

FACTORS ATTRIBUTING TO THE PSYCHOLOGICAL RECOVERY FROM THE 1999 TAIWAN EARTHQUAKE AMONG JUNIOR HIGH SCHOOL STUDENTS: A FOCUS GROUP INTERVIEW STUDY

Cheng-Fang Yen, Yu-Ping Chang*, Yi-Ching Su***, Chia-Chuang Hsu#, Shang-Ju Yang# and I-Ning Yeh##

The aim of this study was to evaluate the factors contributing to the psychological recovery from the 1999 Taiwan earthquake from the perspective of adolescents in Chungliao. A total of 22 junior high school students who had significant decrease of Impact of Event Scale (IES) scores in the follow-up period of 9 months were recruited to participate in one of three focus groups. By applying the method of focus group interviewing, adolescents' attributions of factors relating to the improvements of psychological reactions were collected. All interviews were tape-recorded and the transcripts were approached by content analysis. Four major factors contributing to psychological recovery from the earthquake are clustered: (1) self-healing effect as time passed away; (2) assistance from people of the non-afflicted areas; (3) being engaged in interests in leisure time; and (4) other important events happening after the earthquake. Several factors contributed to the psychological recovery of adolescents from the experience of the earthquake. The results of this study can serve as the basis of further treatment strategies for the adolescent refugees from major disasters.

Key words: earthquake, adolescent, disaster, focus group interviewing

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Earthquakes, always occurring unexpectedly, cause enormous destruction and loss of many lives. Survivors in earthquakes suffer from psychological trauma that is represented by complex feelings, thoughts and behaviors. Though these psychological sufferings are transitory for most individuals, they persist long after the earthquake has passed for some afflicted ones [1]. The aftermath of the earthquake, including the changes of environments and social

relationships, also greatly affects their future life. Therefore, intervention on mental health is always a point of emphasis in the immediate rescue operations and in long-term reconstruction.

The devastating earthquake with a magnitude of 7.3 on the Richter scale occurred in the early morning of September 21, 1999 in Taiwan (the so-called 1999 Taiwan earthquake) and caused 2,405 deaths and 10,718 injuries, with more than 90,000 houses destroyed. Chungliao, the rugged central region of the island of Taiwan, was very close to the epicenter of the earthquake and was affected severely. About 1% of the residents were killed (179 people) and 83% of houses were severely damaged or completely destroyed. Soon after the earthquake, we started to provide psychiatric services to the survivors in this region funded by the government. In addition to the adults in the community, adolescents are a main focus in our service projects. A total of 323 students of two junior high schools who still re-

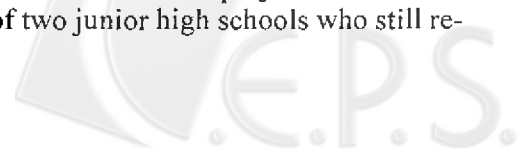
Department of Psychiatry, Kaohsiung Medical University, *Department of BS Nursing Program, Fooyin Institute of Technology, **Department of Nursing & #Department of Psychiatry, Kaohsiung Medical University, ##Taipei City Psychiatric Center, Taiwan

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Address for reprints: Chia-Chuang Hsu, Department of Psychiatry, Kaohsiung Medical University, No. 100, Shih-Chuan 1st Rd., Kaohsiung 807, Taiwan.

E-mail: hsu70401@ms18.hinet.net



mained in Chungliao received individual assessments for mental health at 6 weeks after the earthquake and group forms of psychological support were delivered. At 4 months and 9 months after the earthquake, adolescents received follow-up assessments twice to evaluate the changes of psychological conditions.

Psychological disturbances caused by earthquakes may persist for a long time. For example, at 18 months after the 1988 Armenian earthquake, 70.3% of the children had post-traumatic stress disorder (PTSD), and 28 to 32% of the children still suffered from PTSD at 30 months after the earthquake [2,3]. Previous studies focused on determining the factors that increased the risk of persistent psychological disturbance [2,4,5,6]. Few studies, however, have investigated the factors that helped survivors recover from the psychological trauma of earthquake experience from their own perspectives, though the results can form the basis of further treatment strategies. Thus, the aim of this study was to evaluate the factors contributing to the psychological recovery from the 1999 Taiwan earthquake from the perspective of adolescents by applying the method of focus group interviewing.

MATERIALS AND METHODS

Participants

In the immediate and follow-up assessments of 323 junior high school students in Chungliao, the Impact of Event Scale (IES) [7,8] was applied to measure psychological reactions to the earthquake. Two major response sets, intrusion and avoidance, are rated from adolescents' subjective descriptions. The decrease of total IES scores in the follow-up assessment indicates that subjects had recovered from the shock of the earthquake. A total of 22 students (9 boys and 13 girls) who had significant decrease of IES scores were recruited to participate in one of three focus groups held in June of 2000, 9 months after the 1999 Taiwan earthquake. Four of them had PTSD according to the DSM-IV criteria [9]. Mean score of their initial IES at 6 weeks after the earthquake was 27.6 (SD = 8.6, ranging from 17 to 51) and follow-up IES score at 9 months after the earthquake was 6.0 (SD = 6.0, ranging from 0 to 18). Total IES scores were decreased significantly by Wilcoxon test for paired observation ($z = -4.1$, $p < 0.001$). To build up a relationship among members in a short period, members of a group came from the same class.

Data collection

Focus group interviewing was applied in this study to collect qualitative data. Interviews were conducted at interview rooms of the group members' school. Two facilitators conducted the group following a guide covering particular topics. An observer was responsible to create filed notes about the group dynamics, tape the group and assist in identifying voices when it was time to transcribe the interview recording. The interview guide was developed through detailed discussion among all researchers and included: (a) introduction of the topic accompanied by ground rules in the group (eg, respecting others' opinions); (b) ensuring the confidentiality of data obtained during the course; (c) beginning the discussion with a starter-question by inviting members to talk about their present psychological reactions, such as fearfulness, anxiety and depression, to the 1999 Taiwan earthquake and comparing those with the previous reactions immediately after the earthquake to clarify the change which had occurred in the past eight months; (d) encouraging members to identify possible factors that contributed to the changes of psychological reactions to earthquake; and (e) concluding the discussion. Interviews lasted for sixty to eighty minutes. Using the standard set of questions, the facilitators inspired each member to express their own opinions in turn and they stimulated discussion and conversation during a given session. After three focus groups, no new themes emerged and saturation was believed to be achieved.

Data analysis

All of interviews were tape-recorded and transcribed verbatim to maintain data integrity and to reduce perceptual bias. The transcripts were compared to the notes of the sessions taken by the facilitators and observer before analysis, a method outlined by Krueger [10]. The transcripts were approached by content analysis on the following processes suggested by Zemke and Kramlinger [11]: (a) generating a list of key ideas, words, phrases, and actual quotes that reflect the sentiments of the focus groups; (b) formulating categories and placing the ideas and quotes that fit most appropriately and best substantiate the category; and (c) clustering the categories and subtopics and identifying themes. Representative quotations are used to illustrate each of the themes. Two researchers conducted the processes and discussion of analysis and arrived at similar conclusions using the same documents. Credibility of this research was strengthened utilizing the

techniques of prolonged engagement and peer debriefing [12].

RESULTS

All group members feel less fearful towards the experience of earthquake, though the degree of improvement is various among these adolescents. A group member describes: "I have been hypervigilant for a long time since the earthquake and rushed out of the house immediately if any vibration occurred. But now I can keep myself calm and differentiate whether an earthquake is really coming again or not." (Case 6) Another member says: "If the severity of fear after the earthquake was scored as 10, it has decreased to 2 now." (Case 19) From the analysis of transcripts, four major factors contributing to psychological recovery from the earthquake are clustered.

Self-healing effect as time passed away

Most of the group members consider they have forgotten what they encountered in the earthquake progressively as time passed. "It was really a dreadful experience, but now I just can recall fragments of feelings that occurred that night." (Case 13) "Human beings are forgetful and forgetfulness helps us to live." (Case 14) In the process of lessening distinctness of memory, less chance to see the scenes related to earthquake helps them easily forget an unhappy memory: "I saw so many damaged buildings, which refreshed my memory of earthquake again and again. Now, these collapsed houses have been cleared away, and I am accustomed to the empty streets." (Case 4) Change of topics that people discussed is also beneficial to self-recovery: "My family and neighbors said they heard the voice of dead people at night. That made me fearful for a long time. Now, people seldom talk about that, and I feel more comfortable." (Case 15) "People kept always talking about the earthquake and I could not help re-experiencing it. The heat of this topic faded progressively, and we have time to discuss other topics of entertainment." (Case 12)

Assistance from people of the non-afflicted areas

Supplies, money and manpower gathered from every area of Taiwan to the afflicted areas immediately after the earthquake. Several group members think the assistance helped them recover from psychological impacts and made them feel better and

less fearful: "Many charitable organizations supply us with food, clothes and daily necessities. It lets me know that there are people in a distant place caring about us." (Case 7) "Brothers and sisters of the Christian church answer my questions in schoolwork, and offer a vacant lot for playing basketball." (Case 5) Religious groups also benefit these students by bringing them out of the afflicted area temporarily: "They (Christians) arranged a journey to Taipei for us. It was full of fun and made me forget the chaos induced by the earthquake for a while. I keep in contact with them." (Case 4)

Being engaged in interests in leisure time

To pursue interests they like makes adolescents relaxed and pleased. Some interests had existed before the earthquake and were continued even if the environment was so bad: "I liked to play PC games. Though there is no power supply, I kept playing by a simple generator and it made me cheerful." (Case 12) "Playing basketball is good. The basketball courts in the school were destroyed, but I continue playing with my friends on the crude courts offered by the religious groups." (Case 13) The parents of adolescents arranged activities for them after the earthquake: "My father does not want us to be loafing and takes us to the mountains every weekend. It is so exhausting but joyful enough to make you forget anything." (Case 10) Interests engaged with others have the effect of emotional support: "I like to chat with my friends and share secrets and feelings with them." (Case 23)

Other important events happening after the earthquake

During the period of the nine months after the earthquake, group members experienced some life events that were not related to the disaster and shifted their attention. Some events are common to ninth grade students: "There are so many examinations in the final year of junior high school. We have to spend much time to prepare. Memory of the earthquake became progressively blurred." (Case 1) "All of my classmates are making an effort to prepare for the entrance examination to high school. Though the government has lowered the threshold of passing examination for us, it is still full of stress." (Case 2) The expectation of graduation traveling also reduces the uneasiness related to the earthquake: "It (graduation traveling) is something I have waited for three years. I never let the earthquake destroy it." (Case 18) A member experienced some kind of un-

usual event: "My older sister got married after the earthquake. That is an occasion for joy. It makes me feel hopeful and gives me the will to go on." (Case 6)

DISCUSSION

Focus group interviewing as a research method to collect qualitative data encourages subjects to speak freely and completely about behaviors, attitudes, and opinions in an informal group discussion atmosphere [13]. Interactions among group members stimulate discussions in which one group member reacts to comments made by another, and a "synergistic group effect" occurs simultaneously [14]. Traditional interviewing approaches, however, sacrifice the ability to observe interaction for greater amounts of detail on various attitudes, opinions, and experiences. It is not easy to build up a relationship with adolescent samples in short periods of time in traditional face-to-face interviewing. In the present study, members of a group come from the same class, and the atmosphere and rapport make all of the group members feel comfortable about talking openly in the group. We found that the opinions of some members can inspire others and more and more factors contributing to the changes of psychological reactions were mentioned. Even the shy members could join the discussion after the encouragement from the facilitators. Though any kind of interviewing may induce the sensation of sadness in the process of reviewing experience in the earthquake, group dynamism from a focus group offers the opportunity for group members with similar experiences to support each other during and after interviewing.

Previous studies focusing on the children and adolescents experiencing the earthquake analyzed the factors related to the severity of post-earthquake stress symptoms and the factors predicting the prognosis quantitatively. For example, preexisting psychiatric history and exposure experience to earthquake increase the risk of PTSD [4,6,15,16], and the posttraumatic environment and severity of stress after the earthquake influence the ability of recovery from the psychological impact of earthquake [4,5,17]. Several studies compared the severities of post-earthquake stress symptoms before and after psychological debriefing to improve the effectiveness of group psychotherapy [18-20]. However, very few researches evaluated the subjective feelings of the people experiencing the disaster [21]. In order to provide them with the aid and have a real effect, it is

necessary, as the purpose of this study, to understand their need from their subjective standpoints.

Earthquakes produce a series of events that continue to negatively affect people's lives over a prolonged period rather than being a circumscribed event with a defined endpoint. Among the adolescents of junior high schools in Chungliao, 2 died in the earthquake, while 53 had been relocated to other cities. The remaining students not only had to face the disruption of normal life but also the loss of classmates, homes and possessions. Adolescents, however, have a self-healing ability even in such a difficult time. In a previous study, the subjects with PTSD would recover spontaneously, even without any special intervention [22]. Among the subjects of the present research, however, only four had the diagnosis of PTSD at 6 weeks after the earthquake. It is not appropriate to make the conclusion that all of the adolescents with PTSD will have complete recovery only via the assistance of four factors clustered from the present study.

Several religious organizations helped the Chungliao's refugees generously after earthquake. Some of them supplied daily necessities and built up temporal shelters, while others enquired after the wounded and disabled by home visiting. Continuing their consistent concern for the adolescents, the Christian group played an important role in supporting them by explaining homework and offering vacant lots for exercise. They even cooperated with the junior school to conduct some extracurricular activities. Staying in Chungliao for a long time and building up close relationships with adolescents, the members of the Christian church continued offering invisible but valuable assistance to youth. This kind of help was very important for the adolescents because their elders were busy reconstructing environments and might have had no time to take care of their psychological needs. These charitable people let adolescents know that they are not alone when struggling to face and cope with loss.

The destruction caused by the earthquake interrupted most of the adolescents' interests. They could not stroll down the street, do exercise or play PC games in their leisure time. It made adolescents feel even more frustrated in the chaos after earthquake. To restore equipment for leisure activity as soon as possible can prevent further mood or behavioral problems. By doing leisure activities, adolescents were able to be close to their peers and this had the effect of emotional support for each other. Their elders can arrange activities and do them with

adolescents in their leisure time. Care from parents is always the most important to adolescents at a difficult time.

In the last year of elementary education, Taiwanese students have to prepare for the entrance examination into high school. It is an extraordinary stressor for the ninth grade students in the earthquake-afflicted areas. The school buildings were badly damaged and everything was thrown suddenly in chaos. Students studied in temporary shelters and tents during the period that schools remained closed. However, to pass the entrance examination is a main goal in the lives of the ninth grade students, and it helped a part of adolescents shift their attention from the earthquake to reading. The severity of fear decreased progressively. For therapists working on mental health, it will be beneficial to help the refugees to set up their own goal and realize it.

For the purpose of this study was to evaluate the factors contributing to the psychological recovery from the perspective of adolescents, all of the participants had significant decrease of IES scores and those who still suffered from obvious impact symptoms were not recruited. Therefore, the result cannot be generalized to all adolescents experiencing the 1999 Taiwan earthquake. Further studies are necessary to evaluate factors adversely influencing psychological recovery.

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應用焦點團體訪談法 探討有助於經歷地震之國中生 心理健康狀態復原的因素

顏正芳 張育萍* 蘇以青**
許家璋# 楊尚儒# 葉怡寧##

本研究之目的在於應用焦點團體訪談法探討中寮鄉國中生自覺有助於自己心理健康狀態自台灣九二一大地震之衝擊中改善的因素，以做為擬定輔導計畫之參考。訪談對象為22位在地震九個月後心理健康狀態已有明顯改善的南投縣中寮鄉某國中生，分成三組進行焦點團體訪談，以半結構性訪談指引，引導成員表達自地震到現在心理健康狀態改善的情況和自覺有助於改善的因素，訪談內容整理成逐字稿，以內容分析法進行分析。經資料分析結果發現所

有成員皆表示心理健康狀態有所改善，歸納自覺有助於改善的原因包括：(1)隨時間經過逐漸自我療癒；(2)獲得來自外界在物資、休閒活動和課業上的協助，感受到支持；(3)恢復地震前的或發展新的休閒娛樂活動，使心靈有所寄託；和(4)經歷地震以外其他重要生活事件等因素，轉移注意力。受訪之國中生自覺地震後來自外界的協助或自己內在的力量都有助於從地震衝擊中恢復心理健康，此研究結果可作為心理衛生從業人員擬定輔導計畫之基礎。

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高雄醫學大學附設醫院 精神科
* 輔英技術學院 護理系 ** 高雄醫學大學 護理學系
高雄醫學大學 精神科 ## 台北市立療養院
收文日期：90年6月8日 接受刊載：90年10月17日
索取抽印本處：許家璋醫師 高雄醫學大學精神科
高雄市三民區十全一路100號