

# 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-子計畫二：

九二一震災後高危險個案心理反應長期追蹤研究(1/5)

**Psychological Responses in 921 Earthquake Survivors at Risk:**

**A Longitudinal Follow-Up Study (1/5)**

主持人： 陳淑惠 國立台灣大學 心理學系

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**中文摘要**

本子計畫承續陳淑惠等(Chen et al., 2000a & 2000b)與吳英璋等(2000b)的研究，進一步地瞭解高危險群個案在震災後各階段的生活與心理面向之動態，以及影響其適應的可能因素。是故，本子計畫的研究目的，旨在瞭解九二一震災後重建區高危險群個案在震災後一年至五年內的長程適應發展特性與可能的疾病傾向，並藉歷程取向 ( process approach) 的研究設計，更有系統性的觀察受災者長期的身心健康與社會人際關係之變化、以擴展災難與創傷的心理病理成因之瞭解角度，並針對不同的受災型態與災後復健階段探索可能的矯治方針與其療效。第一年度以高危險群個案的各項心理指標的基礎線之確立為主，主要的研究任務是針對重建區的高危險群居民之心理健康與適應做追蹤探討。此外，根據五年的追蹤研究結果，亦可檢驗本子計畫自行發展的本土研究工具以及

沿用國內外學者所發展之診斷、評量工具，以建立較為客觀的防災心理研究工具之資料檔與高危險群個案的資料庫。本子計畫以九二一震災後埔里 (南投縣) 的成年高危險群為主要研究對象(N=259)，進行長期追蹤訪談與評估，以瞭解其身心健康與社會人際關係之改變方向，以及災後的生活品質與 PTSD 症狀，研究結果期能作為後續探討與災後心理復健介入方案之設計的基礎。

**關鍵詞：**PTSD 症狀；生活品質；九二一地震；成年倖存者；追蹤研究

**ABSTRACT**

This study aims to investigate trauma exposure, resource loss, and impacts on quality of life (QOC) and PTSD symptoms of middle-aged adults living near the epicenter two years post the Taiwan 921 Earthquake. Two hundred and sixty nine adults from the

most severely damaged county were evaluated by semi-structured interview with self-report measures including the Posttraumatic Stress Reaction Index, WHOQOL-BREF (Taiwan version), Earthquake Exposure Index, and information about changes of financial condition and demographic background. Results of preliminary analyses indicate that: 1) more than half of the adult survivors reported adverse change of physical / psychological health and outlook of life; 2) concerning interpersonal relationships, about 8-19% reported adverse changes but the other 13-21% got improved; 3) some factors of trauma exposure such as copse-witness and past trauma experience yield different effects on various PTSD symptoms and various aspects of QOL. Results will be discussed in terms of the interplay of resource loss, resource gain, and PTSD symptoms along a successful posttraumatic recovery process.

**Keywords:** posttraumatic psychological responses; quality of life; 921 Chi-Chi Earthquake; adult survivor

## INTRODUCTION

A number of hypotheses suggested that individuals who were more traumatized should exhibit a greater extent of posttraumatic stress symptoms (e.g., Bryant & Harvey, 1995; Green et al., 1983; Honig, Grace, Lindy, Newman, Titchener, 1999; March, 1993; McFarlane, 1987; Maecker, Solomon, & Schützwohl, 1999). Further, different from many western findings that trauma exposure had a linear function of PTSD, our previous studies conducted at

three months post the 921 Earthquake have found that the traumatized often divided their lives between before and after trauma and kept on inner comparisons between these two states. The continuous comparisons have led to the changes of outlook on life, health conditions, and interpersonal relationships over time. We also found a tripartite result in that some change into better, others for worse, and the rest stay the same. Moreover, not only those whose lives became worse developed more PTSD symptoms, those who got posttraumatic gains and/or growth (PTG) also developed more PTSD symptoms (e.g., Chen, et al., 2000; Wu, Hung, & Chen, 2002).

Many researchers have suggested that childhood, adolescence and senescence are phases in life bearing higher risk for the development of PTSD after the occurrence of traumatic events (e.g., Lonigan, Shannon, Taylor, Finch, & Sallee, 1994 ; Pynoos, Goenjian, & Tashjian, et al., 1993; Pynoos, Steinberg, Geonjian, 1996). However, from the viewpoint of burden perspective proposed by Thompson, Norris, and Hanacek (1993), middle-aged individuals may bear a supporter role for financial and emotional reconstruction to help the whole family and society, and thus to hold more challenging responsibilities such like child-rearing, job-taking, possession-protecting, and emotion-supporting after traumatic events. Therefore, through the rehabilitative process since the occurrence of devastating earthquake, the adults were not particularly affected only by the earthquake but also the extraordinary stressful post-traumatic

adversities. As a result, they may display greater psychological distress and experience worse quality of life following trauma.

There is scarce research data concerning the intertwining patterns of PTSD symptoms and PTG along the reconstructive post-traumatic process. Hence, the prime motif of the present paper asks to what extent the PTSD, quality of life, interpersonal relationships, and outlook of life may manifest in adult survivors two years post the 921 Earthquake.

## **METHOD**

### **Subjects:**

The study included 269 middle-aged adult survivors living in epicenter of 921 Earthquake, Pu-Li Town, Nantou County, Taiwan. These subjects, about age 39 ( $\pm 7.74$  years), were recruited for a longitudinal research project since previous year. As truthfully reflecting the existing different makeup of populations the sample consisted of relatively more female and with about high school graduate.

### **Measures:**

**Posttraumatic Stress Reaction Index (PSTRI).** The PTSRI is 47-item measure designed to examine individual's self-reports of trauma-related symptoms such as hyperarousal, intrusion, and avoidance as well as general stress-related symptoms such as anxiety, depression, and psychosomatic symptoms occurred after a traumatic event. The respondents are asked on the scale to rate each item on a 4-point Likert scale, ranging from 0 = *never experienced*, 1 = *sporadically experienced*, 2 = *sometimes experienced*, to 3

= *very often experienced*. The PTSRI yields four first-order factors, namely, posttraumatic anxiety syndrome, posttraumatic psychosomatic syndrome, avoidance/numbness, and maladaptive coping. The posttraumatic anxiety syndrome consists of two second-order factors, i.e., hyperarousal/intrusion and helplessness/rumination; the posttraumatic psychosomatic syndrome consists of respiratory/muscular symptoms and digestive symptoms. As can be see in previous studies, the PTSRI has satisfactory internal consistency Cronbach coefficients for each factor ( $\alpha = .67 \sim .96$ ) (Chen, et al., 2000; Chen, et al., 2002)

**Psychosocial Change Questionnaire (PCQ).** The PCQ was designed to evaluate psychosocial aftermaths post the earthquake. The respondents were asked on the scale to evaluate their subjective feelings of changes, either positive or negative, of physical and psychological health, outlook on life, and general/intimate interpersonal relationships (Chen, et al., 2000)

**Earthquake Exposure Index (EEI).** The EEI, designed to assess the extent of exposure to the earthquake, consists of 1) index for death and injury, including physical injury level in self, injury and/or death in family member(s), relatives, and close friends; and 2) index for property loss, i.e., degree of house damage (Chen, et al., 2000).

**WHO Quality of Life Scale-Brief Version (WHOQOL-BREF).** The WHOQOL is a measure for evaluation of quality of life in Taiwan developed by Yao (2001). The scale includes 26 items asking Physical,

psychological, social-relational, and environmental aspects of quality of life. Respondents were asked on the scale to evaluate their subjective evaluation of their own lives on a 5-point Likert scale.

**Procedures:**

Data were collected during the period from October to December of 2001 in Pu-Li Town. Subjects participated on a voluntary basis, with oral consent, and individual assessment. Participants were administered with self-report questionnaires and debriefed at the end.

**RESULTS:**

*Exposure Characteristics*

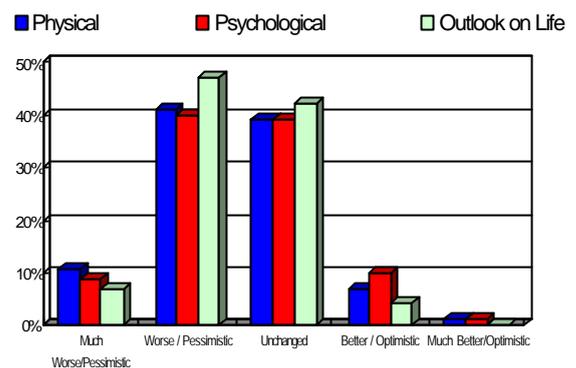
About 19.4% of the subjects reported of being mildly, moderately, or severely injured; 23% and 7.8% with family member(s) hurt and killed, respectively; 50.2% with friends and 50.9% with neighbors hurt and/or killed; 32.3% has witnessed or directly handled corpse; 92.2% with houses collapsed or partially damaged; and 90% with slight to severe property loss. There is about 87% reporting that their community is encountering slight to severe destruction. Among these subjects, 33.5% reported having past traumatic experiences.

*Psychosocial Aftermath Two Years post the Earthquake*

As shown in Figure 1, about half of the adult survivors reported that their physical health and psychological/mental health became worse or much worse (52% and 49%,

respectively) and their outlook on life got more pessimistic (54%), in comparison to much less subjects moved toward a better direction in their physical health (8%), psychological/mental health (11%), and outlook on life (4%).

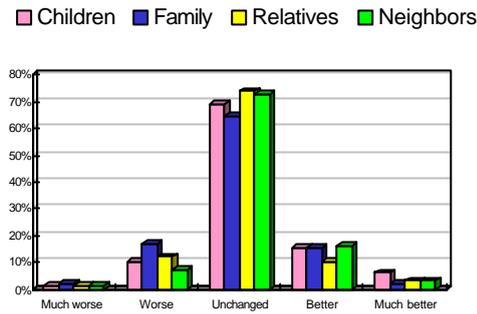
**Fig. 1. Changes in Physical Health, Psychological Health, and Outlook on Life**



Concerning the changes of their interpersonal relationship, as shown in Figure 2, around three fourths of adult survivors reported that their relationships with children, family members, relatives, and neighbors were pretty the same like before the earthquake. However, the interpersonal relationships became worse in some subjects (8-19%). On the other hand, some people got improved in their interpersonal relationships two years after the trauma (13-21%). Overall, the percent distribution of interpersonal relationships has moved toward a better direction, in comparison to the data obtained at three months and one year post earthquake.

*Posttraumatic Stress Responses and Exposure Effect Two Years post the Earthquake*

**Fig. 2. Changes in Interpersonal Relationships**



There is no significant difference of overall posttraumatic stress responses between those who were injured and were not injured two years post the 921 Earthquake. However, the exposure effects of injury were found between the injury and no-injury sample on posttraumatic anxiety syndrome ( $p < .01$ ), including both hyperarousal & intrusion and helplessness & rumination symptoms ( $ps < .05$ ); posttraumatic psychosomatic syndrome ( $p < .05$ ), displaying only in respiratory & muscular symptoms ( $p < .01$ ) but not digestive symptoms; and avoidance/numbness symptoms ( $p < .05$ ).

Between those who have and have not witnessed cope during the earthquake, there were significant difference of overall posttraumatic stress responses two years post the 921 earthquake ( $p < .001$ ). More specifically, the exposure effects of cope-witness were shown on all aspects of posttraumatic stress responses ( $ps < .01 \sim .001$ ).

Similarly, there were significant differences of overall posttraumatic stress

responses between those who have and have not had past trauma ( $p < .05$ ). Those who had past trauma have displayed significantly more posttraumatic anxiety syndrome ( $p < .01$ ), including both hyperarousal & intrusion and helplessness & rumination symptoms ( $ps < .01$ ); digestive symptoms and avoidance/numbness symptoms. ( $ps < .05$ ).

### ***Quality of Life and Exposure Effect Two Years post the Earthquake***

Compared to the Norm, no significant difference were reported by earthquake survivors two years post the 921 earthquake in most aspects of quality of life, except in psychological aspect ( $t = -4.71, p < .001$ ) and environmental aspect ( $t = -2.05, p < .05$ ). Those who were injured through the Earthquake reported significantly worse in physical, psychological, and environmental aspects of QOL ( $ts = -1.70, -4.55, \& -5.01, ps < .05, .001, \& .001$ , respectively; see Table 6). Very different from the differences between the injured survivors and normal, the non-injured survivors reported significantly better than the normal adults in physical and social aspects( $ts = 1.81 \& 1.65$ , respectively,  $ps < .05$ ), but worse in psychological aspect ( $t = -3.48, p < .001$ ), of QOL (see Table 7). In addition, the injured reported significantly worse than the non-injured survivors in physical, psychological, and environmental aspects of QOL ( $ts = -2.24, -1.77, \& -3.90, ps < .05, .05, \& .001$ , respectively).

### **DISCUSSION AND CONCLUSIONS**

This study examined the change of quality of life and posttraumatic

psychological responses two years after the 921 Chi-Chi Earthquake. Concerning the etiology and outcome of PTSD, the primary factors are the nature and intensity of exposure to the triggering event (Green, et al., 1983). A number of empirical studies have found that posttraumatic stress reactions often endure over prolonged periods of time. Although some researchers suggest that PTSD can be a lasting and chronic ailment regardless of whether the afflicted person had been on treatment or not (e.g., Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), before a more conclusive etiological account is reached, implementation of a longitudinal research project after the occurrence is very urgent.

Green, Lindy, and Grace (1985) have pointed out that, concerning the etiology and outcome of PTSD and related psychopathologies, it is necessary to take the following factors into account: the nature and intensity of the stressors, the characteristics of the victims, and the characteristics of the recovery environment. More specifically, it may be equally important to take into account that, in helping the survivors to recover at their favorable paces, their existent social networks and resources can be better used in this recovering process not only at personal level but also at societal and national levels.

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