ORIGINAL ARTICLE

POST TRAUMATIC STRESS DISORDER (PTSD) SYMPTOMS, COPING STYLES AND SOCIAL SUPPORT AMONG SURVIVORS OF THE DECEMBER 26TH 2004 MALAYSIAN TSUNAMI DISASTER

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ABSTRACT

Objective: **This study examined the symptoms of PTSD among survivors of the December 26th 2004 Malaysian tsunami disaster, as well as differences among sexes in terms of coping styles and availability of social support.** ***Methods:*** **A total of 64 (28 males and 36 females) respondents from several affected districts of Kuala Muda and Langkawi in Kedah and Batu Maung, Pulau Pinang were recruited through purposive sampling. The Detailed Assessment of Posttraumatic Stress (DAPS) was used to measure the posttraumatic stress disorder/symptoms, while the Social Support Questionnaire and Significant Others Scale (Form A) were used to measure the quality and quantity of social support. The COPE Questionnaire was used to measure two coping styles; adaptive and maladaptive coping.** ***Results:*** **Fifty two (81%) respondents did not fulfill the DAPS-PTSD criteria while only 12 (19%) fulfilled the criteria. There was no significant difference between men and women in terms of posttraumatic stress-total, and the quantity and quality of social support. However, there is a significant difference in adaptive and maladaptive coping styles among victims who fulfill the PTSD diagnosis and those who did not. It was also found that there is no relationship between PTSD symptoms and emotional support, whereas there is a significant relationship between PTSD symptoms and practical support.** ***Conclusion:*** **This research showed that only a small number of respondents fulfilled the diagnosis of PTSD following their experience of a disaster. There were no difference between genders in terms of PTSD symptoms and social support. Among victims who fulfill the**

PTSD diagnosis and those who do not, there is a significant difference in the adaptive and maladaptive coping styles. As for the relationship between PTSD symptoms and social support, there is a significant relationship between PTSD symptoms and practical support but not with emotional support. ***ASEAN Journal of Psychiatry, Vol., No.1, Jan – June 2009: XX XX***

Keywords: **Tsunami, PTSD, coping styles, social support**

Introduction

December 26th 2004 was an unforgettable day as tragedy struck in the form of a tsunami, caused by a massive earthquake in Acheh, Indonesia, measuring 9.0 on the Richter scale. The tsunami swept across several countries, causing more than 200,000 deaths, while over 300,000 thousand people were injured, and thousands were missing and unaccounted for. Malaysia was affected as well although she fortunately escaped the kind of damage that struck some of the other countries. The country's worst affected areas were the northern coastal areas and outlying islands like Penang and Langkawi. The death toll from the tsunami in Malaysia stood at 68, the majority being in Penang and Kedah.

Several empirical studies have explored the relationship between natural disasters phenomena and developing Posttraumatic Stress Disorders (PTSD). Lim [1] conducted a study on psychological distress, anxiety, depression and PTSD among 71 fire-fighters involved in the rescue operation following the collapse of Highland Towers, compared with a matched control group of 30 persons from non-firemen population. A significantly higher proportion of sample subjects (70%) had at least one symptom of PTSD as compared to the control group. Shore and colleagues [2] studied survivors of the Mount St Helens volcanic eruption, comparing them with residents nearby not affected by the event, and found relative increases in rates of depression and generalized anxiety disorder in the sample exposed to the eruption with a lifetime rate for PTSD of 3.6%, and 2.6% in those not exposed. Yang et al [3] reported that posttraumatic symptoms were still prevalent three months after the devastating Chi-Chi earthquake in central Taiwan, with the rate of PTSD being 11.3%, and partial PTSD, 32%. Variables associated with the presence of psychiatric morbidity and posttraumatic symptoms included female gender, old age, and financial loss, obsessive and nervous traits.

Stein et al [4] reported that although characteristics of the traumatic stressors have been shown to influence risk for PTSD, these fail to explain much of the variance in PTSD rates among exposed persons. According to them, most studies have shown that the female gender and low IQ increase risk for PTSD, in addition to some premorbid personality characteristics such as neuroticism and preexisting anxiety or depressive disorders. This is supported by Smith et al [5] who concurred that level of exposure as well as sex of survivors is a strong predictor of

increased symptomatology of PTSD, with blame and anger as the means of coping, and there is low social support. Social support has been found to have a positive impact on people's health and well-being, as well as their ability to adjust to the trauma of illness or injury [6]. Wang et al [7] found that inadequate social support accounted for the higher occurrence of PTSD. It has been reported that emotional support when coupled with either informational or instrumental support, having a close confiding reciprocal relationship are associated with more positive outcomes. It was found that seeking social support generally reduced subsequent levels of PTSD, except when the perception of available social support was of poor quality. People are more susceptible to PTSD if they have poor coping skills or lower levels of psychological functioning. Having a poor "track record" at handling difficult situations leaves certain people at increased risk [13].

Since the tsunami is the first natural disaster of its kind in Malaysia, this study gives an opportunity to look into the effects of the aftermath of a disaster of such a nature. The outcome of this research will be able to provide information to the general public that the tsunami not only caused loss of lives, properties and livelihood but long-lasting psychological impact as well. It will provide an insight that survivors of the tsunami not only require immediate assistance but also continuous support in both physical and mental aspects. The findings will also assist mental health professionals to be more focused in helping disaster victims of such nature. More specifically, this study aims to study how women and men cope when they are exposed to such a disaster; the availability of social support (quantity and quality) for the tsunami victims; and the different styles of coping used by victims of the disaster.

Methods

This is a cross sectional study, looking at the relationship between the identified variables, and at the same time, comparing the sex differences in coping skills and use of social support. Fieldwork was conducted 6 months after the tsunami disaster, in the three worst hit areas in Kuala Muda and Langkawi in Kedah, and some parts of the coastal areas of Penang.

The study sample consisted of 28 males (44%) and 36 females (56%). Subjects selected were survivors who lived or were at the location of the incident, mostly along the shoreline of Penang – namely around Batu Maung and Bayan Lepas – and the coastal areas in Kuala Muda, Sungai Petani and Kuala Triang, Langkawi, Kedah. The sampling method used was purposive sampling whereby subjects chosen had been predetermined by the researcher (namely all available survivors of the December 2004 tsunami incident. Inclusion criteria were (i) survivors of the tsunami disaster; (ii) aged 18 and above; (iii) gave consent to participate. Exclusion criteria were (i) subjects involved in other traumatic experience(s) after the tsunami incident but within six months before this study; (ii) subjects who did not give consent.

Socio-demographic information was obtained via the use of a form and based on given information allowed the researcher to set the inclusion and exclusion criteria. The following

psychological tools were used in the research: (a) The Detailed Assessment of Posttraumatic Stress (DAPS) [9] is a self-report questionnaire, a 104-item test of trauma exposure designed for use by individuals who have undergone a specific psychological stressor. It has two validity scales and evaluates a range of trauma-related parameters, including lifelong exposure to traumatic events, immediate cognitive, emotional, and dissociative responses to a specified trauma, the symptoms of PTSD and Acute Stress Disorder as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) [10]. It is a 5-point scale (1=never, 2=once or twice, 3=sometimes, 4=often, 5=very often), and each item is rated according to its frequency of occurrence. The DAPS is divided into 3 parts. Part 1 consists of the Trauma Specific Scale – high scores indicate the experience of more than one type of potentially traumatic event. It also evaluates the onset of the trauma. Part 2 measures the Posttraumatic Stress Scales which include the domains of Reexperiencing (RE), Avoidance (AV), Hyperarousal (AR), Posttraumatic Stress – Total (PTS-T) and Posttraumatic Impairment (IMP). Part 3 measures the Associated Feature scales which include the domain of Trauma-Specific Dissociation (T-DIS), Substance Abuse (SUB), and Suicidality (SUI). The DAPS has two validity scales – Positive Bias evaluates the extent to which respondents deny low-level psychological symptoms; Negative Bias assesses the willingness to present oneself as especially symptomatic. For the purpose of this study, the scores of the PTS-T were used to look at the severity of the PTSD symptoms. According to Briere [9], severity is defined on the PTS-T scale as follows: T-score less than 60 = non-significant; T-score 60 -64 = mild; T-score 65 -74 = moderate; T-score 75 and above = severe. The DAPS has shown good reliability and validity; (b) The Short Form Social Support Questionnaire (SSQ6) [11] is a self-administered scale with a 6-point scale ranging from 1 (very dissatisfied) to 6 (very satisfied). Two scores are obtained from the questionnaire: the quantity and quality of support. For each question, the number of support score ranged from 0 (no supporting individual identified) to 9 (9 individuals identified), with the range of possible scores being 0 to 54. The satisfaction with support score ranged from 1 (very dissatisfied) to 6 (very satisfied), with the total score ranging from 6 to 36. The SSQ6 is reported by Sarason et al [11] to show satisfactory psychometric properties; (c) Significant Other Scale (SOS) [12] (simplified version – Form SOS (A) which assesses four different social support functions (two emotional and two practical) in 7 people (including spouse/partner, father, mother, closest sibling, closest child, and best friend). For each of the four support functions, each individual is rated in terms of the level of support received and the ideal level of support. Ratings were on seven-point scales ranging from 1 (never) to 7 (always). This is a self-administered scale as well. Powel et al [12] indicate satisfactory reliability and validity for SOS; (d) COPE [13] is used to assess situational coping (responses to a specific situation or during specific time period) or dispositional coping (typical responses to stressors) or both. This self-administered inventory has a four-point scale with a minimum score of 1 (“I usually don’t do this at all”) to a maximum score of 4 (“I usually do this a

lot"). COPE [13] generally has good psychometric properties.

Prior to data collection, information regarding the worst hit areas was gathered from media sources. Assistance from government agencies was sought to locate temporary shelter/homes for the victims. Data collection took about three months (after the six months period but before the nine months period). Oral consent was obtained from the subjects as most of them were fishermen, after which the DAPS [9] was personally administered by the researcher. Subjects were placed in groups of 4 and administration of the questionnaire was conducted simultaneously. The Social Support and COPE [13] questionnaires were either administered by the researcher or were self-reported by subjects who were able to read and understand the questionnaires. Translated versions (Malay) of the questionnaires were used. Data were analyzed using the Statistical Package for Social Sciences (SPSS) with an appropriate statistical test.

Results

The general characteristics of the subjects are presented in Table 1.

Table 1. General characteristics of subjects

Variable	**n (N=64)**	**%**
Age		
Adolescent (below 19 years)	2	3
Young adulthood (20 – 40 years)	30	47
Middle adulthood (41 – 64 years)	26	41
Late adulthood (65 years and above)	6	9
Gender		
Male	28	44
Female	36	56
Marital status		
Single	13	20
Married	41	64
Divorced	3	5
Widow/widower	7	11
Education		
No education	11	17
Primary	13	20
Secondary	40	63
Employment status		
Unemployed	29	45
Employed	34	53
Student	1	2
Location during tsunami incident		
At home	37	59
In a shop	2	3
At the office	1	1
Others	24	38
Losses		
None	2	3
Family member(s) only	3	5
House/property only	54	84
Family member(s) and house/property	5	8

Injury		
Injured	10	16
Not injured/minor scratches	54	84

Results show that only 12 or 19% of respondents fulfilled the DAPS-PTSD decision rule (Table 2).

Table 2. Respondents' PTSD diagnosis

Gender	**PTSD Diagnostic**	
	No	Yes
Male	24	4
Female	28	8
Total	52 (81%)	12 (19%)

Table 3 represents the Posttraumatic Stress – Total (PTS-T) scale which is the sum of Reexperiencing (RE), Avoidance (AV), and Hyperarousal (AR) scale scores, and thus reflects the total extent of PTSD symptoms endorsed by the respondents.

Table 3. Severity of PTSD symptoms among respondents

Severity of PTS-T	**n (N=64)**	**%**
Not significant	43	67
Mild	4	6
Moderate	6	9
Severe	11	17

Table 4. T-test analysis comparison of Posttraumatic Stress Total (PTS-T) between male and female

Gender	**n (N=64)**	**Mean**	**SD**	**df**	**t**
Male	28	50.21	20.6	62	-.434*
Female	36	53.00	28.7		

*p < 0.05

The Independent Groups T-test was used to analyze the scores of social support between male and female victims.

Table 5 shows that there is no significant difference in the number of social support between male and female respondents (t = - 1.355, df = 62, p < 0.05).

Table 5. T-test analysis comparison of social support between male and female

	Gender	**n (N=64)**	**Mean**	**df**	**t**
Number of support	Male	28	13.86	62	-1.355*
	Female	36	16.58		
Level of Satisfaction	Male	28	31.07	62	-1.801*
	Female	36	33.14		

*p < 0.05

From Table 6, the result shows that there is a negatively significant difference in the use of adaptive coping styles of respondents who fulfilled the DAPS-PTSD criteria and those that did not (t = -2.603, df = 62, p < 0.01).

Table 6. T-test analysis comparison of PTSD and coping styles

Coping Styles	**PTSD Diagnosis**	**n (N=64)**	**Mean**	**SD**	**df**	**t**
Adaptive	No	52	82.17	21.16	62	-2.603**
	Yes	12	79.83	21.30		
Maladaptive	No	52	15.85	15.85	62	-.466**
	Yes	12	26.00	5.72		

**p < 0.01

Social support was divided into subscales of emotional and practical support. Analysis using the Pearson bivariate on both subscales was conducted (Table 7).

Table 7. Correlations between social support and PTSD symptoms

	r
PTSD symptoms and emotional support	.065*
PTSD symptoms and practical support	.964**

* $p < 0.05$
** $p < 0.01$

Discussion

The present study found that based on the DAPS assessment, 12 out of 64 respondents developed PTSD. This can be seen in that 56 (83%) of respondents received not only instrumental aids, but mental health professionals from various organizations also assisted in offering counseling and psychotherapy services. The findings of this study are quite consistent with the studies at the Psychological Care Center of Hyogo Prefecture [14] after the Kobe earthquake in 17 January 1995, whereby out of 1,956 cases seen after the earthquake; those who developed PTSD according to DSM-IV were 2.5%. However, prevalence was 4.5% among those who lost their homes, and 13.1% among those who lost their family members. The prevalence of PTSD was clearly related to the severity of damage incurred. People exposed to an objectively traumatic event involving the death of someone close might develop both PTSD and traumatic grief. Prigerson et al [15] reported that many symptoms associated with being devastated by another's death appear to resemble symptoms of PTSD.

Based on the DAPS, only 12 or 19% of respondents fulfilled the DAPS-PTSD decision rule while the remaining 53 or 81% have some symptoms of PTSD but insufficient for a PTSD diagnosis. This is supported by studies comparing rates of PTSD across different stressors, exposures to fires, disasters, and other hazards, with PTSD in 5 – 8% of cases. Disasters were found to less likely cause PTSD [16]. In general, human-made traumatic events (as opposed to natural disasters) have been shown to cause more frequent and more persistent psychiatric symptoms and distress [17]. Clinical studies suggest that the psychiatric consequences following trauma are influenced by the meaning ascribed to the event by individuals, families and communities. Beliefs about the cause of the disaster and the ramifications of these beliefs can produce or buffer psychological distress [17].

Out of the 12 respondents who are diagnosed with PTSD, 8 or 67% of them are women. Therefore, findings with regards to gender have been fairly consistent. Breslau et al [18] studied 1007 young adults in Detroit, Michigan, and found sex differences regarding the development of PTSD. In the total sample, 6% of men and 11% of women developed PTSD,while prevalence among those who had experienced trauma was 14% for men and 31% for women. In another large prevalence study, Kessler [19] found that 10% of the women developed PTSD and 5% of the men developed PTSD during their lifetime. The PTSD rate among those exposed to trauma was 20% for women and 8% for men. In discussing the sex

differences in PTSD, Kessler et al [19] pointed out that while men are more likely than women to experience at least one trauma overall, women are more likely than men to experience a trauma associated with a high probability of PTSD (e.g. sexual assault). It appears that women are at greater risk of psychological distress, measured by a range of outcomes, when exposed to disasters. These findings are similar to those from general population studies highlighting the relative vulnerability of women when exposed to traumatic events plus the perception of the events by men and women which are also different [18,19].

Even though there was no significant difference in the PTS-T between male and female respondents, the mean score for female respondents was higher. This is supported by findings of a study by Zlotnick et al [20] who wrote that despite theoretical formulations about gender differences in response to trauma, including gender differences in brain morphology or in social interpretations of trauma, empirical evidence from their report suggests that the manifestations of PTSD among male and female patients are more similar than different.

While there is no significant difference in the number of social support between the genders, the mean number of social support for female is slightly higher than the male. This can mean that women have a tendency to confide more either to family members, relatives or friends. Gender differences observed between social support patterns of men and women may be significant and the type of support that is protective following a crisis may differ between the sexes. Women have been reported to gain emotional support from wide groups of confidants with partners less heavily relied on. They appear to place greater importance on providing emotional support to others. In contrast, a man relies more heavily on his partner as his sole confidant and places greater value on practical support from friends [21]. In terms of level of satisfaction from the social support, there is no significant difference between the genders. It is possible that poor social support affects how the victim of trauma processes and copes with the event. However, because of the avoidance and withdrawal that accompany PTSD, victims isolate themselves from possible sources of support. The problem with studying the effects of social support at any one given point in time is that support may wax or wane depending upon the apparent needs of the victims and their willingness to accept help and support. Social support is an ongoing process that reflects an interaction between people and is not easily captured in most cross-sectional research projects [22]. Murphy [23] observed that the frequent complication in studying social support following trauma is that the trauma itself may include the loss of an important support figure.

There is no real difference in the use of adaptive coping styles between those who fulfilled the DAPS-PTSD criteria and those who did not. This could be because respondents in this study may have used avoidance type coping, therefore avoiding reporting appropriate symptoms. In studies conducted with victims of motor vehicle accidents, rape, domestic violence, or combat, researchers have all found that symptoms and continued distress (PTSD, depression, and/or social

adjustment) are associated with avoidance type coping [24]. The present study also shows that respondents who have PTSD used maladaptive coping styles.

It was found that high emotional support is not associated with symptoms of PTSD. On the other hand, PTSD symptoms positively correlated with practical support. Research on traumatic stress has demonstrated a relationship between social support and trauma outcomes across populations. Davidson et al [25] conducted a population study of PTSD in North Carolina with 2,985 participants identifying social support and development of PTSD. Although they found no difference in quantitative social support, those with PTSD had less social interaction (qualitative social support) and perceived inadequate social support. Liederman-Cemiglia [26] reported that resistance to PTSD symptoms was associated with a greater degree of perceived social support and optimism, a more internal locus of control, and the use of fewer emotion-oriented and avoidance-oriented coping strategies.

This research showed that only a small number of respondents fulfilled the diagnosis of PTSD following their experience of a disaster. It was highlighted that there were no differences between genders in terms of PTSD symptoms and social support. There is a significant difference though in adaptive and maladaptive coping styles among victims who fulfill the PTSD diagnosis and those who do not. As for the relationship between PTSD symptoms and social support, there is a significant relationship between PTSD symptoms and practical support but not with emotional support. Research of this nature should be conducted on a large scale. A continuation of this research can be done cross-sectionally every six months and subsequently, every year. Psychological screening should be carried out since it also provides opportunities to identify other disorders such as depression.

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