Shanghai Archives of Psychiatry, 2016, Vol. 28, No. 1

•Case report•

Case report of a child's anxiety disorder precipitated by tremors from a distant earthquake that was extensively covered in local news stories

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Summary: Earthquakes are relatively common natural disasters in many parts of the world, but research about the mental health effects of earthquakes remains limited. Individuals experiencing an earthquake often suffer significant loss and are at increased risk for developing mental disorders. However, the prevalence of mental disorders following less dramatic or non-destructive earthquake phenomena is unknown. We report the case of a 10-year-old girl who came to a psychiatric outpatient department with a 2-week history of severe, disabling anxiety symptoms precipitated by non-destructive tremors from a distant earthquake that received extensive coverage in the local press. Her condition did not meet criteria for any of the specific anxiety-related disorders, so the non-specific DSM-5 category 'Other Specified Anxiety Disorder' was considered most appropriate. Her symptoms resolved over 4 weeks when treated with both a benzodiazepine and a selective serotonin reuptake inhibitor.

Keywords: earthquake; news reports; natural disaster; other specified anxiety disorder; selective serotonin reuptake inhibitor; children; India

[*Shanghai Arch Psychiatry.* 2016; **28**(1): 52-55. doi: http://dx.doi.org/10.11919/j.issn.1002-0829.215077]

1. Introduction

Earthquakes are among the most common and most devastating natural disasters known to mankind, but much still needs to be understood about the mental health consequences of earthquakes and about the risk factors that increase the likelihood of a mental disorder following a major earthquake.[1] Numerous mental health conditions are known to occur after earthquakes, events that often result in significant losses for many members of the affected communities.[1] Major earthquakes have been associated with an increased prevalence of major depression (MDD), anxiety disorders, post-traumatic stress disorders (PTSD),[2] sleep disorders,[3] and other neurological complaints such as dizziness.[4] The estimated prevalence of MDD among earthquake survivors is approximately 12% and that of PTSD is 8%.[5] Female survivors have higher rates of most psychiatric disorders following earthquakes than male survivors. Other factors that increase the risk of mental disorders following an earthquake include being divorced or widowed, having a low education, and experiencing significant damage to one's home.[5] A survey that investigated the psychological reactions and recovery process of children and adolescents who had experienced a major earthquake found that fear- and anxiety-related mental disorders occurred earlier and resolved more quickly than depressive disorders and psychophysical symptoms.[6]

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A full-text Chinese translation of this article will be available at http://dx.doi.org/10.11919/j.issn.1002-0829.215077 on May 25, 2016..

Most research studies on the mental health effects of earthquakes focus on survivors living in communities that were severely affected by the earthquake.[5,7] Few studies assess the mental health effects on communities that are further from the earthquakes' epicenters where residents experience minor trembling and aftershocks but no structural damage or injury. Non-destructive earthquake tremors and aftershocks are known to cause episodes of dizziness, presumably due to a disturbance in the brain's equilibrium mechanisms,[8] but there have been no reports of the prevalence of major mental disorders among individuals who experience such non-destructive earthquake phenomena.

We report a case of a 10-year-old girl who came to our outpatient psychiatry department with symptoms of anxiety after experiencing a non-destructive earthquake tremor caused by a distant earthquake.

2. Case report

A 10-year-old girl was brought to our outpatient psychiatry department with symptoms of anxiety that began after experiencing an earthquake tremor while sitting in her Delhi home two weeks earlier. The epicenter of the earthquake was in Afghanistan where there was severe destruction and loss of life, but Delhi had only experienced minor tremors with no loss of life or property. The girl had seen coverage of the earthquake in news reports and became fearful that a major earthquake would occur in Delhi. She refused to leave her home and became afraid of anything that moved. When taken out of her home by family members, she became anxious when seeing moving motor vehicles and even when seeing leaves move on trees. Family members tried to reassure her that no earthquake was occurring and that the movements around her were normal, but she was not convinced and believed that she was experiencing another earthquake tremor. In the two weeks before coming to the outpatient department, she had stopped attending school and playing outdoors with her friends. Continually apprehensive about earthquakes, she was unable to study. She repeatedly scanned the walls, furniture, and appliances in her home, asking family members for reassurance that they were not moving due to an earthquake. She refused to sit in front of a fan or air conditioner and asked that others switch them off. Her sleep became disturbed; she woke multiple times during the night and cried out with fear that an earthquake was occurring. Her parents reported that she had no significant past history of psychological problems and was previously well-adjusted. There was no family history of any psychiatric disorder.

The mental status examination at the time of her first clinic visit found that she was conscious and oriented to time, place, and person. She was well-groomed and had no abnormal perceptions, but her affect was anxious and she was preoccupied with the possibility of the occurrence of an earthquake. Her general physical examination was normal. Her routine laboratory tests (including blood profile; liver, kidney, and thyroid function tests; electrocardiogram; and urine test) were all within normal limits.

We taught her relaxation exercises and prescribed alprazolam 0.25 mg once daily. However, at the two-week follow-up visit she showed little improvement, so the alprazolam was augmented with escitalopram 10 mg daily. At the 4-week follow-up visit, 2 weeks after starting the escitalopram, she reported significant improvement: she no longer felt afraid of moving objects, was able to play outdoors with her friends, and was able to return to school.

3. Discussion

This case report is unique in that the young girl's anxiety was precipitated by experiencing only the tremors of an earthquake without suffering any actual physical damage or loss. Apparently her emotional response to this relatively mild exposure to the earthquake was intensified by news reports of major destruction at the earthquake's epicenter. Her symptoms were quite severe and disabling, but they had only lasted for 2 weeks at the time of first evaluation, so she did not fit neatly into any of the currently available specific diagnostic categories.

The International Classification of Diseases-Tenth Revision (ICD 10)[9] criteria for Acute Stress Reaction stipulate that symptoms from transient stressors must diminish in less than 8 hours and symptoms from persistent stressors must diminish within 48 hours; but in our case the symptoms persisted and became progressively worse for 2 weeks following the initial stressor. The corresponding diagnosis in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5)[10] is 'Acute Stress Disorder'; the required duration is 3 days to a month, which fits our case, but there must be a precipitating event that is life threatening and repeated exposure by television and other media is explicitly excluded so, again, our case does not fit these criteria. PTSD symptoms need to persist for at least a month and the symptoms of Generalized Anxiety Disorder (GAD) need to persist for 6 months, so neither diagnosis was appropriate for this patient.

Given the severity of the symptoms and the degree of disability, the patient merited a psychiatric diagnosis despite not meeting criteria of PTSD or any of the specific anxiety disorders. After excluding the other possible diagnoses, the remaining diagnosis was 'Other Specified Anxiety Disorder,' a non-specific DSM 5 category that covers situations in which significant

anxiety is present with associated social dysfunction, but the individual does not meet criteria of any other specific condition.

Treatment was tailored according to the needs of the case as no standardized guidelines exist for the management of Other Specified Anxiety Disorder. Her severe, disabling anxiety was not controlled after two weeks of relaxation exercises and monotherapy with a benzodiazepine (alprazolam), so a selective serotonin reuptake inhibitor (SSRI) was added (escitalopram). After two weeks on this combined treatment with a benzodiazepine and a SSRI, her symptoms improved dramatically and her social functioning returned to normal. In an earlier report[11] we described a similar case of a 19-year-old male who suffered from debilitating anxiety that was only controlled after treatment with a SSRI.

Research is needed to explore how earthquakes and other major disasters affect the mental health of those who only indirectly witness the events via news reports or who experience only minimal physical effects, such as non-destructive earthquake tremors and aftershocks.

Funding

No funding was received to prepare this case report.

Conflict of interest statement

The authors report no conflict of interest related to this case report.

Informed consent

The patient's father provided written informed consent for the publication of this case report.

当地新闻对远距离地震所致非破坏性震感的过度报道促发儿童焦虑障碍的病例报告

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概述：地震是世界上许多地区比较常见的自然灾害，但地震对心理健康影响的研究还很有限。经历地震的人往往遭受重大损失，患精神障碍的风险增加。然而，规模不大、非破坏性地震现象所致精神障碍的患病率还是未知的。本文报告了一名就诊于精神科门诊的 10 岁女孩，她出现严重影响功能的焦虑症状已 2 周，其诱因是经历了一场较远地区的地震，而在当地仅有非破坏性震感，媒体却过度报道。她的情况不符合任何特定的焦虑相关障碍，因此最合适的诊断是精神障碍诊断与统计手册第五版 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, DSM-5) 非特异性分类中的“其它特定焦虑障碍”。经过一种苯二氮䓬类药物和一种选择性 5- 羟色胺再摄取抑制剂的治疗，患者的症状 4 周后消失。

关键词：地震；新闻报道；自然灾害；其他焦虑障碍；选择性 5- 羟色胺再摄取抑制剂；儿童；印度

本文全文中文版从 2016 年 5 月 25 日起在 http://dx.doi.org/10.11919/j.issn.1002-0829.215077 可供免费阅览下载

References

1. Wang X, Liu K. Earthquake and Mental Health. In: Prof. Emilio Ovuga (eds.) *Post Traumatic Stress Disorders in a Global Context;* 2012. Chapter 10. p. 211-214. Available from: http://www.intechopen.com/books/post-traumatic-stress-disorders-in-a-global-context/earthquake-and-mental-health. Last Accessed on 13 May 2015
2. Ehring T, Razik S, Emmelkamp PM. Prevalence and predictors of post traumatic stress disorder, anxiety, depression, and burnout in Pakistani earthquake recovery workers. *Psychiatry Res.* 2011; **185**(1-2): 161-166. doi: http://dx.doi.org/10.1016/j.psychres.2009.10.018
3. Varela E, Koustouki V, Davos CH, Eleni K. Psychological consequences among adults following the 1999 earthquake in Athens, Greece. *Disasters.* 2008; **32**(2): 280-291. doi: http://dx.doi.org/10.1111/j.1467-7717.2008.01039.x
4. Chen CH, Tan HK, Liao LR, Chen HH, Chan CC, Cheng JJ, et al. Long-term psychological outcome of 1999 Taiwan earthquake survivors: a survey of a high-risk sample with property damage. *Compr Psychiatry.* 2007; **48**(3): 269-275. Epub 2007 Mar 21. doi: http://dx.doi.org/10.1016/j.comppsych.2006.12.003
5. Chou FH, Su TT, Chou P, Ou-Yang WC, Lu MK, Chien IC. Survey of psychiatric disorders in a Taiwanese village population six months after a major earthquake. *J Formos Med Assoc.* 2005; **104**(5): 308- 317
6. Shioyama A, Uemoto M, Shinfuku N, Ide H, Seki W, Mori S, et al. [The mental health of school children after the Great Hanshin-Awaji Earthquake: II. Longitudinal analysis]. *Seishin Shinkeigaku Zasshi.* 2000; **102**(5): 481-497. Japanese
7. Chou FH, Wu HC, Chou P, Su CY, Tsai KY, Chao SS, et al. Epidemiologic psychiatric studies on post-disaster impact among Chi-Chi earthquake survivors in Yu-Chi, Taiwan. *Psychiatry Clin Neurosci.* 2007; **61**(4): 370-378. doi: http://dx.doi.org/10.1111/j.1440-1819.2007.01688.x
8. Honma M, Endo N, Osada Y, Kim Y, Kuriyama K. Disturbances in equilibrium function after major earthquake. *Sci Rep.* 2012; **2**: 749. Epub 2012 Oct 19. doi: http://dx.doi.org/10.1038/srep00749
9. World Health Organization. *The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines.* Geneva: World Health Organization; 1992

10. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders: DSM-5.* Washington, D.C: American Psychiatric Association; 2013

11. Bhatia MS, Gautam P, Saha R. Psychiatric disorder precipitated by aftershocks of a major earthquake. *Delhi Psychiatry Journal.* 2015; **18**(1): 228-230

(received, 2015-07-07; accepted, 2015-10-10)

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