

Chapter 4

POST-TRAUMATIC GROWTH, COPING, AND SOCIAL SUPPORT AMONG DISASTER SURVIVORS IN THE PROVINCE OF YOGYAKARTA, INDONESIA

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ABSTRACT

Natural disasters cause many casualties, physical damage, and loss of properties. The event has a potential to cause traumatic experiences. Traditionally research has examined the negative or pathological effects that trauma may have on individuals, as well as variables that are proposed to influence post-trauma outcomes. In recent years, empirical post-trauma research has broadened its scope to investigate positive changes that may also occur following the experience of traumatic events. This study examines coping and social support variables in relation to levels of post-traumatic growth among disaster survivors. The sample consists of 100 survivors, female 53 (mean = 75,47; SD = 8,248) and male 47 (mean = 74,04 ; SD = 8,917) affected by natural disaster, earthquake 2006 in Bantul district (n = 50) and volcano eruption 2010 in Cangkringan Sleman district (n = 50) in Yogyakarta Province, Indonesia. Data were collected several years after disasters in 2013. The measurement instrument used for data collection has subscales on post-traumatic growth level, coping, and perceived social support. Coping aspects are divided into approach and avoidance coping. Possible predictors to post-traumatic growth were examined by regression analyses. Approach coping confirmed a significant relationship with post-traumatic growth scores. The result shows that approach coping and social support are significant predictors of post-traumatic growth. Implications for this research offer further highlight the needs for addressing approach coping and social support, which are more important than the nature of traumatic event in rehabilitation programme for disaster survivors.

Keywords: traumatic growth, coping, social support, disaster survivors.

1. INTRODUCTION

Indonesia is a hazard-prone country as it is situated at the meeting point of three active plates in the world: the Indo-Australian plate in the south, the Euro-Asian plate in the north, and the Pacific plate in the east. The three plates are moving and thrusting towards one another in such a way making the area prone to natural disasters such as volcanoes, earthquakes, and tsunamis. The movement of the plates also causes the area to become a tectonically and volcanically active region (National Agency for Disaster Management, 2010). Thus, natural disasters occur almost every year in Indonesia, some of which hit Yogyakarta Province in May 2006 and October 2010 when two massive disasters, catastrophic tectonic earthquake and volcanic eruption of Mount Merapi, caused many casualties and extensive property damage.

An earthquake disaster occurred on 27 May 2006 at 05:55 a.m. local time, devastating the southern part of Yogyakarta province and the east southern part of Central Java province. The earthquake was measured at 5.9 on Richter scale or 6.3 (USGS) with the epicenter located in the Indian Ocean, at 8.26 South Latitude and 110,301 East Longitude or around 37 km from Yogyakarta city, in a depth of 33 km below sea level. The impact of the earthquake was catastrophic as it caused lots of death and destroyed thousands of houses. The worst impact occurred in Bantul district with 4,143 people dead, 12,026 people injured, 71,763 houses collapsed, 71,372 houses heavily damaged, and 73,669 houses slightly damaged, while the second place was occupied by Klaten district with 1,045 people dead, 18,128 people injured, 29,988 houses collapsed, 62,979 houses heavily damaged, and 98,552 houses slightly damaged (National Agency for Disaster Management, 2010).

Another disaster was the Mount Merapi eruption occurring between October and November 2010, which impacted the Yogyakarta and Central Java Province residents. The eruption was the most powerful and the worst after its last eruption in 1870, causing a lot of casualties of both lives and properties. It was considered the worst because it had forced a total of 32 villages with a population of more than 70.000 people to leave their homes. Based on the statistical data from the National Agency for Disaster Management (BNPB), the total number of casualties caused by the eruption included 277 from Yogyakarta province and 109 from Central Java province (National Agency for Disaster Management, 2011). The data also recorded that there were a total number of 2,527 refugees in Central Java province and 12,839 refugees in Yogyakarta province.

According to the United Nations (UN), natural disasters are increasing in frequency and severity around the globe (Jacobs, Leach, & Gerstein, 2011). The rising number of population is one of the contributors to the negative impacts of natural disasters because death tolls and devastations are greater in areas with more dense population. McFarlane and Norris defined a disaster as a potentially traumatic event that is actively experienced, an accurate onset, and the time is delimited or may be limited, and although the aftermath may be long term, the actual disaster has an ending (Bowman & Roysircar, 2011). An event may be traumatic to one person, but community experiences a disaster, be it a town, a region, or a nation (Yutrzecka & Naifeh, 2008). Natural disasters often cause a number of psychological distresses, but post-traumatic stress disorder particularly emerges when there are many casualties in the disaster. The first reaction of the individual to disasters varies ranging from a state of shock, fear, sadness, and anger, which may be leading to a denial to the catastrophic events that have just occurred. Individual's ability to control his life decrease and a lot of predictable and solvable problems are becoming difficult to see due to the disaster effects that overpower their ability to cope with the trauma (Carson & Butcher, 1998, as cited in Aiken, 2001).

The disaster did not only result in negative impacts, but also in positive ones. Various reviews revealed that 30-90% of individual reported some positive changes following a serious life event, and that the event provided a learning opportunity that helped them live their lives more fully (Park, Cohen, & Murch, 1996). Positive changes following traumatic events have been empirically demonstrated after various kinds of violence, such as rape and sexual abuse, combat, living with AIDS (Siegel & Schrimshaw, 2000), suffering heart attacks (Affleck, Tennen, Croog, & Levine, 1987), and natural disasters. These positive changes and experiences are called *post-traumatic growth* (Karanci & Acarturk, 2005).

Post-traumatic growth is the process of getting and maintaining perceived positive outcomes from a traumatic experience (Tedeschi, Park, & Calhoun, 1998). Many terms including found meaning, benefit finding, post-traumatic or stress-related growth, perceived benefits and self-transformation have been used to capture experience of positive change or growth (Siegel & Schrimshaw, 2000). In particular, the term "post-traumatic growth" has been used in reference to "a sense" that personal growth is resulted from a challenging life experience (Tedeschi & Calhoun, 1996).

Taking into consideration of cross-cultural aspects, a contribution shall thus be made to explore the long-term consequences of natural disasters in Yogyakarta Province Indonesia. Why did some survivors reach post-traumatic growth? How did the people cope with the devastating disasters? What impacts did social support have on post-traumatic growth? What is the relationship between coping and social support to post-traumatic growth?

2. BACKGROUND

2.1. Post-traumatic growth

Tedeschi and Calhoun (1996) have noted that traumatic events that confront the individual may become a challenge of how to make the experience manageable, comprehensible, and meaningful. Successful adaptation requires effective negotiation of these psychological tasks, which in turn can provide the base for positive individual and interpersonal changes. Such positive changes have been documented following a wide variety of difficult life

experiences – events as seemingly disparate as coping with breast cancer (Cordova, Cunningham, Carlson, & Andrykowski, 2001), sexual assault (e.g., Frazier, Conlon, & Glaser, 2001), and military combat (e.g. Fontana & Rosenheck, 1998; Linley & Joseph, 2004; Tedeschi & Calhoun, 1996, 2004). The range of reported growth prevalence varies widely (reviewed in Linley & Joseph, 2004), even after similar types of traumatic events, suggesting that positive growth outcomes may depend on the subjective experience of the event rather than strictly its type or objective characteristics.

Calhoun, Cann, Tedeschi, and McMillan (2000) defined posttraumatic growth as “positive change that an individual experiences as a result of the struggle with a traumatic event”. In contrast to the construct of resilience, in which the individual returns to baseline functioning following highly stressful or traumatic experience (O’Leary & Ickovics 1995), posttraumatic growth is characterized by post-event adaptation that exceeds pre-event levels. In other words, the experience is transformative and represents a “value-added” (O’Leary & Ickovics 1995) or “better-off-afterward” (Carver, 1997) state. The domains in which positive changes may occur span perceptions of self, philosophy of life, and relationships with others (Tedeschi et al., 1998). This general construct has received considerable theoretical and empirical attention in the past decade, variously described as posttraumatic growth (Tedeschi & Calhoun, 2004), thriving (O’Leary & Ickovics, 1995; Carver, 1997), stress-related growth (Park, Cohen, & Murch, 1996), perceived benefits (McMillan, Smith, & Fisher, 1997), and adversarial growth (Linley & Joseph, 2004), among other appellations.

Growth is presumed to result from psychologically “seismic events” (Calhoun, 1996, as cited in Tedeschi et al., 1998) – events that seriously challenge or disrupt an individual’s basic assumptions and modes of interpreting and adapting to experience. Consistent with this, some studies have found growth or the perception of benefits to be positively associated with degree of perceived threat or event exposure (e.g., Cordova et al., 2001; Fontana & Rosenheck, 1998) and level of posttraumatic stress symptoms (e.g., Cadell, Regehr, & Hemsworth, 2003), though findings have been inconsistent (e.g., Frazier et al., 2001). In some cases, however, a curvilinear relationship has been noted wherein higher growth is reported by those with intermediate levels of exposure (Fontana & Rosenheck, 1998; Lechner et al., 2003) or symptoms, suggesting that there may be a range of traumatic experience most conducive to growth (Tedeschi & Calhoun, 1998) regarding possible curvilinear relationships to personality and coping factors. In post-traumatic growth, there is an emotional and cognitive process. This affects the outcome of the traumatic experience that is threatening the individual psychology. In a cross-sectional study, Park et al. (1996) found that higher benefit-finding was positively associated with intrusion and avoidance symptoms related to a recent stressful negative event.

It is found that posttraumatic growth reported in the first few months following the September 11, 2001 terrorist attacks was associated with higher levels of trauma symptoms, more positive changes in worldview, and higher use of denial as an early coping strategy – each of these factors was significantly associated with each of the five different types of growth. Additionally, younger age, non-white ethnicity, less education, lower levels of behavioural disengagement, and a curvilinear relationship with trauma symptoms were also significantly associated with a majority of growth outcomes. Interestingly, the coping strategy of active coping/planning is positively associated with higher new possibilities, but negatively associated with relating to others and spiritual change. At the follow-up assessment, 6-8.5 months after the attacks, those who were reported to decrease in trauma symptoms and increases in positive worldview changes, acceptance, and positive reframing (compared to levels at baseline) are reported to have higher levels of growth on a majority of growth subscales. Females and those with low educational background at baseline were also associated with follow-up growth. It is found that increases in positive reframing and acceptance over time, along with a reduction in trauma symptoms, were associated with higher PTG in the longer term (Butler, Blasey, Garlan, & McCaslin, 2005).

The nature of the traumatic event, coping variables, perceived social support have commonly been investigated as predictors or correlates of post-trauma. In recent years, a few researchers have systematically investigated notions of positive post-trauma changes in individuals, for example following loss (Tedeschi & Calhoun, 1998), heart surgery (Affleck &

Tennen, 1996), sexual assault and cancer (McMillen, 1999). The rebuilding of the individuals' assumptive world that was destroyed by the trauma (Cadell & Sullivan, 2006). Tedeschi and Calhoun (1998) postulate that PTG is more likely to occur when events are highly disturbing.

2.2. Coping

Coping is different from the automatic habitual responses that are perhaps measured more appropriately by psychological scale measurement. Coping is a process by which an individual manages the demands and emotions generated by that which is appraised as stressful (Lazarus, 1999; McCammon, Durham, Jackson Allison, & Williamson, 1988). Strategies include appraisals of a stressful event and bestowing the situation with meaning, as opposed to the global meaning assessed when measuring levels of PTG (Folkman & Moskowitz, 2000). The process involves appraisals as to whether a situation is a threat, a challenge, or a loss, and perceptions of what can be done to alter the situation or minimise the threat. Following the initial appraisal of the situation, coping strategies are implemented (Lazarus & Folkman, 1984). As a mediating variable, coping can be considered a transactional process between individuals, the context, and post-trauma outcome. In general though, active coping tends to be associated with better long term adjustment than are strategies that involve avoidance or disengagement, a maxim that was generally confirmed by findings with respect to predictors of 9/11 related trauma symptoms, global distress, and psychological well-being (Butler et al., 2005).

The post disaster environment and coping strategies of survivors (Karanci & Acarturk, 2005) are related to distress. Coping skills are also found to be related to growth. Park et al. (1996) found that there is a significant relationship between acceptance coping, positive reinterpretation and perceived growth. Moreover, studies reported that people, who use active coping strategies such as a problem-focused approach, can more easily handle stressful situations (Tedeschi et al., 1998). PTG was significantly correlated with the perceived severity of impact, perceived life threat, perceived social support, problem-focused coping, fatalistic coping, and helpless coping. The growth literature suggests that problem focused coping, positive reappraisal, and acceptance, are positively related with growth.

Tedeschi and colleagues (1998) also found that people may experience growth in three domains: personal changes, social changes, and spiritual changes. In spiritual changes, people were reported to have changes similar to the items of fatalistic coping such as "I tried to be happy with what I have had." Thus the results are in line with the literature showing that problem focused/optimistic coping and a fatalistic approach, which is an approach that entails acceptance, are related to growth.

2.3. Social support

Tedeschi and Calhoun (1996) emphasized the importance of initial distress, personality characteristics, type of trauma and the context of social support as factors related to posttraumatic growth. Social support is important because it affects the rumination and the coping behaviours of the person (Tedeschi et al., 1998). In their study with the survivors of the Yugoslavia war, Tedeschi and Calhoun (2004) found that being a member of a group was a predictor of growth. The authors explained this finding that individual has an opportunity of belonging to a group of people in which they can provide channel for sharing trauma history, world view, and collective coping strategies with each other. Therefore social support seems to be an important facilitator of growth. Supportive social networks are often cited as a buffer against stress (Pittman & Lloyd, 1988). PTG was significantly correlated with the perceived severity of impact, perceived life threat, and perceived social support. It was found that a higher degree of perceived social support is significantly associated with less psychological distress (Dirkzwager, Bramsen, & van der Ploeg, 2003). Moreover, a supportive social network may cause the use of more active coping strategies (Dirkzwager et al., 2003). In the present study, the correlation analysis shows that perceived social support is correlated with being a volunteer and posttraumatic growth (Swickert & Hittner, 2009).

Researchers in the trauma literature have highlighted the importance of social support coping in facilitating posttraumatic growth (Tedeschi & Calhoun, 2004). Other forms of social

support, such as perceived availability of support and relationship satisfaction, would serve the same mediational role in the relationship between gender and posttraumatic growth, as does social support coping. In fact, research has documented a relationship between these two types of social support and posttraumatic growth (Park et al., 1996). Familial and general social support have also been found to promote positive outcomes (Brewin, Andrews, & Valentine, 2000; Frazier, Tashiero, Berman, Steger, & Long, 2004; Ozer, Best, Lipsey, & Weiss, 2003).

However, the association between post-traumatic growth and social support have been inconsistent. For example, Widows, Jacobsen, Booth-Jones, & Fields (2005) found no association between social support and post-traumatic growth. The simple presence or absence of a support network also has been found to be predictive of distress, regardless of the quality of social support. There is positive and negative support. The subjectively experienced, and qualitatively labeled, negative social support occurs when one attempts to be supportive but, in essence, provides a potentially damaging support comment or behavior such as “you should forget about it” or questioning “why were you there” to the trauma victim. These types of responses are not unheard of after any trauma. In other hand, they appear to have potentially become more prevalent for survivors of hurricanes because of the large number of damaging storms in the past few years. Residents in hurricane-prone areas may be dismissed or seen partially to blame for living in an area where a hurricane might strike. For example, soon after Hurricane Katrina, a poll by TIME magazine indicated that 57% of the respondents blamed the victims themselves for the relief problems (Borja & Callahan, 2008). Given the inconsistency of existing results, further research is necessary to explore more about association between growth and social support.

3. METHODOLOGY

3.1. Objective

This study examines coping and social support variables in relation to levels of post-traumatic growth among disaster survivors in Yogyakarta Province Indonesia.

3.2. Participants and procedure

The sample consists of 100 survivors of affectedness natural disaster earthquake in Bantul district and volcano eruption in Cangkringan Sleman district in Yogyakarta Province, Indonesia. For the period July-September 2013, a process data was collected. The participants were personally approached, given information about the purpose of the research, and invited to participate. Confidentiality of information and its restricted use for research only were assured.

3.3. Measures

The measurement instruments used for data collection had subscales on post-traumatic growth level, coping, and perceived social support.

Post-Traumatic Growth (PTG). Post-traumatic growth was assessed with the 21-items Post-Traumatic Growth Inventory (Tedeschi & Calhoun, 1996) that include aspects of perceptions of growth in relating to others, new possibilities, personal strength, spiritual change, and appreciation of life. The Post-Traumatic Growth Inventory was developed to assess growth-related changes experienced by traumatized individuals. The 21-item scale yields a total score and five subscale scores: New Possibilities (5 items), Relating to Others (7 items), Personal Strength (4 items), Spiritual Change (2 items), and Appreciation of Life (3 items). For the present analyses only subscale scores were calculated. Participants read potential change items and rate them on a 6-point Likert-type scale, ranging from: “not at all” to “a very great degree”. The Post-Traumatic Growth Inventory has good internal consistency, and acceptable test-retest reliability, construct, convergent, and discriminant validity (Tedeschi & Calhoun, 1996).

Coping. Coping was assessed with a 24 items scale. These items were derived from 28 items of the Brief COPE Scale (Carver, 1997) and were selected based on their high factor loadings. Brief COPE includes subscales that assess different types of coping: self-distraction,

active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, emotional venting, positive reframing, planning, humour, acceptance, religion, and self-blame. Research participants were instructed to rate each item (1 = “I haven’t been doing this at all” to 4 = “I’ve been doing this a lot”) in relation to how they had “been coping with the stress in (their) life, including related to the disaster. Substance use and humour were not examined in this research because of low factor loading analysis and related to culture bias. The Brief COPE has adequate internal reliability (Carver, 1997). Finally, coping aspects divided into approach and avoidance coping.

Perceived social support. Perceived social support was assessed using the Multidimensional Scale of Perceived Social Support (MSPSS). This scale was constructed to assess individual’s perceived social support. MSPSS specifically addresses the subjective assessment of social support adequacy. It was designed to assess perceptions of social support adequacy from three specific sources: family, friends, and significant others. MSPSS has good reliability, factorial validity, and adequate construct validity (Zimet, Dahlem, Zimet, & Farley, 1988).

Table 1 gives an overview of the descriptive data of the participants. The participant was 35% male and 65% female. Fifty percent of study participants were survivors from the Bantul’s earthquake 2006 and 50% of the Merapi Eruption 2010. The educational background of the participants was no school 6%, elementary school 36%, junior high school 25%, senior high school 32%, and university 1%. The marital status was single 12%, married 82%, and widow/widower 6%. All participants were Muslim. Participant’s occupation was labourer 19%, teacher 2%, housewife 31%, and others 48%.

Table 1. Participants descriptive statistics (n= 100).

Demographics	
<i>Gender (%)</i>	
Male	35 (35%)
Female	65 (65%)
<i>Marital status (%)</i>	
Single	12 (12%)
Married	82 (82%)
Widow/Widower	6 (6%)
<i>Level of education (%)</i>	
No school	6 (6%)
Elementary school	36 (36%)
Junior high school	25 (25%)
Senior high school	32 (32%)
University	1 (1%)
<i>Occupation (%)</i>	
Labourer	19 (19%)
Teacher	2 (2%)
Housewife	31 (31%)
Others	48 (48%)

A regression analysis in Table 2 showed that coping and social support are significantly predicted post-traumatic growth ($F = 354.095$; $p = 0.000 < 0.05$).

Table 2. Regression analysis result.

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	10.997	3	3.666	354.095	.000 ^b
Residual	.994	96	.010		
Total	11.991	99			

^a Dependent Variable: PTG

^b Predictors: (Constant), Coping Avo, Coping App, Social Support

Approach coping significantly predicted post-traumatic growth score ($\beta = 0.583$), avoidance coping significantly predicted post-traumatic growth ($\beta = 0.111$), and social support also significantly predicted post-traumatic score ($\beta = 0.334$). Among those aspects significantly predicted 91,7% to post-traumatic growth. Even though both of coping strategy are significantly, we can see that approach coping is more effective than avoidance coping based on t-score (Table 3). Approach coping is more effective than avoidance coping relate to post-traumatic growth.

Table 3. Excluded avoidance coping.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.697	.077		22.098	.000
	Social Support	.143	.028	.334	5.783	.000
	Coping App	.393	.036	.583	11.047	.000
	Coping Avo	.042	0.15	.111	2.741	.007

^a Dependent Variable: PTG

4. CONCLUSION/DISCUSSION

Based on the statistical regression analysis, it was found that approach coping and social support confirmed significant relationship with post-traumatic growth scores. Psychological research has long held an interest in identifying coping abilities that promote better adjustment in the aftermath of trauma. Many coping theories assume that survivors of trauma engage in a cognitive process of ascertaining meaning in relation to their experience in order to successfully cope with it (Folkman, 2008; Lazarus & Folkman, 1984; Regehr, Goldberg, & Hughes, 2002; Tedeschi & Calhoun, 1995). Coping is often referred to in terms of strategies, styles, resources, approaches, and skills. These terms may differ conceptually and the coping used by one individual to another is also different. Alternatively, other researchers use the term strategy and advocate a contextual response, whereby coping is viewed as being flexible across situations and over time (Skinner, Edge, Altman, & Sherwood, 2003; Suls & David, 1996).

Current coping theories contend that the effectiveness of any given strategy is dependent on the context of the traumatic incident (Schulz & Mohamed, 2004; Zuckerman & Gagne, 2003). According to this view, any particular strategy employed by the person to deal with the trauma can be either adaptive or maladaptive, depending on the circumstance. For example, Whealin, Ruzek, and Southwick (2008) reviewed a number of studies that have referred to adaptive and maladaptive coping influences, and other studies have differentiated coping strategies by using terms such as, functional or dysfunctional, transformation or regressive coping; and Sharkansky et al. (2000) who examined the relationship between approach focused or avoidance focused coping strategies on the psychological ill-health in active military personnel.

The coping measure employed in this study was Brief COPE Scale (Carver, 1997), based on factor analysis, which is divided into 2 factors. The first factor is called Approach Coping, comprises of 15 items: active coping, using emotional support, venting emotion, using instrumental support, positive reframing, planning, acceptance, and religion. The second factor is called Avoidance Coping, comprises of 9 items: denial, behavioural disengagement, self-blame, humour, and venting emotion (expressing negative feelings). The research result found that approach coping are recognized to post-traumatic growth in disaster survivors. Approach coping relates to direct attempts at problem-solving activities to relieve the source of psychological distress and relieve through positive reframing, and an optimistic outlook.

Social support is believed to help individuals evaluate events as being less stressful, and it has been shown to positively influence health outcomes (Tedeschi & Calhoun, 2004). Social support also has been related to posttraumatic growth (Park et al., 1996; Tedeschi & Calhoun, 2004). Post-traumatic growth can be understood as the occurrence of positive psychological change that can come about when individuals respond to highly challenging life events. Although there certainly are negative psychological effects that can result from traumatic experiences, the phenomenon of posttraumatic growth provides evidence for the notion that one can also grow and learn from stressful events (Tedeschi & Calhoun, 2004).

Three general domain areas of posttraumatic growth have been identified in the literature (McMillen, 1999; Tedeschi & Calhoun, 1995). First, individuals who have experienced traumatic events are frequently reported that they have a change in their own self-perceptions. Specifically, they are often described to have an increase in their feeling of self-reliance and self-efficacy, which can occur as individuals cope with the stressor that they have experienced. A second form of perceived benefit that people often describe after a traumatic event is a change in the quality of their relationships with others. In coping with a traumatic event, the individual may need a great deal of emotional or tangible support from others. When support is provided, this often leads the individual to see others in more positive ways and to become closer to the people in their support network. Finally, a third form of perceived benefit is that traumatized people are often reported to have a change in their life structure or their philosophy of life. After experiencing a traumatic event, individuals often recognize the vulnerability of life and, therefore, seem to develop a greater appreciation for it. Individuals also may reevaluate their spiritual lives, and for many people, this re-evaluation leads to a strengthening of religious beliefs (Tedeschi et al., 1998).

Social support is believed to influence the development of post-traumatic growth in a number of ways. Specifically, supportive others provide an outlet for the traumatized individual to talk about their experiences and, as such, the individual has an opportunity to receive emotional support, informational feedback concerning the stressful event and tangible assistance when coping with the stressor. As a result of these supportive experiences, the traumatized person may over time see others in more positive ways and may feel more confident in responding to the stressful event (Cryder, Kilmer, Tedeschi, & Calhoun, 2006; Tedeschi & Calhoun, 2004). Indeed, research has shown that traumatized people who have received support from others are often reported that they feel closer to significant others, that they engage in personal disclosure more often and that they are more compassionate and empathic when responding to others (McMillen, 1999). This influences between coping and social support to post-traumatic growth help to explain following psychological condition in disaster survivors in Yogyakarta Province Indonesia. Implications for this research offer further highlight the needs for addressing approach coping and social support, which are more important than the nature of traumatic event in rehabilitation program for disaster survivors.

5. FUTURE RESEARCH DIRECTIONS

This study has focused on post-traumatic growth, coping, and social support. Further research may need to analyse other possibilities related psychological aspects to post-traumatic growth in difficult life experiences, such as the disaster experience survivors.

The sampling design and data collection methods of this study have a number of methodological strengths and limitations. Specific strengths include: the measures are well

validated and post-traumatic growth data are directly taken from the disaster survivors. Nevertheless, the number of sample may have not been sufficient. Thus, future research may need to consider having a more representative sample. In addition, it is also necessary to consider measuring some aspects of post-traumatic growth in a periodical time, such as 10, 15, or maybe 20 years after the traumatic events. This can be carried out to acquire a more comprehensive picture of post-traumatic aspects.

REFERENCES

- Affleck, G., & Tennen, H. (1996). Construing benefits from adversity: Adaptational significance and dispositional underpinnings. *Journal of Personality, 64*(4), 899-922.
- Affleck, G., Tennen, H., Croog, S., & Levine, S. (1987). Causal attribution, perceived benefits, and morbidity after a heart attack: An 8-year study. *Journal of Consulting and Clinical Psychology, 55*(1), 29-35.
- Aiken, L. R. (2001). *Dying, Death, and Bereavement*. Mahwah, NJ: Lawrence Erlbaum Association.
- Borja, S., & Callahan, J. (2008). Recovery following hurricane Rita: A pilot study of preexisting and modifiable aspects of positive change. *Traumatology, 14*(2), 12-19.
- Bowman, S. L., & Roysircar, G. (2011). Training and practice in trauma, catastrophes, and disaster counseling. *The Counseling Psychologist, 39*(8), 1160-1181.
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology, 68*(5), 748-766.
- Butler, L. D., Blasey, C. M., Garlan, R. W., & McCaslin, S. (2005). Posttraumatic growth following the terrorist attacks of September 11, 2001: Cognitive, coping, and trauma symptom predictors in an Internet convenience sample. *Traumatology, 11*(4), 247-267.
- Cadell, S., Regehr, C., & Hemsforth, D. (2003). Factors contributing to posttraumatic growth: A proposed structural equation model. *American Journal of Orthopsychiatry, 73*(3), 279-287.
- Cadell, S., & Sullivan, R. (2006). Posttraumatic growth and HIV bereavement: Where does it start and when does it end? *Traumatology, 12*(1), 45-59.
- Calhoun, L. G., Cann, A., Tedeschi, R. G., & McMillan, J. (2000). A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *Journal of Traumatic Stress, 13*(3), 521-527.
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine, 4*(1), 92-100.
- Cordova, M. J., Cunningham, L. L. C., Carlson, C. R., & Andrykowski, M. A. (2001). Posttraumatic growth following breast cancer: A controlled comparison study. *Health Psychology, 20*(3), 176-185.
- Cryder, C., Kilmer, R., Tedeschi, R., & Calhoun, L. (2006). An exploratory study of posttraumatic growth in children following a natural disaster. *American Journal of Orthopsychiatry, 76*(1), 65-69.
- Dirkzwager, A. J. E., Bramsen, I., & van der Ploeg, H. M. (2003). Social support, coping, life events, and posttraumatic stress symptoms among former peacekeepers: A prospective study. *Personality and Individual Differences, 34*(8), 1545-1559.
- Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist, 55*(6), 647-654.
- Fontana, A., & Rosenheck, R. (1998). Psychological benefits and liabilities of traumatic exposure in the War Zone. *Journal of Traumatic Stress, 11*(3), 485-503.
- Frazier, P., Conlon, A., & Glaser, T. (2001). Positive and negative life changes following sexual assault. *Journal of Consulting and Clinical Psychology, 69*(6), 1048-1055.
- Frazier, P., Tashiero, T., Berman, M., Steger, M., & Long, J. (2004). Correlates of levels and patterns of positive life changes following a sexual assault. *Journal of Consulting and Clinical Psychology, 72*(1), 19-30.
- Jacobs, S. C., Leach, M. M., & Gerstein, L. H. (2011). Introduction and overview: Counseling psychologists' roles, training, and research contributions to large-scale disasters. *The Counseling Psychologist, 39*(8), 1070-1086.
- Karanci, N., & Acarturk, C. (2005). Post-traumatic growth among Marmara earthquake survivors involved in disaster preparedness as volunteers. *Traumatology, 11*(4), 307-323.
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York, NY: Springer.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

- Lechner, S. C., Zakowski, S. G., Antoni, M. H., Greenhawt, M., Block, K., & Block, P. (2003). Do sociodemographic and disease-related variables influence benefit-finding in cancer patients? *Psycho-Oncology, 12*(5), 491-499.
- Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress, 17*(1), 11-21.
- McCaddon, S., Durham, T., Jackson Allison, E., & Williamson, J. (1988). Emergency workers' cognitive appraisal and coping with traumatic events. *Journal of Traumatic Stress, 1*(3), 353-372.
- McMillen, J. C. (1999). Better for it: How people benefit from adversity. *Social Work, 44*(5), 455-468.
- McMillen, J. C., Smith, E. M., & Fisher, R. H. (1997). Perceived benefit and mental health after three types of disaster. *Journal of Consulting and Clinical Psychology, 65*(5), 733-739.
- National Agency for Disaster Management. (2010). *National Disaster Management Plan 2010-2014*. Jakarta, Indonesia: Bappenas-BNBP.
- National Agency for Disaster Management. (2011). *Action plan for post-disaster rehabilitation and reconstruction of eruption of Mount Merapi in Yogyakarta and Central Java Province 2011-2013*. Jakarta, Indonesia: Bappenas-BNBP.
- O'Leary, V. E., & Ickovics, J. R. (1995). Resilience and thriving in response to challenge: An opportunity for a paradigm shift in women's health. *Women's Health, 1*(2), 121-142.
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin, 129*(1), 52-73.
- Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality, 64*(1), 71-105.
- Pittman, J. F., & Lloyd, S. A. (1988). Quality of life, social support, and stress. *Journal of Marriage and the Family, 50*(1), 53-67.
- Regehr, C., Goldberg, G., & Hughes, J. (2002). Exposure to human tragedy, empathy, and trauma in ambulance paramedics. *American Journal of Orthopsychiatry, 72*(4), 505-513.
- Schulz, E., & Mohamed, N. E. (2004). Turning the tide: Benefit finding after cancer surgery. *Social Science & Medicine, 59*(3), 653-662.
- Sharkansky, E. J., King, D. W., King, L. A., Wolfe, J., Erickson, D. J., & Stokes, L. R. (2000). Coping with Gulf War combat stress: Mediating and moderating effects. *Journal of Abnormal Psychology, 109*(2), 188-197.
- Siegel, K., & Schrimshaw, E. W. (2000). Perceiving benefits in adversity: Stress-related growth in women living with HIV/AIDS. *Social Science and Medicine, 51*, 1543-1554.
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin, 129*(2), 216-269.
- Suls, J., & David, J. P. (1996). Coping and personality: Third time's the charm? *Journal of Personality, 64*(4), 993-1005.
- Swickert, R., & Hittner, J. (2009). Social support coping mediates the relationship between gender and posttraumatic growth. *Journal of Health Psychology, 14*(3), 387-393.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*(3), 455-471.
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry, 15*(1), 1-18.
- Tedeschi, R. G., Park, C. L., & Calhoun, L. G. (Eds.) (1998). *Posttraumatic growth: Positive changes in the aftermath of crisis*. London, UK: Lawrence Erlbaum.
- Whealin, J. M., Ruzek, J. I., & Southwick, S. (2008). Cognitive-behavioral theory and preparation for professionals at risk for trauma exposure. *Trauma, Violence & Abuse, 9*(2), 100-113.
- Widows, M. R., Jacobsen, P. B., Booth-Jones, M., & Fields, K. K. (2005). Predictors of posttraumatic growth following bone marrow transplantation for cancer. *Health Psychology, 24*(3), 266-273.
- Yutzenka, B. A., & Naifeh, J. A. (2008). Traumatic stress, disaster psychology, and graduate education: Reflections on the special section and recommendations for professional psychology training. *Training and Education in Professional Psychology, 2*(2), 96-102.
- Zimet, G., Dahlem, N., Zimet, S., & Farley, G. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*(1), 30-41.
- Zuckerman, M., & Gagne, M. (2003). The COPE revised: Proposing a 5-factor model of coping strategies. *Journal of Research in Personality, 37*(3), 169-204.

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