

Rage and Wishing for Peace: A Case Study of Posttraumatic Growth in Nagasaki Atomic Bomb Survivors*

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Abstract

This research used a qualitative approach to study the posttraumatic growth (PTG) in Nagasaki atomic bomb survivors. Narratives of four survivors (males, mean age = 76.8 years) were illustrative of four domains of PTG. Witnessing massive cruel deaths made them realize the value of life (appreciation of life). They asserted their message to the public for making peace in the world (relating to others) and this became a new interest and objective throughout their lives (new possibilities). Survival in the aftermath of the tragedy made them have a strong mind (personal strength). Anger played an important role during their cognitive process. Intrusive anger against the bomb was an obvious features of initial reactions. However, survivors had to suppress their anger because, following the war, the occupying forces banned criticism of the bomb. In addition, the Japanese cultural tendency to encourage individuals to accept even traumatic circumstances may also have suppressed anger. For these reasons, survivors could not express their anger, but diverted it deliberately to meaningful peace action. It is hypothesized that these cultural and political factors may have promoted PTG in the atomic bomb survivors.

Keywords: posttraumatic growth, Nagasaki atomic bomb survivors

Nagasaki Atomic Bomb Survivors

August 9, 1945, 11:02 AM. A single bomb changed Nagasaki city into a hell. A melting heat wave and blasting wind resulted in enormous civilian casualties in an instant. People who barely survived the initial shock were forced to suffer keloids, cataracts, leukemia, malignant tumors, psychoneurological disorders, and many died painfully of disease caused by nuclear radiation. There were 73,884 dead, and 74,909 injured by the end of 1945 (Committee for the preservation of atomic

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bomb artifacts, 1950).

Survivors witnessed mutilated corpses lying everywhere, including members of their families and friends, and many felt despair, loneliness, and guilt for surviving and having been unable to save their families. Those experiences were horrific enough to affect their physical and mental health. One month after the bomb, headache, tachycardia ringing in the ears, anxiety, depressed feeling, lack of concentration, and impatience were commonly observed. Two months later, headache, tachycardia, and anxiety remained (Okumura & Hikita, 1949).

Several of the symptoms found in survivors persisted over decades, even 60 years. 10522 of Hiroshima and Nagasaki survivors exposed within 2 km than beyond 3 km from the hypocenter complained of the frequency of easy fatigability, feeling sick, anxiety, uneasiness and depression (Yamada et al., 1991). Likewise, survivors exposed at a proximal distance reported more PTSD (Nakasaka & Sadamori, 2006). Survivors who lost family members and experienced acute radiation symptoms showed high general health questionnaire (GHQ) scores (Honda et al., 2002).

Unlike military personnel, civilians are often caught up in a war without deliberate choice because their residential area becomes a battlefield (Rosner & Powell, 2006). Likewise, the atomic bomb survivors did not have a deliberate choice. The bomb was dropped on innocent civilians, an event that was utterly uncontrollable. This was not the first air raid attack on Nagasaki City in World War II. Further, civilians in Nagasaki heard the news of Hiroshima being devastated by an atomic bomb a few days earlier. Despite this, not many civilians anticipated undergoing the same tragedy. Moreover, this was not an ordinary bomb, but a bomb of mass destruction causing fatal radiation disease. As a result, the survivors have had a deep sorrow and a huge resentment against the bomb. Here is representative statement written by one of the atomic bomb survivor:

My daily life start and end by the pain. I live in pain. I am furious against the atomic bomb that has gradually destroyed my body (Fukuda, 1963).

Nagasaki city was completely devastated by the bomb, taking away human lives, families, houses, foods, and jobs. As a consequence, the road to rebuild a life has been uphill. Particularly, survivors who were wounded seriously or disabled faced a difficult hardship because they had to spend more on medical expenses without the opportunity to produce an adequate income. Furthermore, they faced job and marital discrimination because of concern that residual radiation may be inherited by their children. The result was that survivors developed their self image and social identity as “Hibakusha” (atomic bomb survivors), separating them from rest of humanity (Lifton, 1970). These physical and social losses have been a source of psychological stress in the long run (Hiroshima shi Nagasaki shi genbaku saigaishi henshuu iinkai hen, 1979).

Posttraumatic Growth in War Survivors

Posttraumatic growth (PTG) in war survivors has been well studied by many researchers who identified several leading factors that are relevant to PTG. Five probable factors have been isolated that may yield PTG in war survivors.

First, profound distress and damage by severe war traumatic experience may lead PTG: evidence includes men who served in heavy combat (Elder & Clipp, 1989), greater PTSD symptoms in veterans of operations Enduring Freedom and Iraqi Freedom (Pietrzak et al., 2010), greater recent terrorism exposure, greater loss of psychosocial resources in terrorism-exposed Israeli adults (Hall et al., 2010), and length of captivity (facing prolonged extreme adversity) in former Vietnam prisoners of

war (Feder et al., 2008). Further, traumatic exposure was related to current PTSD symptoms and to personal growth in survivors of the Dresden bombing (Maercker & Herrle, 2003).

Second, solid social support is related to PTG: unit members' support of veterans in operations Enduring Freedom and Iraqi Freedom (Pietrzak et al., 2010), greater social support in terrorism-exposed Israeli adults (Hall et al., 2010), social acknowledgment as a survivor by significant others in former German child soldiers of World War II (Forstmeier et al., 2009), and post-deployment emotional and instrumental social support in veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) to encourage cognitive process of the traumatic event and to foster PTG (Benetato, 2011).

Third, younger age is another leading factor for PTG: veterans of operations Enduring Freedom and Iraqi Freedom (Pietrzak et al., 2010), and former refugees and displaced persons from Bosnia (Powell et al., 2003).

Fourth, personality is also a leading significant factor for PTG: hardiness in Israeli prisoners of war (Waysman et al., 2001), greater self-efficacy in terrorism-exposed Israeli adults (Hall et al., 2010), and meaningfulness as a dimension of Sense of Coherence (SOC) in former German child soldiers of WWII (Forstmeier et al., 2009), and optimism in former Vietnam prisoners of war (Feder et al., 2008).

Fifth, coping skills are related to PTG: effort and perseverance (Pietrzak et al., 2010), and task oriented coping, emotional oriented coping, avoidance-oriented coping are associated with PTGI subscale "relating to others" in war survivors in Bosnia and Herzegovina (Rosner & Powell, 2006).

In sum, the preceding traits are key elements leading to PTG in war survivors. Still, young war survivors having hardy pre-trauma personality suffered profound psychological distress by experiencing severely traumatic war events. Distress remained long after the events. Yet, many attempt to confront crisis in a supportive environment.

As Nagasaki atomic bomb survivors who are still living were at a young age when they underwent the terrific war experience, it may be probable to find PTG in them.

Objective and Method

Because physical, psychological and social losses were so immense, traumatic distress in the atomic bomb survivors has been well studied by researchers. Conversely, the current research aimed to spot positive change in response to trauma which is called posttraumatic growth (Tedeschi & Calhoun, 1995, 1996). Since the atomic bomb was an extraordinary traumatic event, it was uncertain what form of positive change the bomb survivors experienced. Therefore, this attempt was conducted using a qualitative approach that is beneficial to assess the unique characteristics of positive change. The following are good examples of these characteristics documented in war veterans: *"learning to cope with adversity," "self-discipline," "value life more," "clearer sense of direction," "more assertive" and "resilient up to mid-life"* (Elder & Clipp, 1989).

Another benefit of the qualitative approach is that it allows the researcher to assess rich descriptive detail of the positive change (Calhoun & Tedeschi, 2006) that helps to capture a process of PTG by tracking a target individual's thinking before and after a traumatic event. Tedeschi & Calhoun (2006) discussed how trauma survivors go through an intrusive to deliberate process to find a meaning of the traumatic event (a cognitive process) that is a key factor in prompting PTG. The qualitative approach was expected to portray this cognitive process in the atomic bomb survivors.

In addition, the event of the bombing triggered a drastic change in Japan from an autocratic to a democratic society that encouraged a paradigm shift in the minds of Japanese. This major social

change was assumed to foster PTG in the bomb survivors. The qualitative approach was also expected to assess the PTG affected by this fundamental social change.

Due to the limitations of this research approach, the goal of this research has not been to find objectively validated results, but to attempt to capture the context and process of the positive change that helped to yield PTG in atomic bomb survivors.

Interviews

Interviews were conducted with five atomic bomb survivors in April through July of 2010. Two participants were active members of the peace mission who were recruited directly by the researcher. The other three were recruited through the alumni organization of the school in Nagasaki. After each interview, narrative data were sent to the participants to review the contents and reconfirm accuracy for use as research data. One set of data was excluded at the request of an interviewee. Four participants remained (4 men, current Mage=76.8, SD=2.4, age range: 70-80 years), (Mage exposed to the A-bomb=11.8, SD=2.4, age range: 5-15 years), (IES-R=20, SD=13.5, range: 5-38), (PTGI-J (n=3: one participant resigned)=72.3, SD=21.4, range: 42-88). The scores of both IES-R-J (Japanese-language version of the Impact of Event Scale-Revised: Asukai et al., 2002) and PTGI-J (Japanese version of posttraumatic growth inventory: Taku et al., 2007) varied widely.

The interview process was expected to be highly stressful because it reminded the participants of the horrific scene of the bomb event. Therefore, the participants were carefully chosen as ones who were accustomed to talk about the bomb experience. Further, the numbers of the participants were restricted so as to be able to provide aftercare should traumatic symptoms appear within and/or after the interview. From ethical point of view, safety was prioritized rather than an objective scientific method.

Before the interview, the participants were informed about the psychological risk involved, and they were advised to consult appropriate care-givers if they experienced stress after the interview. Fortunately, none of the participants requested such aftercare. In addition, they were informed that confidential information would not be disclosed without permission.

The participants were also informed that the research objective was to determine how the survivors were changed by the bomb experience without mentioning the term PTG so as to avoid a positive bias affecting the narrative.

In interview, the participants were asked four questions through a time line approach so that participants would be able to realize their life change by tracing through time: (1) life before the bomb, (2) moment of the bomb, (3) life after the bomb, (4) any changes after the bomb. The points of assessment were made on how their, relationships with others, plans for the future, views of themselves, and world assumptions (Janoff-Bulman, 1992) were changed by the bomb throughout the course of their lives. This research focused not only on contents of positive change, but also on the processes that help to account how PTG surfaced from the interviewees' distress. Their life stories proved to be valuable sources to assess the process toward PTG.

The last question (concerning changes after the bomb) yields both positive and negative change (Park & Lechner, 2006). Based on hearing the anguished voices of the atomic bomb survivors, there seems to be no room for positive change; moreover, attempting to identify only the positive side of trauma may seem insensitive. Thus, an open ended question is more appropriate than asking directly about positive change, in order to avoid offending the participants.

The narrative data were tape-recorded and the contents were analyzed to reveal any processes of PTG. In other words, the aim of the analysis was to search for the leading factors of PTG

in the bomb survivors. Clues may be found in their narration. The evidence for PTG is likely to be found in the flow of the narrative. Therefore, the entire narrative text data of each participant was used without segmenting it.

Results

Case 1

Mr. Yoshida (fictitious name) (78), 14 years old when the attack occurred, was studying at school when the bomb was dropped. He recalls suddenly seeing a very bright light and hearing a thunderous sound. A strong blast of wind shattered windows in his class room. He was frightened, not knowing what could possibly have happened. Although he was situated no more than 3.3 km distance from the hypocenter, a hill behind the school provided some protection. However, he saw total devastation at the top of the hill. The entire city was burning, and many wounded people were staggering toward the hill. He rushed back to his home. His house was completely devastated, but he was relieved to find his family was safe in a dugout. However, his brother, sister and mother died one after another in a few days. It was his role to collect debris to cremate the families' bodies.

His pent up anger against the atomic bomb became a driving force motivating him as a peace maker. Today, Mr. Yoshida, is an active member of the association of atomic bomb survivors, and strives to take a strong stand to abolish nuclear weapons.

Until I experienced the atomic bomb, I was not a person who spoke up in public. Because I received such outrageous treatment, I had to face it instead of retiring into myself. The bomb was so cruel that it changed me from a humble person to a fighter. Although I might originally have had such a passion, the bomb made me express it to the public rather than being withdrawn.

Mr. Yoshida became a person who did not hesitate to assert his thoughts after experiencing the bomb. This change is reflected on one item of the questionnaire in "relating to others" in the PTGI, "I am more willing to express my emotions". He became "more assertive" (Elder & Clipp, 1989) by not just expressing his personal emotion, but caring for all of humanity. His aim is to make peace in the world by abolishing nuclear weapons. Overcoming shyness was crucial to accomplishing this mission.

Case 2

Mr. Kitajima (fictitious name) (70) was 5 years old. As he was swimming at the beach, he was exposed to a strong flash of light. He felt heat even 12 km away from the hypocenter. Then, he saw a huge mushroom cloud accumulating over a hill. Next day, he entered Nagasaki City to search for his relative. The scene of the city was horrific. Iron frameworks were twisted into bizarre shapes. Cattle, horses, and humans, all living creature lay dead everywhere, turned into ashes whose identity could not be recognized. Even today, the pictures of the aftermath make him ill. This horrific experience became a starting point in Mr. Kitajima's life.

I was 5 years old. I had the most critical experience in my life. This experience became a starting point to have a sense of justice, making peace, caring for the disabled, being nice to brothers, not beating and killing others. I felt a need for justice due to the experience and that sense became stronger as I grew from a boy to an adolescent.

Exposure to the atomic bomb became the beginning for Mr. Kitajima to express a sense of

justice that has been a core principle throughout his life. This principle guided him to help others enthusiastically, an attitude that is comparable to “*compassion for others*” in the PTG. His compassion became more apparent as he became an adolescent. The bomb changed him to a person oriented toward justice. Moreover, it changed him into a person who can appreciate the value of life.

I had not paid attention to life before the atomic bomb. But, I realized how precious life is since then. I concluded that my life was made by all these experiences. And, I became a teacher. I lost my friends and relatives. That experience guided my direction in the future.

Mr. Kitajima’s realization of the value of life is considered “*appreciation of life*” in the PTG. He had dedicated the remainder of his life to conveying a peace message to young children by becoming a teacher. He lost significant friends and relatives. This grief caused by the bomb opened up “*new possibilities*” in his future.

Case 3

Mr. Nakamura (fictitious name) (79) was 13 years old at the time of the bombing. He was working at a factory 2.5 km away from the hypocenter. Soon after the warning siren, he was enveloped by a strong flash of light, and dirt was agitated by the strong blast. He saw that fires had started everywhere in the city. There were numerous injured people groaning and begging him for water, which he gave them. Then he saw a classmate standing there, a person whose skin was dangling as if wearing a rag. The friend perished soon after. When he finally returned home, a crueler reality faced him. All that remained of his family were charred bodies. He poured water on his sister’s body because she was still smoldering.

Mr. Nakamura has had an immense anger against the United States since then. At one time he intended to kill a soldier of the U.S. occupation forces and then kill himself to avenge his mother. However, his uncle convinced him not to blame the U.S., but war. War was the worst vice, and was to blame.

Life after the war has been lived in severe poverty, much like other bomb survivors. He only had pumpkins and potatoes to satisfy his hunger. But he was eager to be independent. He did not want to depend on others. These harsh experiences gave him a resilient personality. His tough spirit can be considered “*personal strength*” in the PTG.

Before the bomb, I was a weak person. So I often wept. I was not easy to get along with. After the bomb, I became a strong person because I could not depend on others, but only myself. As long as I was depending on others, I could not do anything. I became a strong willed person because of the bomb. There was nothing to be afraid of.

Case 4

Mr. Furukawa (fictitious name) (80) was 15 years old, returning from the factory where he worked. Suddenly, he saw a strong flash of light, like lightening. In the next moment, his body was flung on the ground by the blast. A few people who were bleeding lay over him. He discovered that these wounded people protected him from pieces of broken glass. He was very concerned about his family, but could not get close to his house because the neighborhood where he lived was on a fire. A few days later, he was relieved to find his mother and grandmother at a dugout. However, the grandmother, vomiting yellow liquid and not receiving sufficient treatment, died soon after.

Several years later, when Mr. Furukawa reached marital age, finding a partner became a troublesome hardship just as it was for many atomic bomb survivors. They had often faced marital

discrimination because of the remaining nuclear radiation in their bodies. Fortunately, he met a partner who was also an atomic bomb survivor. However, even today, they are still both receiving a medical check every month. In later life, Mr. Furukawa had an opportunity to visit Rome to do a presentation about his experience. He stated a strong wish for making peace in the world.

I hate the atomic bomb. I hate it because I was actually exposed to radiation. But now, my intention does not focus on this hatred. I made myself change direction from hate for the bomb to making peace. I would like to see genuine peace in the world before the rest of the living atomic bomb victims pass away, because we do not have much time.

Mr. Furukawa also suffered deep agonies due to the atomic bomb. It was started by the bomb experience itself, then discrimination and health concerns in later life. These multiple sources of stress became understandable reasons to vent his anger. However, he realized that just venting anger was not a productive approach to abolishing nuclear weapons. Therefore, he attempted to change his focus from venting anger against the bomb to making an effort to create a world without war. That became a new focus for Mr. Furukawa throughout his life. This change is considered “*new possibilities*” in the PTG.

Discussion

These narrative results cannot generalize to other atomic bomb survivors due to the limited sample size of qualitative research. Furthermore, the research was conducted retrospectively 65 years after the bomb experience. Various events in later life may have affected their growth. Thus, it is questionable to conclude that the atomic bomb event by itself became the sole cause of the PTG in the participants. Despite these limitations, the interview results may imply interesting features of PTG in atomic bomb survivors.

Positive changes described by the participants seemed to be comparable to four domains of the PTG (Tedeschi & Calhoun., 1996). The traumatic atomic bomb experience prompted survivors to have a rigorous sense of justice that guided them to respect the human rights of others. Witnessing massive cruel deaths including their loved ones made them realize the value of life (*appreciation of life*). They were no longer able to hesitate, but asserted their message to the public to make peace in the world (*relating to others*) that became a new interest and new objective throughout their lives (*new possibilities*). Survival life in the aftermath of the experience made them gain an unbreakably tough mind and an unshakable confidence to face future crisis (*personal strength*).

A distinctive characteristic of the PTG in the participants appeared in their strong wish for making peace that in the aftermath became a core principle. Their priorities certainly changed. No longer interested in themselves, they became interested in humanity.

Behind their dedication, there has been an unhealed grief and an unforgiving anger that has motivated their peace action. Focusing on their goal, they have attempted to shift their thinking. Instead of venting anger against the United States, they make use of their suppressed anger as a moving force for their peace mission. Anger may be an essential path to mediate between the traumatic event and the PTG in the atomic bomb survivors. Park (2008) also found that anger was related strongly to PTG in 1004 U.S. adults after September 11. An intervening anger model of PTG may be hypothesized in the atomic bomb survivors (Figure 1).

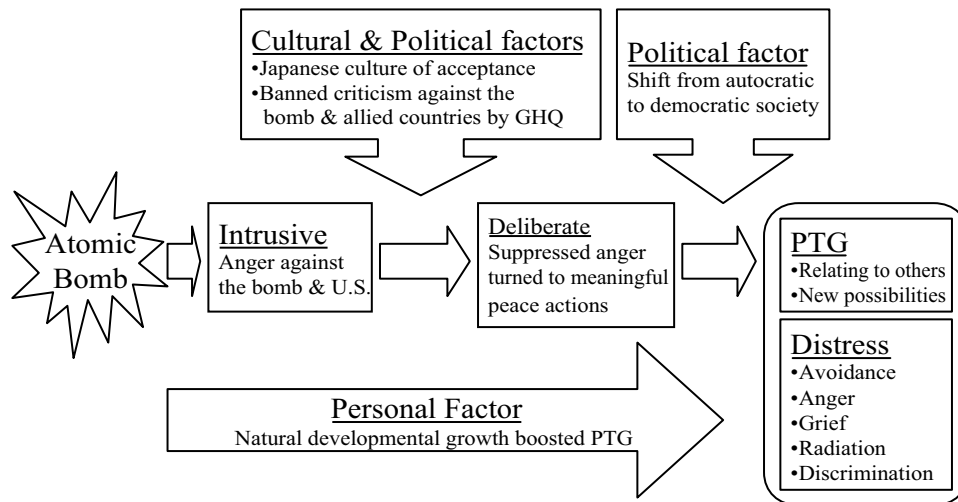


Figure 1. Hypothesis: PTG process via anger in the atomic bomb survivor

Cognitive processes suggested by Tedeschi and Calhoun (2006) may help to interpret this anger model. Initially, intrusive thoughts impel survivors to find a cause of the traumatic event. “*Why did it occur to me?*” The answer to this question is likely to blame the perpetrator and be accompanied by resentment. Provoked anger might lead to even more radical thoughts or actions of revenge against the perpetrator. If the anguished survivors reach the conclusion that provoked anger or revenge cannot solve the nature of the issue, then they begin to think deliberately, seeking more meaningful and productive action from a broader perspective. Perhaps anger will remain. The unreasonable treatment by the perpetrator will never be forgiven. Yet, survivors are willing to use their experiences for contributing to society (*new possibilities*) in the hope that no others will meet the same trauma. Therefore, the bomb survivors assert their voice for peace for humanity (*relating to others*).

There may have been two peripheral factors guided the participants to shift from an intrusive to a deliberate process. First, there is a cultural factor. Taku (2010) has discussed how culture plays an important role to shape the reaction to trauma. North American culture encourages survivors to conquer a crisis, whereas, Japanese culture encourages individuals to accept it. Stoic self discipline is emphasized. This Japanese culture of acceptance may have encouraged survivors to suppress their anger against the bomb and the perpetrator.

Second, there is a political factor. After Japan surrendered, General Headquarters, the Supreme Commander for the Allied Powers (GHQ/SCAP) had strict control over all the Japanese media. To criticize any allied country or the atomic bomb was banned under the formation of the Civil Censorship Detachment (Dower, 1999). All Japanese, including atomic bomb survivors, could not protest due to this prohibition. Instead, their suppressed anger was used for peace actions. This process might be interpreted from the point of view of the defense mechanism of sublimation, where socially unacceptable resentment is transformed into socially acceptable actions.

Despite the strict control by GHQ, Japan shifted steadily to a democratic society after WWII. Obedience to militarized doctrine was virtuous during wartime. Thus, freedom of expression was subject to various restrictions and severely oppressed. After the war, freedom of expression was constitutionally guaranteed (Matsui, 1991). Mr. Yoshida (Case 1) commented that “*macro social change in Japan allowed me to assert myself in public.*” As Bloom (1998) suggested, a political transformation can

inspire personal change, and it is possible that the PTG in the participants was initiated by the event, and that this PTG was fostered in the atmosphere of democratic society after the war.

Not only these cultural and political factors, but also an age factor may have helped to boost PTG. Younger age is one of the leading factors of PTG in war survivors (Pietrzak, et al., 2010; Powell et al., 2003). Participants witnessed the consequences of the bombing in their childhood. Mr. Kitajima (Case 3) commented that *“the bomb experience became a starting point for instilling in me a sense of justice, a notion which was more evident as I grew to adulthood.”* It was assumed that the bomb event became a trigger of change, and a natural developing process aided them to nurture growth.

While PTG was described by the participants after the atomic bombing, this does not mean that their life narratives became rosy stories. In fact, researchers have pointed out that PTG and psychological distress may coexist (e.g., Tedeschi & Calhoun, 2004; Lev-Wiesel & Amir, 2003; Taku et al., 2008, Solomon & Dekel, 2007). Two participants evidenced the avoidance-like symptom of posttraumatic stress disorder. Mr. Furukawa (Case 4) said that *“I am unwilling to visit my old school even today because it is a place where painful memory flashbacks occur in my mind.”* There were eight of his teachers and one hundred ten of classmates who perished at the school. Mr. Kitajima (Case 3) also said that *“I avoid seeing pictures of the aftermath because these make me feel sick.”* PTG may appear in the bomb survivors, yet distress seems to co-exist. Therefore, PTG narrative in the atomic bomb survivors should not be employed for glorifying their painful experience, and certainly should not lead to the conclusion that the atomic bombing was good (The posttraumatic research group in UNC Charlotte, 2003), an incorrect assumption that would disregard the torture of the survivors and the spirit of the deceased victims.

“War is Hell” (Diary of Taneo Chiba: Vice president of Chizei Gakuin School). The atomic bomb survivors realized the cruelty of war through their experiences. Whether experiencing PTG or not may not be important for them. Their vigilant eyes have not overlooked war activities anywhere in the world. Unhealed distress and unforgiving anger led them to become peacemakers.

References

- Asukai, N., Kato, H., Kawamura, N., Kim, Y., Yamamoto, K., Kishimoto, J., Miyake, Y., & Nishizono-Maher, A. (2002). Reliability and validity of the Japanese language version of the impact of event scale-revised (IES-R-J): Four Studies of Different Traumatic Events. *Journal of nervous and mental disease, 190*, 175-182.
- Benetato, B. B. (2011). Posttraumatic growth among operation enduring freedom and operation Iraqi freedom amputees. *Journal of nursing scholarship, 43*, 412-420.
- Bloom, S. L. (1998). By the crowd they have been broken, by the crowd they shall be healed: The social transformation of trauma. In R. G. Tedeschi., C. L. Park., & L. G. Calhoun (Eds.), *Posttraumatic growth: Positive changes in the aftermath of crisis* (pp.179-213). Mahwah, NJ: Erlbaum.
- Calhoun, L. G., & Tedeschi, R. G. (2006). The foundations of posttraumatic growth: An extended framework. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and Practice* (pp.3-23). Mahwah, NJ: Erlbaum.
- Calhoun L. G., Tedeschi, R. G., Cann, A., Canevello, A., Gil-Rivas, V., Kilmer, R. P., Lindstrom, C., Vishnevsky, T., Triplett, K., Hardy, A., Addington, E., & Taku, K. (2014, January 12). Posttraumatic group research group in University of North Carolina at Charlotte. <http://ptgi.uncc.edu/index.htm>.
- Dower, J. W. (1999). *Embracing defeat: Japan in the wake of World War II*. W.W. Norton, New York.

- Elder, G. H., & Clipp, E. C. (1989). Combat experience and emotional health: impairment and resilience in later life. *Journal of personality, 57*, 311-341.
- Feder, A., Southwick, S. M., Goetz, R. R., Wang, Y., Alonso, A., Smith, B. W., Buchholz, K. R., Waldeck, T., Ameli, R., Moore, J., & Hain, R. (2008). Posttraumatic growth in former Vietnam prisoners of war. *Psychiatry, 71*, 359-370.
- Forstmeier, S., Kuwert, P., Spitzer, C., Freyberger, H. J., & Maercker, A. (2009). Posttraumatic growth, social acknowledgment as survivors, and sense of coherence in former German child soldiers of World War II. *The American journal of geriatric psychiatry, 17*, 1030-1039.
- Fukuda, S. (1989). Nagasaki no shougen sousho 1: Genshiya ni ikiru: Fukuda Sumako zenshuu: Nagasaki no shougen no kai hen (written in Japanese). Seki bun sha.
- Hall, B. J., Hobfoll, S. E., Canetti, D., Johnson, R. J., Palmieri, P. A., & Galea, S. (2010). Exploring the association between posttraumatic growth and PTSD: A national study of Jews and Arabs following the 2006 Israeli-Hezbollah war. *The journal of nervous and mental disease, 198*, 180-186.
- Honda, S., Shibata, Y., Mine, M., Imamura, Y., Tagawa, M., Nakane, Y., & Tomonaga, M. (2002). Mental health conditions among atomic bomb survivors in Nagasaki. *Psychiatry and clinical neurosciences, 56*, 575-583.
- Hiroshima shi Nagasaki shi genbaku saigaishi henshuu iinkai hen. (1979). *Hiroshima Nagasaki no genbaku saigai* (written in Japanese). Tokyo Iwanami shoten.
- Janoff-Bulman, R. (1992). *Shattered Assumptions: Towards a New Psychology of Trauma*. NY: Free Press.
- Lev-Wiesel, R., & Amir, M. (2003). Posttraumatic growth among holocaust child survivors. *Journal of loss and trauma: International perspectives on stress & coping, 8*, 229-237.
- Lifton, R. J. (1970). The Hiroshima bomb. In *History and human survival: Essays on the young and old, survivors and the dead, peace and war, and on contemporary psychohistory* (pp. 114-155). NY: Random House.
- Maercker, A., & Herrle, J. (2003). Long-term effects of the Dresden bombing: Relationships to control beliefs, religious belief, and personal growth. *Journal of traumatic stress, 16*, 579-587.
- Matsui, S. (1991). Freedom of expression in Japan. *Osaka University Law Review, 38*, 13-42.
- Nakasaka, N., & Sadamaori, N. (2006). Post traumatic stress disorder on atomic-bomb survivors. *Nagasaki igakkai zasshi, 81*, 213-221.
- Okumura, N., & Hikita, H. (1949). Results of psycho-neurological study on atomic bomb survivors (Written in Japanese). *Kyushu neuro-psychiatry, 1*, 50-52.
- Park, C. L., & Lechner, S. C. (2006). Measurement issue in assessing growth following stressful life experiences. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and Practice* (pp.47-67). Mahwah, NJ: Erlbaum.
- Park, C. L., Aldwin, C. M., Fenster, J. R., & Snyder, L. B. (2008). Pathways to posttraumatic growth versus posttraumatic stress: Coping and emotional reactions following the September 11, 2001, terrorist attacks. *American journal of orthopsychiatry, 78*, 300-312.
- Pietrzak, R. H., Goldstein, M. B., Malley, J. C., Rivers, A. J., Johnson, D. C., Morgan, C. A. 3rd., & Southwick, S. M. (2010). Posttraumatic growth in veterans of operations enduring freedom and Iraqi freedom. *Journal of affective disorder, 126*, 230-235.
- Powell, S., Rosner, R., Butollo, W., Tedeschi, R. G., & Calhoun, L. G. (2003). Posttraumatic growth after war: A study with former refugees and displaced people in Sarajevo. *Journal of clinical psychology, 59*, 71-83.
- Rosner, R., & Powell, S. (2006). Posttraumatic growth after war. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research & Practice* (pp.197-213). Mahwah, NJ: Erlbaum.

- Solomon, Z., & Dekel, R. (2007). Posttraumatic stress disorder and posttraumatic growth among Israeli ex-pows. *Journal of traumatic stress, 20*, 303-312.
- Taku, K., Calhoun, L. G., Tedeschi, R. G., Gil-Rivas, V., Kilmer, R. P., & Cann, A. (2007). Examining posttraumatic growth among Japanese university students. *Anxiety, stress & coping: An international journal, 20*, 353-367.
- Taku, K., Calhoun, L. G., Cann, A., & Tedeschi, R. G. (2008). The role of rumination in the coexistence of distress and posttraumatic growth among bereaved Japanese university students. *Death studies, 32*, 428-444.
- Taku, K. (2010). Posttraumatic growth in Japan: A path toward a better understanding of culture-constant and culture-specific aspects. In T. Weiss, & R. Berger (Eds.), *Posttraumatic growth and culturally component practice: Lessons learned from around the globe* (pp.129-145). Hoboken, NJ, Wiley.
- Tedeschi, R. G., & Calhoun, L. G. (1995). *Trauma and transformation: Growing in the aftermath of suffering*. Thousand Oaks, CA: Sage.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of traumatic stress, 9*, 455-471.
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic Growth: Conceptual Foundation and Empirical Evidence. *Psychological inquiry, 15*, 1-18.
- Tedeschi, R. G., & Calhoun, L. G. (2006). Expert companions: Posttraumatic growth in clinical practice. In L. G. Calhoun & R. G. Tedeschi (Eds.), *Handbook of posttraumatic growth: Research and Practice* (pp.291-310). Mahwah, NJ: Erlbaum.
- Waysman, M., Schwarzwald, J., & Solomon, Z. (2001). Hardiness: An examination of its relationship with positive and negative long term changes following trauma. *Journal of traumatic stress, 14*, 531-548.
- Yamada, M., Kodama, K., & Wong, F. L. (1991). The long-term psychological sequel of atomic bomb survivors in Hiroshima and Nagasaki. In: Hubner KF, Fry SA (Eds.), *The medical basis for radiation accident preparedness* (pp.155-163). Elsevier, New York.

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