that an increase in psychological and behavioural problems such as panic attacks, dissociative syndrome, eating and sleep problems can be seen in children and adolescents after the earthquake as long-term effects of the earthquake (Ceyhan & Ceyhan, 2006; Ekşi et al., 2008). In a study in which behavioural/emotional problems of preschool children were compared according to earthquake exposure, it was reported that somatic and attention problems increased in those exposed to earthquake; it was also reported that somatic problems were more common in boys and attention problems were more common in girls according to gender (Erkan, 2010).

Psychosocial interventions

Accelerating the adaptation process, psychosocial support given to individuals after the earthquake aims to prevent psychological disorders that may occur after trauma. For this reason, it is important in terms of facilitating the adaptation process of individuals to the conditions they are in and accelerating the normalisation process (Ataç & Özsezer, 2021).

Providing social support after the earthquake plays an important role in reducing psychosocial problems (Latuperissa et al., 2020). Reorganising and improving the relationships that existed before the earthquake in the family and society, empowering individuals affected by trauma to return to life, increasing their coping skills in emergency and disaster situations that may occur will ensure that the process is overcome with the least damage (Ataç & Özsezer, 2021; Latuperissa et al., 2020).

It is important to start psychological support immediately after the earthquake in order to identify individuals who pose a potential risk in terms of psychosocial problems or to identify individuals with psychosocial problems and to ensure the continuation of treatment and rehabilitation services. In addition, the use of psychosocial support methods by social workers and non-governmental organisations in the process of restructuring the society after the disaster, providing new skills to individuals adversely affected by the disaster through education and social activities, providing individual psychological counselling services, and referring individuals with psychiatric disorders to relevant institutions or clinics are among the recommended psychological support practices (Ataç & Özsezer, 2021; Latuperissa et al., 2020).

One of the most important and prioritized practices after an earthquake is psychological first aid. Psychological first aid (PFH) is a humanitarian, supportive and practical intervention provided to people in need of support and assistance during and early after serious crisis events. (Movahed, Khaleghi-Nekou, Alvani & Sharif-Alhoseini, 2022; Demircioğlu, Şeker & Aker, 2019). There are three basic principles of action: watch, listen and connect. The Watch principle involves examining the environment in which the incident occurred and ensuring the safety of people with urgent needs who may have experienced a severe stress response. The Listen principle enables listening to people in need of support and reducing their

concerns, fears and needs. The connect principle involves ensuring that people have access to services and people within their core needs (Özkan & Çetinkaya, 2021; Demircioğlu et al., 2019). Research shows that psychological first aid reduces psychosocial problems that occur in many crisis situations and is useful in long-term recovery (Movahed et al., 2022; Özkan & Çetinkaya, 2021; Demircioğlu et al., 2019). Therefore, it is seen that psychological first aid to be given to infants, children, adolescents and their parents after the earthquake is an urgent and important practice in order to prevent possible problems that may be seen after the earthquake.

Conducting needs analyses in the earthquake region in a fast and regular manner is very important in meeting the psychological, social and physical needs of the earthquake victims in a very short time. With the psychological support provided after the earthquake, it will be useful in preventing psychological disorders that may arise in the future of the earthquake victims who are supported by increasing the awareness of individuals (Ataç & Özsezer, 2021).

It is reported that painting, storytelling, storytelling or play therapies have significant effects in reducing psychosocial problems in order to enable children to communicate more through games and to express their feelings more easily by sharing stories with their peers who they think they share the same feelings after the earthquake (Triasari, Yusuf, Sestu Retno, Triyana & Abidin, 2020; Tanaka et al., 2020).

Mindfulness-based family education or stress reduction programmes for children and their parents have been reported to strengthen communication and have significant protective effects in individuals with psychosocial problems (Körükçü & Kukulu, 2015; Schonert-Reichl & Lawlor, 2010; Broderick & Metz, 2009).

Biomedical and psychosocial studies conducted in recent years on the clinical effectiveness of yoga for both adults and children have reported that yoga is particularly effective in reducing stress and improving mood, increases children's awareness, prevents distraction caused by emotional states such as anxiety and stress, reduces school absenteeism, helps children solve the problems they experience in daily life, supports motor skills, helps increase cognitive performance and is effective in the development of self-regulation skills (Peker & Olgan, 2022; Cohen et al., 2018; Pascoe & Bauer, 2015; Sharma, 2014).

When the studies on child and adolescent cognitive behavioural therapy training practices were examined, it was seen that children could participate in the therapy process and perform cognitive tasks when many abstract concepts in cognitive behavioural therapy were made concrete and explained with daily examples. In addition, although the functionality and effectiveness of cognitive behavioural therapy has been proven in studies conducted with children and adolescents with psychosocial diagnosis, it has also been reported to be effective in studies conducted with different cultural groups (Süler, 2017; Seligman & Ollendick, 2011; Ollendick et al., 2010).

Conclusion and Recommendations

Although the earthquake negatively affects individuals of all age groups biopsychosocially, it most frequently affects infant and children. Social, psychological and behavioural problems are common in infant and children after the earthquake due to exposure to trauma. The rapid implementation of post-traumatic protective, treatment and rehabilitative psychosocial intervention methods for these problems is also very important in terms of preventing the formation of potential problems in the developmental processes of infant and children.

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