

行政院國家科學委員會補助專題研究計畫成果報告

災後心理反應歷程與心理處置歷程之長期追蹤研究—

總計畫暨子計畫一：

兒童與青少年震災後心理反應長期追蹤研究

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災後心理反應歷程與心理處置歷程之長期追蹤研究-子計畫一

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中文摘要

本研究係災後心理反應歷程長期追蹤研究的一部份，其目的為調查 921 震災後之兒童與青少年的災後心理反應。調查的目標地區為受災較嚴重的埔里與東勢地區，對象則包括小學四、五、六年級與國中一、二、三年級的男女學生。「震災曝露指標」與「災後症候群(PTSD)指標」為主要的研究變項。「暴露程度(dose-effect)」的確與災後心理反應的嚴重性有正相關。除此之外，PTSD 的出現情況（流行率）亦因「年級」與「性別」而有差異。據此初步結果來看，本項追蹤研究的確值得繼續追蹤下去，以期能獲得更完整的兒童與青少年之災後心理反應狀況。

ABSTRACT

This study, as a part of a longitudinal prospective project, aims to investigate the range and severity of post-traumatic stress

reactions displayed by children and adolescents residing near the epicenter, two year after the Taiwan Chi-Chi Earthquake and to examine the relations of these symptoms to developmental stages and objective features of trauma exposure. Earthquake Exposure Index for Youths and Child Posttraumatic Stress Disorder Reaction Index were administered to 2080 children and adolescents from two heavily impacted townships. Severity of posttraumatic stress reactions was found to vary by a "dose effect" of earthquake exposure. Variation in the prevalence of PTSD symptoms was found across age and gender groups. It will be thus important to continue a longitudinal project with periodic screenings as well as relevant intervention programs.

Key Words: posttraumatic stress reaction, Chi-Chi Earthquake, exposure effect, children and adolescents

INTRODUCTION

The devastating 1999 Taiwan Chi-Chi Earthquake struck the whole island country at near midnight of September 21, 1999, and especially hit both densely populated farms and the rugged rural mountain regions of central Taiwan, leaving a surprisingly high toll of deaths, injuries, and damage. Approximately 2,494 people lost their lives and over eleven thousand got injured. More than 106,159 houses and a great number of schools were either completely destroyed or damaged. Particularly distressed by the trauma were the children and adolescents of these regions. They have not only been stunned by the fateful events such as personal and/or family injury, witnessing death of family, friends, and neighbors, as well as damages and collapses of houses, but have also been experiencing unfortunate adversities following the earthquake such as being "school-less" due to collapse of their schools, relocation and/or separation from family, and undesirable living conditions.

Although children and adolescents are not excluded in disaster encounters, research on children's and adolescents' traumatic responses is even less abundant and less systematic than research on adult trauma. Nevertheless, it has been documented, to date, that children and adolescents may experience the full range of posttraumatic stress symptoms (e.g., Pynoos, Goenjian, & Tashjian, 1993). The level of exposure appears to be strongly associated with severity and course of posttraumatic stress reactions (e.g., Green, 1991; Lonigan, Shannon, Taylor, Finch, & Sallee, 1994; Pynoos,

Steinberg, & Goenjian, 1996). Also, age and gender may present variable effects on risk for PTSD symptoms (e.g., Green, Korol, Grace, et al., 1991; Korol, Green, & Gleser, 1999; Shaw, Applegate, & Schorr, 1996).

Orlee (1993) concluded that, similar to adults' PTSD, the common posttraumatic reactions to disaster in western children and adolescents include sleep problems such as insomnia, nightmares, fear of being alone in the dark and sleeping alone, and sleepwalking; loss of capacity to learn, impaired concentration, and memory impairment; intrusive images and thoughts triggered by trauma-related environment and often associated with intense anxiety; repeating trauma-related play and games; panic attacks; fear of trauma reminders; separation anxiety; hypervigilance to dangers; decreased self-efficacy and sense of insecurity; loss of derived pleasure from regular activities; anger, irritability, and aggressive behaviors; and depression, guilt and hopelessness.

The profiles of symptom presentation appeared somewhat different in Taiwanese youths during a short period after the Earthquake (i.e., Chao & Wu, 2000; Chen, Lin, Wu, & Tseng, 2002; Soong, Lee, et al., 2000). These existing studies of Taiwanese youths were all conducted around three months to one year after the earthquake. Unanswered is the question whether or not the symptom manifestations and differences between children and adolescents remain over a longer period of time.

Lacking previous research on chronic

post-disaster psychological reactions of youths in Taiwan constitutes a prime motive for the current study. In this paper, the authors primarily present a large-scale investigation, conducted two year after the 1999 Chi-Chi Earthquake, that inspects the range and severity of chronic post-traumatic stress reactions displayed by children and adolescents residing near the epicenter so as to plausibly give a database for future research along these lines in Taiwan.

METHOD

Subjects:

In present study, we have conducted a large-scale data collection on adolescents from 4th to 9th grade living in two most severely damaged towns near the epicenter at the time right after the second anniversary. Two thousand and eighty adolescent were recruited. (see Table 1)

Table 1. Subject Characteristics

	Elementary		Junior High		Whole	
	N	%	N	%	N	%
Sex						
Male	483	52.1%	623	53.8%	1106	53%
Female	444	47.9%	537	46.2%	981	47%
Total	927	44.4%	1160	55.6%	2087	100%
Location						
Tung-Hsih	638	68.8%	571	49.2%	1209	57.9%
Pu-Li	289	31.2%	589	50.8%	878	42.1%
Total	927	44.4%	1160	55.6%	2087	100%

Measures:

1. UCLA PTSD Index for DSM-IV, Taiwanese version (Pynoos, et al., 1996)—Past Trauma

Experience Survey (PTES; 13items; *yes-no*); to evaluate the incidence of past trauma experiences

2. Checklist of PTSD Symptoms (CPTSD; 20 items; *5-point Likert scale*): to evaluate posttraumatic stress symptoms

3. Earthquake Exposure Index for Youths (Chen, et al., 2002)—index for death and injury, including physical injury level in self, injury and/or death in family member(s) and relatives, and injury and/or death in friends;

1) index for property loss, i.e., degree of house damage;

3) index for life destruction, including current dwellings and separation from parents.

Procedures:

The data were collected during October and November of 2001, around 2 years after of the 921 Chi-Chi Earthquake. With the support from the school principals and teachers and after a passive consent procedure, the self-report measures were given to the students in their usual classrooms. All responses were guaranteed as anonymous.

RESULTS:

1. Exposure Characteristics of the sample

There were about 25%r of the sample having witnessed their friends being injured or killed, about 5% lost their family, about 10~14% being injured themselves during the earthquake, about 4% still living separately with their family, and about 4% currently living in container house. (see Table 2)

Table 2. Exposure Characteristics

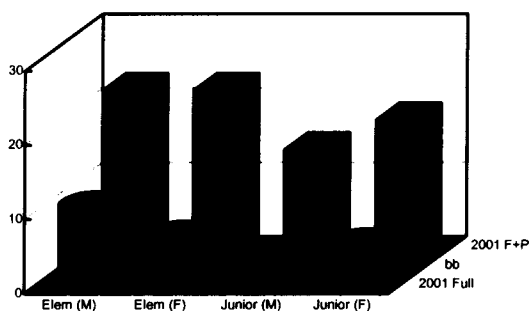
Elementary Students	2001	
	N	%
Self being hurt?	129	14.1
Family member(s) being killed	48	5.3
Close friend(s) being hurt or killed	230	25.7
Still separated from family	35	3.9
Still living in container house	39	4.3

Junior High Students	2001	
	N	%
Self being hurt?	122	10.6
Family member(s) being killed	57	4.9
Close friend(s) being hurt or killed	304	26.6
Still separated from family	35	3.1
Still living in container house	43	3.8

2. PTSD rate 2 years after the earthquake

Rates for full Dx. of PTSD were 4~11.3% in 2002. Taking full and partial PTSD together as post-earthquake maladjustment index, the rates raised to 14.1~22.1%. More

Figure 1

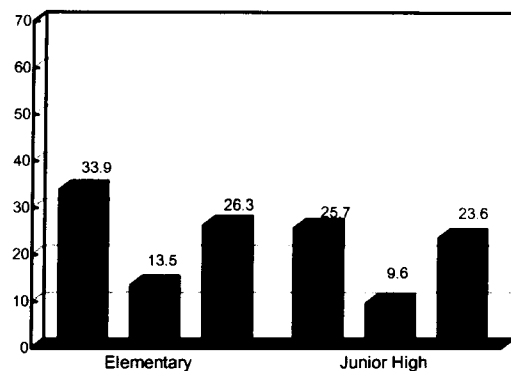


cases were found among male elementary Students (see Figure 1).

3. PTSD symptom manifestation two years after the earthquake

More reports of symptoms on Cluster B (reexperiencing) and D (hyper-vigilance) were noted consistently in 2000 and 2001. The rates for each cluster drop over time (from 20.5~51.6% to 13.5~33.9% and from 13.4~39.7% to 9.6~25.7% for elementary and junior high students, respectively.) (see Figure 2)

Figure 2



4. Age and Gender Effects for Posttraumatic Stress Reactions

Means and standard deviations for PTSD total and subscales by age and gender groups as well as the summary of ANOVA results are presented in Table 3. The PTSD total showed significant main effects for age and gender. The reexperiencing/avoidance subscale showed significant main effects for age and gender, and their interaction. The numbness/maladaptive subscale yielded a significant main effect for age and age by gender interaction effect. (see Table 3)

Table 3. Summary of ANOVA Results of PTSD Symptoms by Age and Gender

	Elementary Students		Junior High Students		ANOVA
PTSD	Mean	S.D.	Mean	S.D.	A*,S*
Male	20.62	18.56	17.48	14.28	
Female	20.85	16.87	20.53	14.72	
Reexperiencing/avoidance symptoms					A**,S***,AS*
Male	12.24	10.23	10.23	8.10	
Female	13.00	9.82	12.69	8.75	
Numbness/maladaptive symptoms					A*,AS*
Male	7.35	7.68	6.10	6.10	
Female	6.69	6.69	6.71	5.99	

* $p < .05$ ** $p < .01$ *** $p < .001$

Conclusion:

Consistent with previous studies (e.g., Chen, et al., 2002; Lonigan, et al., 1994; McFarlane, 1987; Shore, et al., 1986; Pynoos, et al., 1996), severity of posttraumatic stress reactions was also found to carry a “dose effect” of earthquake exposure in this study. Furthermore, existing literature is not yet conclusive about age and gender effects on the vulnerability of children and adolescents following a traumatic event. Variation in the prevalence of PTSD symptoms was found across age and gender groups in this study.

PTSD prevalence rates and symptoms of each cluster vary across age and gender groups. Younger male adolescents may call more professional attention to their vulnerability to PTSD diagnosis. Symptoms on the cluster B (reexperiencing) and D (hypervigilance) may be more liable over time and thus more susceptible to change, both naturally and with professional

aids. Finally, given that age and gender show variable effects on developing post-traumatic symptoms, it may suggest a need to implement a broad disaster recovery project with periodic screenings as well as age-specific and gender-appropriate mental health programs.

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