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# Anxiety in quake-stricken children aged 3 to 7: A screening study in Sarpol- Zahab, Iran

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## Abstract

The present study is conducted to screen cases suspected to the anxiety in quake-stricken children aged 3-7 in Sarpol Zehab in 2017. The method was descriptive with screening design. Data was collected by Spence Preschool Anxiety Scale (PAS) from 499 mothers with children aged 3 to 7 in Sarpol Zahab city. Data was analyzed using descriptive statistics and SPSS-23 software. The study showed the overall point prevalence for anxiety as 0.47. The highest and lowest prevalence were related to the aspects of physical injury (52%) and separation anxiety (34.3%). In addition, comparing the two groups showed no significant differences in term of anxiety and its components between the two genders. the mean of anxiety prevalence among quake-stricken children was 47%, which was higher than the prevalence of anxiety disorder and its mean in the populations of the previous studies. Given the high effects of stressful events in childhood and the significance of children's mental health in natural disasters, such as quakes, the need for psychological interventions for accurate diagnosis and provision of psychological services to children and families are felt more than ever.

**Keywords**: Anxiety, Children, Earth quake, Sarpol Zahab.

## Introduction

The prevalence of anxiety in developing countries has upward trend (Khosravi, 2003). Natural disasters such as earthquakes are among the factors affecting anxiety and its intensification. Natural disasters can harm children in three ways, which usually are along with the long-term effects on children. Firstly, natural disasters can harm children's physical health. The child might be injured or killed; also, they might be harmed by issues like malnutrition caused by issued with food supply or diarrhea caused by contaminated water. Secondly, natural disasters can lead to mental health problems. Natural disasters are not only stressful and fearful, but also the children may suffer from the destruction of their homes and property, immigration, loss of the loved ones, seeing the parents under pressure, negligence and abuse, and the destruction of social networks. Thirdly, natural disasters might disrupt children's education and pull the children into forced labor to help the family in these difficult circumstances (Kousky, 2014).

Sarepol Zehab quake in Kermanshah was one of the most severe earthquakes in Iran's history that led to much psychological, physical, and economic damages and so forth. Given the age of children, their characteristics and their development and physical conditions, they suffer the most. Among the different stages of post-quake psychological responses, the phase of confrontation with reality occurs up to 3 months after the incident. At this stage, the individuals start to notice the extent of the induced damages and losses. The person loses his spirit again. People at this stage become depressed and anxious and feel extremely lonely (Yasemi et al., 2003). Among the common disorders after a natural disaster, such as quake, are anxiety disorders. Anxiety disorders are one of the most common types of children's psychopathology. The studies conducted by samples indicate that about 8% to 12% of the children have diagnostic criteria for some anxiety disorders that greatly disturb their daily performance (Anderson, 1987; Castello, Angold, Burns, Stangl ,Tweed & Erkanli). Another study has indicated that more than 20% of the people before 16 have anxiety clinical problems (Costello, Mastilio, Ercanli, Killer & Angoled, 2003). Anxiety disorders in children can manifest themselves in different forms like separation anxiety, social phobia, Generalized Anxiety Disorder (GAD), panic disorder with and without agoraphobia and specific phobia. Children's anxiety disorders are associated with a wide range of negative consequences in social, educational and personal fields (Spence, 1998). According to the conducted studies, the prevalence rate of each of these disorders, separately, are 3.5 to 12.9 for separation anxiety, 2.9 to 12.4 for GAD, 1.1 to 6.3 for social phobia, 3.5 to 9.2 for specific panic, 4.7 for panic disorder, and 0.3 to 1 for post-traumatic stress disorder (PTSD) (Chorpita, 2007). Many studies on the childhood anxiety disorder have focused on schoolchildren and adolescents whereas it is clear that their anxiety problems reveal at younger ages (Egger & Angold, 2006). Identifying these children was important not only for children with diagnostic criteria for anxiety disorders, but also for children diagnosed with sub-threshold symptoms, in whose cases early prevention and interference were possible (Rape, 2002). According to the epidemiological studies, it ranges from 11.9% to 30.2% in Iran, (Mohammadi, Davidian & Noorbala, 2005). A study on 52 children showed that the children who were prone for anxiety prior to storm, experienced more symptoms of PTSD and GAD. Younger children experienced more symptoms (Kousky, 2014).

Farhoudian, Sharifi & et al. (2006) found that 98% of the respondents to clinical interview faced a trauma in examining PTSD and its symptoms in Bam earthquake survivors. There were no significant differences in the prevalence of PTSD among women and men. While examining the effects of quakes on the behavior of 420 schoolchildren aged 6-12 years in the quake of Marmara Region, Turkey in 1999, Ak (2014) found significant effects on boys and girls and far more on boys and their daily activities. Symptoms of PTSD were much higher in girls than in boys. More than half of the children showed signs of fear by reminding quake.

Each child responds to the quake in a special way and their reactions are different (Margolin, Ramos & Guran, 2010). Some might show behavioral changes and some might show delayed signs regardless of what has happened (Erkan, 2009). Children may show symptoms of depression, anxiety, behavioral problems, and post-traumatic stress after a quake (Şahin, Batigün & Yilmaz, 2007; Giannopoulou, Dikaiakou & Yule, 2006).

The proportion of children with PTSD or diagnosis of different syndromes varies in different studies due to different factors like the nature and severity of the disaster, diagnostic criteria, cultural issues about the meaning of trauma, available support, and so on. Common psychiatric manifestations in children are acute stress disorder, adjustment disorder, depression, panic disorder, PTSD, specific childhood anxiety disorders and psychosis. In the first six months of Marmara quake, about 42% PTSD was reported (Sabuncuoğlu, Ebrinç & Çetin, 2000, Quoted from AK,2014). In another study, the prevalence of anxiety disorders has been reported to be 10% to 20% (Kendall 2010). Overall, in Iran, regardless of quake issues, the epidemiological studies in some provinces, such as Chaharmahali and Bakhtiari in 2001 have shown the prevalence of mental disorders as 16.42% and the prevalence of anxiety as 9.52% (Rahgozar, Bagherie-Yazdi, Masgarpoor, Nikfarjam &Raeesi 2004).

Symptoms of depression and anxiety are among the most common symptoms after natural disasters. Pre-school children may show signs of separation anxiety, stranger anxiety, fear of monsters and animals, and situation avoidance. The identification of GAD at early ages may be important, as for some psychiatric disorders started in childhood, they have shown a worse prognosis compared to that of adult adolescents. For instance, the onset of a childhood behavioral disorder (Silberger, Moore and Router, 2017) or schizophrenia (Immunen, Jaclinian, Corpela & Mitonen, 2017) predicts more frequent and harmful problems compared to that of adolescents or adults (Roberren, Adera & Stintrastaten, 2017). Epidemiology is studying the distribution, incidence, prevalence and duration of the disease; epidemiology helps understand the causes, treatment and prevention of mental illness (Kaplan, Saduk & Crepe, 1994). Given the above and the effects of anxiety in early years and adulthood on the one hand, as well as psychological effects of the quake, the study was conducted to screen suspected anxiety cases among quake-stricken children younger than 7 years in Sarpol Zahab , 2017.

## Methods

The statistical population was children aged 3-7 who were in SarpolZahab city at the time of the quake, data gathered *five months* after Kermanshah quake 2017 on pre-school

children of Sarpol Zahab. The descriptive findings showed that 51% of the sample (255) were boys and the 49% (245 subjects) were girls. Considering parents, 21% of mothers of these children were diploma or sub-diploma grade education, and the others were above diploma grade. In addition, 28% of fathers had sub-diploma and the rest had bachelors or higher degrees.

The study was a descriptive cross-sectional, firstly, after visiting the Welfare Organization of Sarpol Zahab and obtaining the necessary permits, I started collecting data. The questionnaire was implemented on 545 mothers of children, where 499 questionnaires were finally validated, as some of the questionnaires were incomplete and unintelligible. Moreover, given the residence of residents in the parks and public paths as well as the inaccessibility of the residents' names, purposive and convenient sampling methods were used. Data were analyzed using descriptive and inferential statistics with SPSS-23 software. Considering ethical issues, the mothers were assured about the confidentiality of the information while giving them some explanations and establishing good relationship with them.

***Spence (PAS):*** Spence PAS and clinical observations and evaluation were used to diagnose children's anxiety. The questionnaire was developed by Spence in 2001. It's validity and reliability reported desirable and good (Spence et al., 2003). This scale has 28 items and the parents are asked to rate them on a 5-point Likert scale (from 0 to 4) according to the frequency of their child's behavior. Of these 28 items, 5 are related to the generalized anxiety disorder (GAD), 6 to social phobia, 5 to obsessive compulsive disorder, 7 to fear of physical injury (as a particular panic), and finally 5 items related to separation anxiety disorder. Total score of anxiety is calculated using these six subscales. The cut off score of this tool is 34 and higher which needs to be clinically considered. In Iran, Ghanbari et al (2011) have confirmed this tool's reliability and validity.

## Results

The results of data analysis on anxiety and its components are provided below.

**Table 1** Descriptive information about anxiety and its components of the samples

| Variable | Gender | Frequency | Mean | SD |
|---|---|---|---|---|
| GAD | Male | 255 | 5.28 | 4.260 |
| | Female | 244 | 5.31 | 5.16 |
| Physical injury | Male | 255 | 11.46 | 5.79 |
| | Female | 244 | 11.36 | 6.44 |
| Separation anxiety | Male | 255 | 5.62 | 4.27 |
| | Female | 244 | 5.60 | 4.40 |
| Social anxiety | Male | 255 | 6.79 | 5.34 |
| | Female | 244 | 6.76 | 5.70 |
| Overall anxiety | Male | 255 | 32.25 | 17.39 |
| | Female | 244 | 32.47 | 19.69 |

Table 1 shows the descriptive information including mean and standard deviation of social anxiety, GAD, fear of physical injury and separation anxiety separately in boys and girls.

**Table 2** Frequency distribution of anxiety of the samples in terms of percentage and frequency

| Variable | Frequency | Percent |
|---|---|---|
| GAD | 193 | 0.38 |
| Social anxiety | 126 | 25.25 |
| Physical injury | 244 | 0.52 |
| Separation anxiety | 170 | 34.6 |
| Overall anxiety | 499 | 0.47 |

The results of Table 2 indicate that the overall anxiety outbreak was 47%, given the cutoff score of the tool among the quake-stricken children in Sarpol Zahab. The prevalence of GAD was 0.38 and social phobia 25.25. Other results showed that the highest and lowest prevalence were related to physical injury (52%) and separation anxiety (34%).

The sub-results on the comparison of two genders in terms of anxiety and its components are presented in the following table.

**Table 3** Comparing anxiety and its aspects in two groups of quake-stricken boys and girls

| Variable | T | DF | Sig. (2-tailed) |
|---|---|---|---|
| GAD | 193 | 497 | 0.937 |
| Physical injury | 126 | 497 | 0.864 |
| Separation anxiety | 244 | 497 | 0.993 |
| Social anxiety | 170 | 497 | 0.952 |
| Overall anxiety | 499 | 497 | 0.906 |

According to table (3), the significant levels between two groups of boys and girls shows no significant differences in terms of anxiety and its components. In other words, the levels of anxiety in both groups are relatively equal.

## Discussion

The study was conducted to screen suspicious cases of anxiety in quake-stricken children aged 3-7 years in Sarpol Zahab in 2017. The results showed that 47% of the quake-stricken children in Sarpol Zahab had severe anxiety. The highest and lowest prevalence were related to physical injury (52%) and separation anxiety (34%). In line with the research background, these results are in line with the results of the studies conducted by Mohammadi, Davidian and Noorbala (2005), Kousky (2014), and Costello et al (2003). For explanation the above-mentioned results, one can undoubtedly state that the quake has many delayed effects. When a significant stress like a quake happens, it will have chronic and delayed effects. If people lack the skills of coping with stress, many aspects of their lives will be affected and the family's overall performance will be threatened. The major signs of this disease are nightmares, frequent association of the incident in the patient's mind, aggressive behavior, decreased concentration, problems in the appearance of feelings, and irregular and abnormal sleep. The presence of qualified and expert psychiatric is critical in treatment of these conditions. Children will be affected far more

due to the age, intellectual development and a lack of awareness, and will experience more anxiety calling for special psychological care.

Other results indicated no significant differences between the two genders in terms of anxiety and its components. This is in line with the results of Farhoudian et al (2006) and inconsistent with those of Ak (2014). It seems that children before the age of seven experience the same conditions and cognitively show similar reactions in both genders. In other words, the quake will affect children. Epidemiological studies show that exposure to traumatic experiences ends in changes in the nervous transmitters system, which increase the response to the stress. In this regard, according to the reports by Heim and Nimeroff (2001), new evidence from clinical studies shows that exposure to early stress is associated with neurobiological changes in children and adults, which may affect the risk of increased psychopathology.

Annually, millions of children face traumatic events that can end in PTSD (Perry, 1999). After a natural incidence, the children may suffer lack of parents and caregivers. Parents' death leads to behavioral symptoms, such as depression and mourning. Regarding this and in support of the claim of Scheeringa & Burns (2018) who state that it seems GAD starts early in childhood, but worries about reducing symptoms of anxiety over time and developing cognitive and emotional processing capabilities pose many challenges for accurate diagnosis. Epidemiological studies on the children's behavioral problems show a long history of antisocial adults with behavioral problems during childhood (Rutter et al., 2006).

The limitations of the study were included of the presence of only mothers of quake-stricken children and the fathers were not included. The role of religious variables was not examined, given the religious differences of the region studied. As cultural differences can be effective in the emergence and severity of mental problems, the generalization of results to the other populations may suffer from estimation errors.

## Conclusion

Given the prevalence of anxiety in children and the clinical signs and symptoms, psychological interventions are recommended to be done to prevent educational problems in children. These interventions can be trauma-based and cognitive-behavioral therapy games to reduce anxiety. Interventions can have beneficial results for parent-oriented children. Examining the level of resilience and the parents' reaction and knowledge in answering quake-related questions can help reduce child anxiety. Undoubtedly, children have many questions about the causes of quakes and their consequences; questions on the death of the loved ones who need accurate psychological responses tailored to their age and awareness. Finally, conducting longitudinal studies and comparing these children with the normal children who not experiencing quakes can lead to the effective results.

## Disclosure statements

The authors of this study declared no conflicts of interest

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